Managing ecotourism in Genilangit based on a stimulus of religious ecology in order to adapt to climate change

E Lestari\textsuperscript{1}, Sugihardjo\textsuperscript{2} and A Wibowo\textsuperscript{2}

\textsuperscript{1}Magister Program in Development Extension, Graduate School, Universitas Sebelas Maret, Jl. Ir. Sutami 36 A, Kentingan, Surakarta, 57126, Indonesia
\textsuperscript{2}Department of Agriculture Extension, Universitas Sebelas Maret, Jl. Ir. Sutami 36 A, Kentingan, Surakarta, 57126, Indonesia

Corresponding author: agungwibowo@staff.uns.ac.id

Abstract. Climate change has created a sense of global kinship and increased levels of religiosity. Environmental management is essentially based on two factors, namely reducing environmental risk and increasing environmental benefit. This article describes the sustainability of ecotourism developments, the development of ecotourism in Genilangit based on participation, the management of ecotourism in Genilangit based on a stimulus of religious ecology, and the strategies of the mountainside community for adapting to climate change. The research uses a qualitative method with a case study, which aims to gain a deep understanding of the attitudes and behaviour of the community with regard to religious ecology in developing ecotourism. The results of the research show that ecotourism in Genilangit is “Green and Fair” in its concern for sustainable development and conservation, in aspects of economic sustainability, social sustainability, and environmental sustainability. Ecotourism in Genilangit is community based, and the principle of religious ecology is always implemented as the basis for managing ecotourism which is adaptive to climate change. The success of the Genilangit community in adapting to climate change is due to their social and cultural adaptations which are implemented within a framework of religious ecology.

1. Introduction
Man comes from the earth and lives on and off the earth. The connection between man and earth is very close. Man’s survival depends in part on the earth, and vice versa; the earth needs man’s protection for its existence as earth with a function. The Almighty God said: “And do they not pay attention to the earth, how many of us grow on the earth various kinds of good plants? Truly in that there is a sign of Allah’s power. And most of them have no faith.” (QS. 26: 7-8).

The Quran, as a source for human morality, explains clearly the position of man and ecology. The Almighty God appointed man as his representative on earth (khalifatulahfilardi) (Q.S. Albaqarah: 30), with the duty of prospering and cultivating (Q.S. Hud: 61), and at the same time conserving and preserving equilibrium in the living environment” (Q.S. Arrahman: 6-9). In order for this noble role of the caliphate to function optimally, and achieve a high qualitative dimension, man should without question and at the same time with utmost sincerity involve the dimension of self-willingness to establish worship. This includes adopting an attitude and behaviour which treats the environment with full responsibility, because in the divine view, nature has the same rights as man (Q.S. Al-Hijr: 86).
Zuhud [1] details three approaches for building attitudes of pre-conservation towards nature and the environment: (1) building a tri-stimulus attitude of Nature, Use, and Religion (NUR) for pre-conservation; (2) developing traditional knowledge to become modern knowledge that is adaptive to change; and (3) activating religious values as a stimulus. These three approaches are used as a tool for analysis in the current research on the development of community-based ecotourism in adapting to climate change in the Lawu mountainside community.

Climate change has created a sense of global kinship and increased levels of religiosity. This is evident in every action that is designed to protect and guard living creatures, and in the deepening of religious ecology through the essential relationship between man and the environment. Natural and environmental resources should not be exploited according to man’s free will but instead should be regarded as having the potential to be developed further. Man has an obligation to manage the environment, and environmental management is essentially based on two fundamental factors, namely reducing environmental risk and increasing environmental benefit. As such, man has a responsibility to adapt to climate change by protecting and cultivating his surrounding environment in a sustainable manner in order to preserve the carrying capacity of the environment, which in turn will lead to sustainable development. Kleden [2] defines sustainable development as development which refers optimally to natural resources and human resources on one hand while on the other hand preserves an optimal balance between the various demands on these resources. There are two things at stake here, namely the carrying capacity of these resources and trans-generational solidarity, which refers to how we are able to look after and not damaging the existing natural resources. Meanwhile, Salim [3] views sustainable development as a development process which optimizes the benefit of natural resources and human resources by establishing a state of harmony between the natural resources and man in the development process.

