

## Research Article

# Muhammadiyah Environmental Ethics to Realize Green Campus: Case Study at The University of Muhammadiyah Malang

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**ORCID**Susilo: <https://orcid.org/0000-0002-3540-2670>**Abstract.**

This research explains the campus' efforts to realize a green campus in response to the crucial issues of the environmental crisis that has been rife recently, both related to the water resource crisis, disasters, and the transition to clean energy. For this reason, all parties are encouraged to take steps to explore all ecological resources, including environmental ethics based on Islamic values and the campus world. The methodology used is a qualitative approach with a case study approach. Data collection techniques are collected through interviews, observations, and document studies. Sampling is carried out by purposive sampling to the implementers of water resource conservation activities at UMM, both centers for environmental and population studies, renewable energy infrastructure, and implementers of the Islamic and Muhammadiyah community program. The research findings state that water resource conservation activities have been carried out by UMM. Conservation includes the utilization and maintenance of water resources. This condition benefits from the UMM landscape, where rivers, water sources, and ponds exist. Ecological practices, these practices give birth to principles of environmental ethics such as conservation, creativity, beauty, sustainability, and benefit. But the formulation of this ethic still requires more inclusive follow-up measures.

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## 1. Introduction

Environmental issues are crucial issues for civil society, including the involvement of universities in carrying out innovations and green campaigns that are acceptable to the general public and the campus community. Environmental sustainability became a guideline for the convention of countries at the Conference on Sustainable Development in Rio Janeiro, Brazil in 2012 by setting targets that can be applied universally and can be measured in balancing the three dimensions of sustainable development involving environmental, social, and economic aspects (10).

In August 2015, 193 countries agreed on 17 sustainable development goals with the following environmental thematic; quality and inclusive education, clean water and

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sanitation feasibility (8). An affordable energy, sustainable cities and communities, land and sea ecosystems, then partnerships for the goals.

The phenomenon of environmental crises and uncontrollable disasters is of concern to all citizens of the world. From the problem of water, soil, forest damage, climate change, and clean energy transition (4). Meanwhile, disasters occur evenly in the hemisphere, landslides, floods, and pandemics are problems that have not been resolved until this study was made.

In response to this phenomenon, preventive efforts and handling environmental damage are always voiced and carried out. Therefore, all parties are expected to actively participate. This ecological issue expects the involvement of both formal and informal institutions, not only physical involvement but environmental thinking and ethics. Even if all parties have participated, not always environmental issues will be resolved, because the construction of environmental ethics systemically involves not only individuals but also economic-political systems (14).

One of the expected institutions is an educational institution ranging from basic education to higher education. Not only formal education, but also informal and non-formal. This institution contributes to the transfer of values and knowledge that will change people's behavior to care and commitment to protecting the environment, even though these values are inherent and socialization practices and the urgency of the institutional process (17)

The Indonesian government already has a policy that provides educational institution qualifications, even for performance improvement, an index is carried out that measures the involvement of campus leadership. The two environmental care programs are the Adiwiyata program for schools and the Green Campus Program. Inevitably, rankings are becoming a trend in today's society. The UMM academic community follows the UI Greenmetrics ecological ranking, although it has not produced a satisfactory assessment. UMM's efforts institutionally seek to increase achievements and concern for the environment.

This paper will answer the research question, namely how Muhammadiyah's environmental ethics are applied by the UMM campus conservation policies and programs. The research questions above are broken down into two specific questions as follows, how are conservation practices in the UMM campus environment? How is environmental ethics elaborated from UMM programs and policies? What is the issue with the formulation of environmental ethics?

The purpose of this study is to describe the environmental conservation practices practiced by UMM in water resource management and formulate environmental ethics

from these ecological practices. The benefits of research are 1). Provide input for the campus regarding the elaboration of Islamic values in conservation practices. 2). Make academic manuscripts on environmental ethics and green campuses for both academicians and civil society. 3). Provide conservation policy inputs for both campuses and local governments and civil society.

Therefore, the systematics of this writing starts from the explanation of research methods which is continued by discussions about conservation practices carried out by UMM and then, elaborating and formulating the principles of environmental ethics developed by the University of Muhammadiyah Malang.

