

# Youth and the Drought: Exploring the Pro-Environmental Behavior of the Resan Communities in Revitalizing Local Springs in Gunungkidul Regency

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**Abstract** Pro-environmental behavior is increasingly demonstrated by the younger generation across the globe. In Gunungkidul, a rural region of Indonesia, the young generation initiated the *resan* community that emerged in response to the Cempaka hurricane of 2017, focusing on revitalizing local springs as reservoirs to mitigate prolonged dry seasons caused by climate change. This study explores the formation, worldviews, and perceptions surrounding the *resan* community's activities through in-depth interviews, participant observation, and social media analysis. Spanning 42 of Gunungkidul's 144 villages, this youth-driven movement is rooted in Javanese cultural values, emphasizing water conservation and community resilience through local wisdom, tacit knowledge, and grassroots participation. Diverse perceptions about *resan* reflect an ongoing dialogue that requires further attention from stakeholders and policymakers. The *Resan* Gunungkidul Community provides a platform for individuals who care about the environment and wish to contribute to conservation efforts. Community participation, especially the young generation, is a cornerstone of this initiative, promoting water conservation rooted in collective action. The study highlights the importance of integrating localized efforts like tree planting with broader multidisciplinary approaches, aligning with global practices of ecological preservation and sustainable development.

## 1. INTRODUCTION

Global warming and climate change are critical issues threatening human life, particularly by increasing water scarcity. This problem is acute in karst areas like Gunungkidul Regency, where porous rocks limit surface water availability (Adji, 2010; Wijayanti & Noviani, 2021). Historically, karst springs met 90% of Gunungkidul's water needs (Haryono et al., 2009), but reliance on water supply networks (PDAM) has reduced dependence on traditional water sources like *resan* trees and springs, leading to neglect and degradation (Suryono, 2006). *Resan* has a function as a support for ecological functions such as maintaining water

sources, minimizing erosion and landslides, reducing the effects of damage disturbances during natural disasters, and maintaining the stability of nutrients in the soil (Soejono, 2011). Etymologically, *resan* comes from the root word "*reksa*" which means "embrace" in Javanese. *Resan* is dominated by ficus or banyan trees that have the ability to capture rainwater and store it in the soil. Then, the water is sprayed through tuks, local term for springs, and used by humans for agricultural activities, tourism, and so on (Kabar Handayani, 2020). Most *resan* trees in Gunungkidul Regency are hundreds of years old and are found around the

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springs. Therefore, people believe *resan* trees are sacred trees that provide life and can maintain water sources for mankind (Maridi, 2015).

When attention to *resan* conditions decreased, a community-based water conservation movement called *Komunitas Resan Gunungkidul* (Gunungkidul's *Resan* Community) emerged, whose members were dominated by the young generation. Their names began to sound to coincide with the time when the world faced the COVID-19 pandemic in 2020. This *resan* community carries out *resan* revitalization as a form of back-to-nature activities, namely reviving *resan* springs that have been lost and cultivating and planting *resan* tree species based on local wisdom. Although studies indicate that young people are more prepared to engage in pro-environmental behavior (Neurohr et al., 2023). This community movement is considered an anomaly as they generally want practical, fast-paced, short-term oriented, and hassle-free things. Youth or adolescents' concern for the environment is still lower than for adults. The low level of concern is caused by the lack of experience of an individual adolescent or young man in childhood that is directly related to the environment (Anderson & Krettenauer, 2021).

However, humans have a moral obligation and responsibility to save the earth and maintain the environment, called pro-environmental behavior, which is closely related to new perspectives, patterns, and lifestyles (Keraf, 2010). Pro-environmental behavior is defined as an individual's effort to maintain the environment and minimize activities that have the potential even to have a negative impact on the environment (Geiger et al., 2017). Pro-environment behavior needs to be instilled in the younger generation as agents of change for the nation in the future. According to Pratt et al. (2003), adolescents, or the young generation, are in the phase of determining values and ethics that are the basis for behavior. Steg & de Groot (2018) stated the most significant influence in forming pro-environmental behavior is the orientation of environmental values or principles that can guide a person and influence how someone forms environmental beliefs. This environmental belief can be influenced by knowledge, attitudes, values, economic status, and available infrastructure (Putra, 2017). According to Bartolo et al. (2023), engaging in pro-environmental behaviors improves adolescents' personal and social well-being by offering potential long-term advantages.