Gardiner and Gardiner [4] describe sustainable development as the balance between all the factors of production which enable a sustainable increase in human well-being for all social and economic groups by minimizing negative effects on the physical and social environment. As such, the main pillar of sustainable development includes three dimensions, namely the ecological dimension, the social dimension, and the economic dimension. The Rio+20 meeting focused on two debates about sustainable development, concerning: (1) green economy and (2) the attempt to formulate an institutional framework for sustainable development. The main debate discussed how the transition to a green economy can really take place. Developed countries are directing their economic policies towards a road map which will lead to a transition to a green economy but developing countries worry that this may hamper their own economic developments [5].

Poerbo [6] and Bogdan and Biklen [15] stresses that the connection between ecology and economic growth is the basis for the implementation of sustainable development. In his opinion, economic development can be conceived as the result of a social system’s ability to implement utilization management and resource management to support both existence and subsistence in equal terms. Utilization management of resources is an activity which concerns the interests of all those involved in the development process, and as such it includes the management of their behaviour: how people utilize their resources for purposes that are normative in nature. Meanwhile, the management of resources refers to the way in which the resources are handled to support these interests. The evaluation of the carrying capacity of nature is not only focused on man alone but also includes its ability to support the life of other creatures, or flora and fauna. This means that although the environment changes, it is essential to maintain conditions that are able to continuously support sustainable growth and development[7].

The book entitled ‘The Theory of Culture Change’ [8] examines Steward’s multi-linear evolution theory which contrasts with Leslie White’s uni-linear evolution theory. Steward’s main contribution is to explain how environmental factors have a positive and creative potential for cultural processes, as well as focusing his attention on the special features of interaction between a limited number of cultural and environmental factors. This book can be used as a reference for further investigation on religious ecology in a community’s adaptation to climate change.
2. Research methods

This research follows the constructivist paradigm which involves a more detailed study about the development of the creative economy with the goal of compiling a model for the empowerment of poor mountainside communities based on local wisdom and local potential. The research was carried out on the southern slope of Mount Lawu, in the village of Genilangit in the Poncol District of Magetan Regency. This area was chosen with the following considerations: (1) the area borders directly on the state-owned forest on the mountainside which is proven to have successfully adapted to climate change; (2) it stores a lot of local wisdom and local culture; and (3) the researcher has already carried out a number of other studies on the mountainside community of Mount Lawu which can be used as a starting point for exploring the religious ecology of this community, specifically in its adaptation to climate change.

This research employs a qualitative method, which according to Daymon and Holloway [9] tends to be connected holistically with the subjective nature of a social reality. As such, this method has the ability to explore the religious ecology of the community in adapting to climate change. This research is a case study, which according to Yin [10] is an empirical inquiry that investigates a phenomenon in a real life context utilizing multisource evidence. The main data source for this research is words and actions, with addition of other sources such as documents [11,12], obtained through in-depth interviews, focus group discussions, content analysis, and non-participant observation [13]. The unit of analysis in this research is a single area, and the focus is the development of ecotourism. Thus, the technique of analysis used is a single case analysis. According to Miles and Huberman [14], in every case study the process for analyzing uses an interactive analysis model. In this model, the three components of the analysis are: data reduction, data presentation, and verification.

3. Results and discussion

The Village of Genilangit is situated on the southern slope of Mount Lawu which offers a picturesque beauty and attractive panorama. The community of Genilangit village, especially members of the KarangTaruna youth organization, regard this natural beauty as a resource which has the potential to be developed as a tourist park and also offers the possibility to be developed to become a form of local wisdom. Genilangit village is one of eight villages in the Poncol District of Magetan Regency. It covers an area of 272 hectares made up of plantations, moors, buildings or yards, public facilities, rivers, and roads. It comprises three hamlets with 20 neighbourhood association groups. There are 1639 inhabitants and 460 household in Genilangit village, all of whom are Muslims, and for this reason, Genilangit is a village with a strong Islamic nuance, marked by its large number of Islamic prayer houses and mosques.