## 2. Method

The research methods used are of qualitative type through a case study approach. Description research is used to provide a macro-overview of environmental management while case studies are used to explain why and how phenomena occur. Subjects were selected using sampling techniques aimed at the academic community involved in conservation programs and connected to environmental changes.

Participation dialogue through unstructured interviews with managers as the main informants and key informants will provide an adaptive form of cooperation for local development purposes. Center for Environmental and Institutional Studies (PSLK-UMM) & Center for Renewable Energy Studies (P3EBT-UMM).

TABLE 1: Audio data of the identity of the key informant and the main informant

No	List	Informant-Type	Community-Program	Times	Files	Sizes
1	Effendi	Key informant	P3EBT	14/May/2019. 15 : 11	AMR	5.73 MB
2	Yeppy	Main informant	PSLK-UMM	16/May/2019. 19:51.	M4a	15.32 MB
3	Karsono	Main informant	PSLK-UMM	16/May/2019. 19:51.	M4a	15.26 MB
4	Fathoni	Main informant	Muhammadiyah Islamic studies program	28/May/2019. 19:51.	MP3	27.46 MB
5	Pradana Boy	Main informant	Vice rector hinger education	28/May/2019. 19:51.	MP3	15.18 MB
6	Syaiful Amien	Secondary informant	Muhammadiyah Islamic studies program	29/May/2019. 19:51.	MP3	15.11 MB

The case study approach allows in-depth, multi-faceted explorations of complex issues in their real-life settings. The value of the case study approach is well recognised in the fields of natural environment and society (18). The several steps for doing case study by plan, design, prepare, collect, share, and analyze was linear but iterative process (18).

### 3. Results and Discussion

#### 3.1. The concept of conservation from academic community

The academic community, both teaching staff, students and employees within the scope of higher education, is one of the government's strategic partners which is obliged to support the use of New and Renewable Energy through P3EBT (Center for the Study and Application of New and Renewable Energy) of the University of Muhammadiyah Malang. This institution has two programs, namely realizing the green campus program with an achievement of 60%, while the second program of P3EBT is the development of New and Renewable Energy outside UMM with the aim of reducing global warming in accordance with the Muhammadiyah foundation for the Nation.

The first creativity program is to realize a green campus by utilizing natural resources in the campus environment. This step is carried out by utilizing the Brantas River flow which stretches within the University of Muhammadiyah Malang complex as a PLTMH unit or Micro Hydro Power Plant. Currently, UMM already has two PLTMHs. The first is pltmh which is located at the end of the livestock laboratory by producing 100,000 watts of power to meet the needs of the Rusunawa (Student Dormitory), while the second PLTMH is built in front of the Brantas river opposite the livestock Laboratory which produces 80 watts of power to meet the needs of the agricultural laboratory. A special feature that is aimed at when PLTMH operations are in conditions of shrinking river water discharge.

Effendi, the manager of P3EBT, stated that if the river is left unused, it will be unkempt and actually violate conservation rules, it is necessary to make a conservation strategy. Downstream rivers that cross the campus complex can be used by natural curatories, especially plants, biotics, and environmental education spaces for the academic community.

Conservation practices based on the concept of sustainability, namely the installation of sensor faucets in each ablution place of the Campus Mosque, this condition causes water to be used as necessary. The thrifty practice in question is the use of natural

resources as necessary or not wasteful. The practice at UMM is very simple, namely water for MCK and watering plants found in UMM gardens.

Within the scope of worship, water is used for the purpose of water-saving ablution (*wudhu*) by installing a sensor faucet installed in the bathroom of the UMM Mosque. Until now, UMM has not decided on business but prioritizes the social dimension. Then, maintaining the sustainability of the pond is done by keeping the water biota at UMM from being damaged. UMM strongly maintains and restricts, if there are surrounding communities and residents who fish on campus. The cleanliness of the pond in the middle of the area is always maintained, especially fish. Karsono stated that the condition of the fish is also considered, whether the water quality is really healthy for conservation. This step is done so that the ecosystem is not damaged. Water quality checks are always carried out, before the remaining water used is flowed into the river. The quality of polluted water will interfere with the biota in the water.

Karsono, the manager of PSLK, stated that the environment at UMM is an educational arena where students make it a research that provides knowledge capital for campus-communities. Far from meeting internal needs, UMM also pays attention to programs that have an impact on the wider community or what is termed the benefit of the people or providing social protection for local residents. A cooperation model between UMM and the Corporate Social Responsibility (CSR) Division of BUMN. Financing is funded by SOEs with implementing personnel, namely by the UMM institutional process.