This project aimed to explore the social movements of *resan* communities in Gunungkidul, driven by the youth and grounded in local culture, while aligning with the Sustainable Development Goals (SDGs), especially SDG II for Sustainable Cities and Communities. This study aims to elucidate the origins and sources of knowledge of the *resan* community, delineate the community's spread, and uncover the community's sense of its existence. This research aims to enhance the younger generation's involvement in preserving water sources, offering recommendations to stakeholders and policymakers to expedite the rejuvenation of *resan* and the planting of diverse *resan* tree species. This

localized action can alleviate climate change difficulties on a broader scale.

## 2. METHOD

### 2.1 Location, time, and subject of research

The research location was in Gunungkidul Regency, especially the Papringan Hamlet (Plembutan Village, Playen District) and Sumberan Hamlet (Kentheng Village, Ponjong District). The research was conducted from July 3 to September 4, 2022. In those study locations, we used young subjects from the Gunungkidul *Resan* Community members who were 17 – 40 years old.

### 2.2 Data collection methods

We collected primary data, including genesis and sources of knowledge of the *resan* community. The data are qualitative and will be analyzed quantitatively. We observed and identified their actual activities through their postings on social media, i.e. Instagram. We participated in the subjects' activities as observant participants, conducted in-depth interviews and analyzed social media (Instagram) of the *Resan* Gunungkidul Community. As participant observers we joined *Resik Sumur Gandhok* (*Gandhok* Spring Revitalization) in Plembutan Village, Playen on 3rd of July 2022. We also planted trees surrounding the *resan* springs in Kepek Village, Wonosari District, and attended the local customary ceremony of Village Clean Up Day (*bersih desa*) in Ponjong Village, Playen District. By doing this, we could uncover the *resan* values and nature and their pro-environmental motivation and hopes. We also conducted in-depth interviews with four key resource persons during data collection in those locations.

Supporting data for the study was collected by observing the distribution of villages where *resan* community activities are based through Instagram. We identified the villages and the activities based on their postings in Instagram. After that, we overlay the locations with the drought risk level's map of Gunungkidul district produced by BPBD Gunungkidul.

### 2.3 Data analysis methods

We employed a phenomenological methodology to descriptively and introspectively analyze the collected data regarding human consciousness and experience (Mujib, 2015). This study used Interpretative Phenomenological Analysis (IPA) to analyze perspectives from both participants and the researcher, facilitating a core cognitive stance (Bayir & Lomas, 2016). Utilizing ArcGIS software, we generated a map depicting the distribution of *resan* communities and juxtaposed it with a map illustrating drought vulnerability. We can identify areas that need intervention by analyzing the activities and locations susceptible to drought.

## 3. RESULT AND DISCUSSION

### 3.1 The origin and spread of *resan* communities

Gunungkidul *Resan* Community was initially

established after the Cempaka storm that hit the southern part of Yogyakarta, including Gunungkidul, at the end of 2017. Hurricane Cempaka has caused flash floods in the Gunungkidul Region, which eliminated some sources of livelihood, especially agriculture, and damaged to infrastructure such as village roads. This community views the hurricane as a catastrophic event that raises awareness of the importance of protecting nature and considers that this storm is part of natural (climate) change that needs to be mitigated.

In 2018, Epe (a pseudonym) initiated the *resan* community. When initiating the movement, he was still 40 years old, continuing his study at a private local university and doing artwork and other informal occupations such as a farmer or a laborer. Epe claimed that the *resan* community does not have an organizational structure like formal organizations. Every activity is carried out based on collective consciousness. The initiator realizes the importance of a movement based on preserving the environment by focusing on springs revitalization and water conservation. Epe and his members gained knowledge about *resan* trees and springs from local wisdom, i.e., traditions inherited from their parents or great-grandparents. The source of knowledge of the *Resan* Gunungkidul Community comes from tacit knowledge, that is, knowledge passed down through speech and experiences. In addition, they utilize the internet to gain scientific knowledge about *resan* and tree species that can collect and store more water in karst areas. They use social media to publicize their activities. Social media helps to expose this community movement widely. According to Meng et al. (2023), social media provide significant environmental information exposure on the intention to participate in environmental protection among the gen Z. One of the media used by this community is Instagram (@komunitasresan and @resangunungkidul).