3.1. Sustainability of ecotourism developments in Genilangit

Since 1970s, conservation organizations have begun to view ecotourism as an alternative conservation based economy since it does not cause damage to the environment, nor is it “extractive” or detrimental to the environment, such as in the case of logging and mining. Ecotourism is also regarded as a kind of enterprise that is economically and environmentally sustainable for communities living in and around conservation areas. However, in order for ecotourism to become sustainable, conducive conditions need to be created which allow the local authority to make decisions about the management of this endeavour, to regulate the flow and number of tourists, and to develop ecotourism in accordance with the vision and expectations of the community for the future [15]. In Genilangit, the ecotourism that has been developed in the conservation area is ecotourism which is “Green and Fair”, with the interests of sustainable development and conservation at the forefront, namely in the form of a business activity which aims to provide an alternative sustainable economy for the Genilangit community, to share the benefits of the conservation efforts properly, and to contribute to conservation by increasing the concern and support for the sustainability of protected landscapes, in aspects of economic sustainability, social sustainability, and environmental sustainability.
3.1.1. Economic sustainability. Ecotourism in Genilangit the present time has already entered the stage of developing home stays and souvenir shops, and also expanding parking facilities. Nevertheless, if viewed in terms of the original plans, this park has already exceeded its initial expectations. Originally, the forest that was managed by the Indonesian state forest enterprise, PERHUTANI, as a seedbed, was a wild forest. The original plan for this park was only for the Karang Taruna youth organization to restart and develop a number of useful routine activities, but today it is true to say that it accommodates a sufficiently large work force, meaning that members of the local community no longer have to seek work in other areas, thus benefitting the surrounding community. This economic sustainability is evident in the following: Firstly, it has created new jobs. The development of ecotourism in Genilangit has provided employment for members of the Genilangit community so that they no longer need to leave their village to look for job in other areas. It has also improved the welfare of the local community. This is formulated in the form of a regulation which states that employees of Genilangit Tourist Park must be members of the Genilangit community. Secondly, it is helping underprivileged citizens. A total of 5% of the revenue resulting from the developments in Genilangit ecotourism is allocated to members of the community in need. By assisting those in need, it is hoped that the developments will have a positive impact on the environment. Follow-up plans which reflect an economic sustainability include plans to expand the concept of tourism to include agrotourism. This is based on the fact that the majority of the mountain community work as farmers, and agro-tourism would be an alternative way of developing the tourist site while at the same time providing additional income for the farming community. The segment targeted is tourists from urban areas who are usually interested in planting or picking vegetables directly from the field. A number of farmers have already begun to put this into practice and it is hoped they will soon be followed by others.

3.1.2. Social and cultural sustainability. A wide variety of local wisdom exists in the village of Genilangit and this can be used as an attraction for social sustainability. Prominent activities include: First, Genilangit village holds a regular carnival with a parade of 1000 tumpeng (rice cones), which is designed to encourage a sense of togetherness in the effort to establish Genilangit as a tourist village. This activity also serves as a form of thanksgiving for all the blessings the village has received and as a way of preserving the good relations amongst members of the village. Second, the well-known martial art pencaksilat has the potential to become an attractive art performance that would draw tourists to the village of Genilangit. Many young people in the village are active participants in the art of pencaksilat. Third, there is the potential to develop the art of Reog in this village because many people still have the skills and expertise needed to perform this art. At the present time, the art of karawitan is already being developed in the village of Genilangit alongside the developments in ecotourism. The strong religious sentiment in the village means that the traditional norms and customs that have grown and developed in Genilangit are accompanied by the religious teachings upheld by the community.

3.1.3. Environmental sustainability. In addition to offering a natural beauty, the village of Genilangit on the mountainside of Mount Lawu is a place where the community is closely integrated with its natural surroundings. Members of the community believe that they must take a good care of their environment, as a way of expressing thanks for the harmony that exists between the people and their environment, allowing them to live side by side in peace, especially bearing in mind the natural forces that exist in the environment where they live. This means that the religiosity of an area has an impact on its cultural sustainability. The religious nature of a tourist village cannot be separated from the conservation of its environment which should be preserved and not exploited. The people in Genilangit village themselves are aware that it is extremely important to take care of the environment. This is reflected in the developments that have taken place in the ecotourism in Genilangit, which include: (1) providing rubbish bins in all corners of the tourist park, (2) prohibiting damage to plants in and around the tourist park, and (3) implementing the concept in which every plant that is cut down
must be replaced with another 100 plants, in view of the conditions of the tourist park which is located within a pine forest.