### 3.1.1. Principles of Environmental Ethics

Studies on ethics have developed in Muhammadiyah such as the production of Environmental Fikh, Water Fikh and Disaster Fikh (Islamic jurisprudences in any topics of sustainability environment). Environmental ethics explains the values of reference or guidance in behaving as part of moderation and treatises of philosophical Islamic morals. The basis of the argument about environmental ethics is the balance of human status and the role of man as God's representative on earth (*khalifaturrabb*). That balance as individuals, members of society and relations with other beings as a consequence on the Islamic agency *rahmatal lil alamin* (Interview Boy, December 6, 2021).

Meanwhile, the role of man as God's representative on earth plays a role in prospering, maintaining, caring for and maintaining nature /environment as a high-value work. The concept of *khalifatullah fil ardl* was replaced by the *rabbi caliph* which means the magician of the earth (Interview of Syaiful Amien, December 5, 2021). This is where humans become environmental conservationists. From the ecological behavior

that has been institutionalized at UMM, five principles of environmental ethics are institutionalized, namely conservation, creativity, thrift, sustainability and benefit. For this, the author discusses it one by one.

### 3.2. Conservation

Conservation declared by the subject, Karsono, is to protect, preserve and utilize natural resources in a sustainable manner. Conservation practices are shown from UMM's involvement in the river cleanup community movement, preserving such as making soil-cement as wall (*plengsengan*) on the riverbanks and utilizing resources in a sustainable manner such as Micro-hydro Power Electric as local infrastructure called PLTMH. Effendi stated that one form of environmental conservation is the maintenance and maintenance of the river so that the river is beautifully viewed. According to him, if the river is left unmanaged or utilized, it will be unkempt and violate the rules of conservation, thus making a *plengsengan* on the lip of the river the way of conservation. Karsono does not limit conservation to plants and animals, but also humans or biotics such as pond maintenance to be taken advantage by UMM as an educational service actor.

### 3.3. Creativity

Creativity is shown from the efforts of the academic community to always increase the use value of the environment and natural resources. This means that most environments in UMM are not left as they are, but developed as other products with increased ecological, economic and social values. Certain natural resources, such as bamboo trees that grow in the western part of the campus are left around the Brantas River.

In addition, ecological creativity is carried out by maintaining the expediency of water use without damaging the ecosystem, for example: the creation of beds on the river border is a way of protecting the river from scouring of running water. Creativity also gives birth to economic value by adding to the branding of UMM as a campus that maintains ecological balance. This is where this creativity brings economic benefits to UMM both in the short and long term.

Social value is water management which provides benefits in the form of welfare for the campus academic community and the community who are UMM partners. In this context, UMM is not a profit-oriented business person, but a social institution that builds good relations with other stakeholders. It cannot be separated between one value and another considering that all three of them support each other.

The steps that have never been completed are mapping and extracting the ecological potential of water resources on campus. Creativity was shown from the beginning of the pioneering development of NRE at UMM through the Micro Hydro Power Plant (PLTMH) in 2000, then in 2001 with a combination (joint-project campus community) of six students to fulfill the pilot project as the final project, three programs appeared offered by the participation of a student group consisting of two people as representatives. The program is in the form of a development feasibility study (PLTMH), Sengkaling irrigation network, planning of PLTMH Sengkaling Kiri (Ministry of Energy and Mineral Resources, Balitbang ESDM in 2007). The planning program of PLTMH Sengkaling Kanan (is PLTMH 2, which was built by Campus Tiga). Regarding maintenance itself, it is divided into two, namely routine maintenance such as a program to clean up from leaf waste and maintenance periodically every 5 years.

The creativity model at PLTMH UMM was purely an initiative of Effendi which eventually received attention and support from university leaders. Even though this program was initiated in 2001 it was recognized as an institutional program in 2002. This kind of creativity is more flexible, but also still leaves a negative side in the form of dependence of certain individuals, as a result of which conservation is not massively programmed, as a result of which developments, outputs and outcomes to go to a green campus are increasingly difficult to predict.

### 3.4. Aesthetic

The UMM conservation model is conservation by paying attention to beauty. The underlying environmental ethics is that natural resources should not be left alone, but used for the benefit of the UMM academic community and the wider community. Ecological concentration is accompanied by the development of UMM as a higher education business institution, so aesthetics is an important consideration. Utilization of water resources is equipped with attractive packaging. The form, a building with high art architecture or uniqueness that is rarely found in other areas.

The real condition is that the previous campus 3 area was not much in demand by the residents of Malang because of the barren place, but thanks to the creativity of the planners, all spaces (spaces) were used by prioritizing the value of beauty.

It can be said that in every spatial arrangement related to natural resources and the environment, beauty becomes a measure that should not be abandoned. Regarding the garden, the selection of flowers is not perfunctory, but flowers that have an element of harmony for the layout of the room. For example, orchid flowers in front of the BAU

building, soka flowers in the garden near the UMM Dome. In addition, it is related to beauty that is cleanliness. The cleanliness of the campus shows the implementation of Islamic values as an authoritative and normative guiding.

### 3.5. Sustainability

The future of the environment and natural resources is thought out for the future of both the ecological future and the future of the UMM academic community. The most obvious thing is to ensure that the UMM campus does not lack water.

In addition, the certainty that there is no waste of water, a sensor faucet is installed in every ablution place of the AR Fakhruddin Mosque, UMM, so that the water used is as necessary or not wasteful. Fathoni, the academic community of UMM stated that thrifty is a moral so as not to be willing to do redundant acts (wasteful waste) in the use of energy materials (Interview, December 7, 2021).

In matters of worship, water is used for ablution clubs. Until now, UMM does not commercialize water resources for business purposes, the social dimension is put forward. Then, maintaining the sustainability of the pond is done by ensuring that the water biota at UMM is not damaged. UMM prohibits local residents from taking fish in the pond of the UMM campus. In addition, Karsono stated that the condition of the fish is also considered by ensuring that the water quality is completely healthy. Water pollution will interfere with the biota in the water. For this reason, so that the ecosystem is not damaged, the cleanliness of the pond is always maintained. Before the remaining water is discharged into the river, it must be treated.

Inevitably, ranking is a trend of society today, so UMM is involved in the ecological ranking of UI Greenmetrics, although it has not produced a satisfactory assessment, UMM always improves achievements on and is committed to always improving the order. The increasingly top order shows commitment and concern for the environment.

### 3.6. Public Purposes (Kemaslahatan)

Environmental theology states that the highest goal of protecting nature and ecosystems is universal benefit and well-being (*istishlah*) (for all beings) both in present life (in the world) and life in the future (in the hereafter).

The most obvious picture of this practice is the concept of *atsari* prostration (traces of prostration that signify being a person of faith). Syaiful Amien, a lecturer at Islamic Studies UMM Program, explained that *atsar* is not explained in a personal physical



context, but buildings that are places for knowledge transfer. The buildings became a manifestation of real piety for students or people.

The underlying environmental ethics is taken from the principles of jurisprudence called *maqosid syar'iyah*. which are five things that must be protected, namely: the benefit of nafs, the benefit of reason or mind, the benefit of offspring, the benefit of life and the benefit of wealth (property) (Interview, December 5, 2021). The benefit of *al-mutaghoyirot* is a community agreement that is always changing according to the needs of worship and social relations of the Islamic community (Fathoni Interview).

The public purposes in question is to provide benefits both for the internal interests of UMM and external interests. Internal interests related to the environment are not economical, but rather branding as an environmentally friendly institution.



Figure 1

Map:

Suwignyo, Aries,S. Arrozy, A. UMM Kampus III. Universitas Muhammadiyah: GPS Garmin-Google Earth; 2021.

More than business institutions, Karsono stated that the environment at UMM is an educational arena that makes students a research event that provides knowledge, experience and important provisions. Far from meeting internal needs, UMM also pays attention to programs that have an impact on the wider community or which are termed as the benefit of the people or provide benefits to the surrounding community. To make it easier not to finance the community, financing is not all funded by UMM through the SOE Corporate Social Responsibility (CSR) Cooperation. Financing is borne by BUMN with implementing staff, both students and lecturers.