3.2. Development of ecotourism in Genilangit based on participation

The village of Genilangit is situated on the southern slope of Mount Lawu which offers a picturesque beauty and attractive panorama. The Genilangit village community, especially the Karang Taruna youth organization, view this natural beauty as a resource which has the potential to be developed as a form of ecotourism that will benefit the community. However, this existing potential is not sufficient in itself, and the development of ecotourism essentially requires the resources and uniqueness of the local community. This is underlined by [16], who explains that the development of activities related to tourism is a “community-based action”, or in other words the resources and uniqueness of the local community, including both the physical and non-physical components (values, norms, customs, and traditions) associated with the community is the main driving element for cultural and traditional activities in the community itself. Community-based ecotourism is a pattern of development for ecotourism which supports and enables the full involvement of the local community, from planning to implementation, and management of the ecotourism enterprise and all the profits gained.

In Genilangit, the community has been involved in the development of the tourist village since the initial stage, and although there was originally conflict between some members of the community, the efforts of community leaders and existing local institutional organizations were able to resolve the conflict and unite the Genilangit community in its endeavour to build a new seedbed, or what is now known as Genilangit Tourist Park. Initially, community members worked together in groups, with a different neighbourhood association helping each week to clean up the forest. After approximately 6 months, the seedbeds were cleared and the area is now used for the Tourist Park. The original goal of the Karang Taruna, youth organization was to maintain the solidarity of the Genilangit village community. The community was involved in establishing the goals of the enterprise, under the leadership of Karang Taruna, and the primary goal was to develop a Tourist Park, to unify the vision and improve the welfare of the community, specifically in Genilangit village, and to provide job opportunities for the Genilangit community. Subsequently, in connection with the ecotourism management, strategic decision making was not only in the hands of Karang Taruna, as the main administrator, but also involved existing stakeholders such as the Village Head, Director of LMDH, Director of Gapoktan (Joint Farmers’ Organization), Director of other Farmers’ Groups, and other community leaders. One particular strategic decision that stood out was the decision concerning management of the enterprise, which originally involved a contract system but was changed to implement a system of profit sharing that was considered to be fairer for all those involved.

Ecotourism in Genilangit is community-based ecotourism, as shown by a number of indicators. First, the Genilangit community has sufficient knowledge about nature to adapt to climate change and develop its local culture, which has potential and sale value as a tourist attraction, and for this reason, the involvement of the community is essential. Second, the existence of ecotourism recognizes the right of the local community to manage the tourist activities in the area that traditionally belongs to the community or to act as administrators. The principle of local ownership is upheld firmly by the local community, and for this reason, it formed a committee or institution for managing ecotourism activities in its area, with additional support from the government and other community organizations. Third, ecotourism has created job opportunities for the local community and reduced poverty. Fourth, it has succeeded in developing various tourist services: fees for guides, transportation costs, sale of handicrafts, etc. Fifth, it has increased the religious ecology of the local community and helped to develop an identity and sense of pride amongst the local community as a result of the increase in ecotourism activities in Genilangit. Efforts have been made to educate members of the community, including both children and adults, to develop their religious ecology by encouraging children to interact with nature. This program includes facilitating outbound activities for school children and for adults who work in certain offices or institutions in order to build a sense of togetherness and to encourage them to live in harmony with nature.
3.3. Management of ecotourism in Genilangit based on a stimulus of religious ecology

The development of ecotourism will be sustainable if religious ecology is present. Religious ecology emerges as a result of current environmental problems caused by deviations in human behaviour in terms of the way people interact with their environment. Religious ecology is present in Genilangit, in the management of its ecotourism, but there is still a need for further revitalization of this religious ecology in order to support the development of ecotourism in Genilangit. Religious ecology can be sensed in the creation of gardens in a number of spots in the ecotourism area, where it is hoped that the growth of new plants will help with water storage so as to avoid drought during the dry season.

Based on interviews with a number of the administrators as well as the writer’s own observations, the attitudes and behaviour that are founded on this religious ecology are based on the words of the Prophet Muhammad SAW, “Whoever plants a tree, and the tree bears fruit that is eaten by any human or any creature, will receive an unending reward from God.”

The principle underlying the strong presence of religious ecology is the principle of the Genilangit tourist village, namely to “chase one’s blessings first”. Those who are responsible for managing the tourist village do so in a modern manner with a high sense of religiosity. This is evident in two aspects: (1) priority is given to employing the inhabitants of Genilangit village, and there are no rules which limit the number of employees; if a member of the community is out of work and in a poor economic situation, he or she will be immediately offered and given a job in the tourist area, (2) the income procured from ecotourism in Genilangit is used primarily for the welfare of the local people, as a way of giving thanks to the Creator; when people need financial aid after suffering an accident, to help cover the costs of a death or circumcision, to help pay off debts, or to help fund a child who has dropped out of school, they will be given aid from the revenue of the tourism program, and (3) the administrators have no problem with the amount of money used to support social concerns, and expenses for social matters are the main priority before calculating profit shares, in accordance with the system used for managing the income from the tourism program. The community and the administrators believe that the rapid progress of this tourist site is a blessing that has come as a result of the way in which the money is managed, to ensure the wellbeing and prosperity of the whole community. If they were to follow a proper managerial system, the balance would not be right if more money was used for social matters than for other concerns, but they believe that it is a blessing that must continue to safeguard.

A number of factors which reflect the religious values associated with the tourist site are: (1) A prayer house has been built in the tourist site, (2) Regulations prohibit anyone from visiting the tourist site after dusk (6 pm) for reasons of safety, (3) Everyone working in the tourist site must perform their daily prayers five times a day, and (4) All the workers must dress modestly with respect to and in accordance with their religious teachings. However, there are of course a number of aspects that tend to deviate from religious norms when a tourist village is established. One such example is the dominance of young couples visiting the tourist area, causing concern that this may have a negative effect because the tourist site is becoming a place for dating.

3.4. Strategies of the mountainside community for adapting to climate change

Education about ecology from an early age is one of the main strategies adopted by the mountain community on Mount Lawu in its adaptation to climate change. Children are given a good religious understanding from pre-school age, through the activities of a Quran Education Group for children. It is hoped that a greater intensity of religious activities for children of a young age will help foster their religious spirit. As such, the community will have a stronger concern for taking care of all living creatures and the natural environment in which they live. The topic of religion in connection with ecological concerns promotes an ethical perspective on the subject. This perspective can be effective for encouraging the Genilangit community to continue striving to solve the ecological problems that they face at the present time. The earth is sacred because religious people use the earth’s sources to support their religious lives. Ecotourism is valued and developed as an enterprise that can also be used
as a conservation strategy and offer an alternative form of economy for the community. With ecotourism, a community can benefit from the beauty of nature that is still intact, as well as from the local culture and history of the area without damaging or selling its contents. This concurs with Oliver-Smith and Hoffman [17], who state that when faced with the risk of disaster, a community is not only required to adapt physically to nature but also to adapt socially and culturally within the framework of religious understanding. When a community has undergone a lengthy process of adaptation, it will be able to withstand the effects and conditions of a disaster. This adaptation process includes cultural strategies which include resistance or flexibility, accompanied by various unique social and cultural events such as rituals, myths, and legends, including new ones and also old ones that have been revived.

Nevertheless, these adaptation strategies may be criticized or even go against the statement of Ridwan [18], namely that using the myths or beliefs of a local community to make a place sacred is still an effective way of conserving the environment around the place. This method may be used alongside existing formal institutions, such as laws and law enforcement apparatus, and this is one reason why in the past many traditional communities held traditional rituals in certain locations with the aim of creating an impression that the place is haunted or should be treated with great care.

4. Conclusion
Community-based ecotourism means that members of the community carry out the enterprise by themselves. The community-based ecotourism in Genilangit that has been developed in a conservation area is “Green and Fair” ecotourism which is concerned with sustainable development and conservation and is a business enterprise that aims to provide an alternative sustainable economy for the community of Genilangit, to share the conservation benefits and endeavours properly, and to contribute to conservation efforts by increasing concern and support for the sustainability of protected landscapes, in aspects of economic sustainability, social sustainability, and environmental sustainability. Ecotourism in Genilangit is community based, with the following indicators: (1) the Genilangit community has knowledge about nature enabling it to adapt to climate change and to develop its local culture; (2) the presence of this ecotourism recognizes the right of the local community to manage the tourist activities in the area that traditionally belongs to the community or to act as administrators; (3) ecotourism has created job opportunities for the local community and reduced poverty; (4) it has developed various tourist services for visitors; and (5) it has succeeded in developing a sense of religious ecology in the local community, encouraging the growth of identity and pride amongst the local community as a result of the increase in ecotourism activities in Genilangit.