The use of water for micro hydro or PLTMH not only provides benefits for UMM residents, but has an impact on the surrounding community (16). Uniquely, these communities are not communities around UMM, such as: PTMH Sumber Maron is located in Karang Suko Village, Pagelaran which is 32.2 km from UMM, as well as PLTMH built in Bon Pring, Turen is approximately 32.8 km very far from UMM. The benefit of the people is built through the belief in the "barokah" of the average ecological actor. Karsono stated that the most important thing is to work and work, because with this pious charity, UMM will be more advanced. Benefits have an impact on the profits obtained by UMM. Even Karsono called it the transedental dimension "There are things that are invisible, hands are invisible", he stated.

This ethic is not the same as ecocentrism which views the environment should not be utilized. Human and environmental interests are priorities that are not separated from the principle of natural resources being utilized, but still maintaining their sustainability and sustainability (6). Environmental ethics as described above is not without weaknesses and criticisms, some of the problems that need to be resolved are as follows, Natural resources / environmental management. Ecological rules state that water that has been taken from the source should not be discharged into the river. However, it must be utilized for human purposes through direct use or accommodated in certain places (3). What happened was that there was still water wasted. This situation is not without being known by the institution, UMM is still improving continuously. Moreover, the use of water is an indicator of the achievement of green matrices, so UMM continues to look for water saving strategies, the future plan is to make drinking water faucets.

### 3.7. Discourse on the Formulation of Environmental Ethics

The debate over buildings on the riverbank is still a lingering issue of this formulation of environmental ethics. The problem of buildings is not fully ecological, considering that the Regulation of the Minister of Public Works and Public Housing of the Republic of Indonesia Number 28 / PRT/ M / 2015 concerning the Determination of the River Boundary Line and the Lake Boundary Line states that the building has a distance of at least 15 (fifteen) meters from the left and right banks of the river trough along the river channel, in terms of river depth of more than 3 (three) meters to 20 (twenty) meters. The distance between the river border and the average buildings in UMM exceeds 15 meters.

The same situation is the manufacture of plengsengan on the river border. There is still an outsider's view that the platform called "plengsengan" hard buildings, eroding

parts/rivers moving left and right. However, policy makers have other considerations, if they are not used, their conditions are not even taken care of. Likewise, UMM compensates for other conservation activities, thus there are "environmental services". Nevertheless, erecting buildings and making *plengsengan* is not without reason, this effort is still on the corridors of beauty. With the arrangement of the river both borders and buildings, the environment looks beautiful and clean. Structuring and fabrication are the main motivations.

In addition, environmental management must be seen as comprehensive, river borders should not be seen alone or separately, but related to the maintenance of the entire ecosystem, compensation mechanisms have been implemented by the UMM. That is, it is not only concentrated in this part but other environments such as plants, water and forests. The practice of contributing is an effort by Muhammadiyah actors to get used to being pioneers of contributing work that should facilitate this achievement. The basic principles above have actually been practiced a lot of real practices. For the case at UMM, Pradana Boy stated that the discourse on the formulation of environmental ethics "does not exist, but does not and is still not optimal" (Interview, December 5, 2021).

#### 4. Conclusion

UMM implements conservation programs, especially those related to water resources, considering that the UMM campus 3 area is rich in water resources, both water sources, ponds and rivers. From there, conservation programs emerged that gave birth to environmental ethics at UMM based on the values of Islam and Muhammadiyah. The principles of environmental ethics that develop from the UMM campus are conservation, creativity, beauty, sustainability and public purposes (*kemaslahatan*).

The implication of this research is to find the principles of environmental ethics developed by UMM that can be developed at other Muhammadiyah campuses. With the formulation of environmental ethics academically, it will strengthen the environmental ethics guidelines produced by PP Muhammadiyah Board to become a guide for the lives of Muhammadiyah residents.

The limitation of research is that it is still limited to developing environmental ethics on the Muhammadiyah campus, it needs to be developed in other Muhammadiyah business units and other Islamic-based campuses, such as campuses under the Ministry of Religion of the Republic of Indonesia. Environmental ethics recommendations need to be externalized in the form of norms of the Islamic community in Indonesia. The next

research needs to be elaborated on this environmental ethic with specific issues such as climate change and global warming as the next research.

## Conflict of Interest

The authors declare that they have no known competing financial interest or personal relationship that could have appeared to influence this paperwork.

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