The level of implementation of ecotourism should be viewed as a part of the integrated development plans implemented by a particular area. For this reason, it is hoped that the involvement of stakeholders, from a community level to a government level, and including non-governmental enterprises and organizations, will help create a network and implement good partnerships in accordance with the roles and expertise of each body. The community-based ecotourism in Genilangit and the principle of religious ecology can be regarded as the best practices for the implementation of ecotourism in adapting to climate change. This success is due to the social and cultural strategies of adaptation which are implemented within a framework of religious ecology.

References
[1] Zuhud E A M 2012 Membangkitkan Stimulus Religius Ekologis Masyarakat Merevolusi Revolusi Hijau ed Poerwanto R et al (Bogor: IPB Press) p 114
[2] Kleden I 1992 Pendahuluan ke arah Pembangunan Berkelanjutan di Indonesia Pembangunan Berkelanjutan: Mencari Format Politik ed Yayasan SPES (Jakarta: Gramedia Pustaka Utama bekerja sama dengan Yayasan SPES) p 15
[3] Salim E 1992 Pembangunan Berkelanjutan: Keperluan Penerapannya di Indonesia. *Pembangunan Berkelanjutan: Mencari Format Politik* ed Yayasan SPES (Jakarta: Gramedia Pustaka Utama) bekerja sama dengan Yayasan SPES) p. 89

[4] Gardiner M O and Gardiner P 1992 Kependudukan dan Industrialisasi dalam Konteks Pembangunan Berkelanjutan di Luar Jawa. *Pembangunan Berkelanjutan: Mencari Format Politik* ed Yayasan SPES (Jakarta: Gramedia Pustaka Utama) bekerja sama dengan Yayasan SPES) p. 111

[5] Mangunjaya F 2006 *Hidup Harmonis dengan Alam: Esai-Esai Pembangunan Lingkungan, Konservasi dan Keanebragaman hayati Indonesia* (Jakarta: Yayasan Obor Indonesia) p. 127–8

[6] Poerbo H 1992 Ekologi dan Pertumbuhan Ekoomi. *Pembangunan Berkelanjutan: Mencari Format Politik* ed Yayasan SPES (Jakarta: Gramedia Pustaka Utama) bekerja sama dengan Yayasan SPES) p. 245–7

[7] Mitchell B, Setiawan B and Rahmi D H 2000 *Pengelolaan Sumberdaya dan Lingkungan* (Yogyakarta: Gadjah Mada University Press) p. 18

[8] Steward J H 1955 *Theory of Culture Change: The Methodology of Multilinear Evolution* (Urbana: University of Illinois Press) p. 73

[9] Daymon C and Holloway I 2008 *Metode Riset Kualitatif dalam Public Relations dan Marketing Communications* (Yogyakarta: Penerbit Bentang) p. 4

[10] Yin R K 1987 *Case Study Research: Design and Methods* (Beverly Hills, California: Sage Publication) p. 118

[11] Moleong L J 2009 *Metodologi Penelitian Kualitatif* (Bandung: PT Remaja Rosdakarya) p. 112

[12] Sutopo H 2002 *Metodologi Penelitian Kualitatif: Dasar Teori dan Terapannya dalam Penelitian* (Surakarta: Sebelas Maret University) p. 87

[13] Bogdan and Biklen 1982 *Qualitative Research for Education* (USA: Mc Graw-Hill Inc) p. 91

[14] Miles M B and Huberman A M 1992 *Analisis Data Kualitatif* (Jakarta: Universitas Indonesia) p. 15–21

[15] Bottrell D G and Schoenly K G 2018 *The Journal of Agricultural Science* 156 408–26

[16] Murphy P E 1988 *Tourism management* 9 96–104

[17] Oliver-Smith A and Hoffman S M 2002 *Introduction: why anthropologists should study disasters. Catastrophe and culture: The anthropology of disaster* (Santa Fe: School of American Research Press) pp. 3–22

[18] Ridwan A M 2011 *Geliat ekonomi Islam: Memangkas kemiskinan, mendorong perubahan* (Malang: UIN-Maliki Press) p. 77