An illustration of tacit knowledge is the "open studio" practice. According to Instagram @resangunungkidul, "open studio" is a collaborative educational platform centered on 'awareness'. Cultural phenomena observed in daily interactions, both historical and contemporary, encompass science and technology that necessitate joint examination and conversation, experimental applications, or direct community practices to address issues. On one side, "open studio" serves as a venue for accumulating scientific and technological artifacts and promoting heritage awareness. Conversely, it functions as a means of advancing science and technology as well as fostering communal awareness.

This community also uses music as a medium to convey life values, such as stories about Javanese culture, advice from Javanese poetry, and even satire for today's society, which is starting to neglect to protect the environment. Through the *Resan* Blues group, this community conveys messages that have existed for a long time but have begun to sink over time.

The *resan* conservation movement is rooted in community members' initiatives driven by concerns over the environmental crisis in Gunungkidul. They regard Gunungkidul as their "motherland" or place of origin. The presence of the *Resan* Gunungkidul Community has also inspired the emergence of other, more localized movements. An example is the *Kadang Sumber* Community, which focuses on preserving springs in Banaran Hamlet, Playen, Gunungkidul. Another one, IPPD (*Ikatan Pemuda-Pemudi Dondong*), strives to revitalize *Telaga Dondong* in Saptosari based on local wisdom. Lastly, *Garda Ngeblak* in Nglipar District actively conducts conservation efforts at Sumber Jomboran. These new movements are among the outcomes of the *Resan* Gunungkidul movement, which has successfully reached various areas across Gunungkidul.

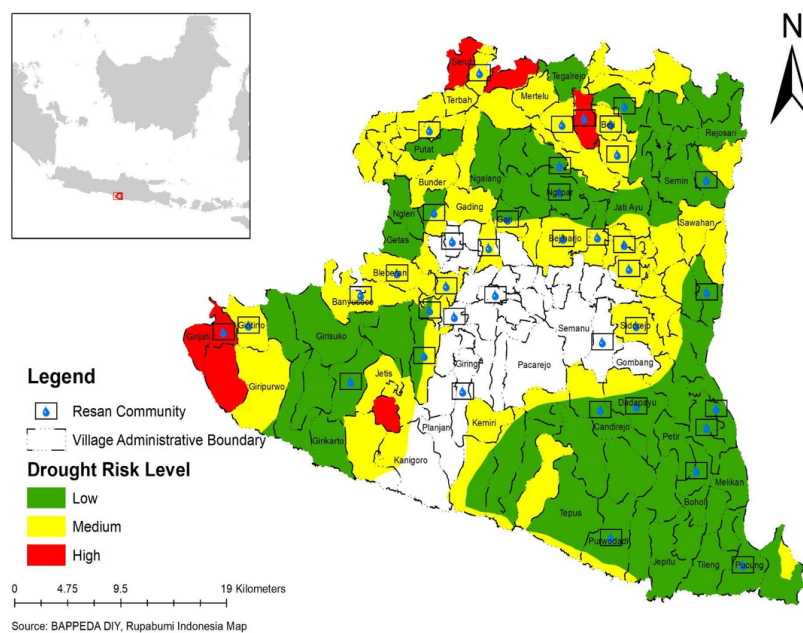


Figure 1 . Map of drought risk level and distribution of *Resan* Gunungkidul Community activities

From August 2020 to July 2022, during the COVID-19 pandemic, these communities carried out spring revitalization activities in 42 villages. This number represents 29% of the 144 villages in Gunungkidul that the *resan* communities have touched. They played a pivotal role as facilitators of water conservation activities or revitalization of springs in several hamlets across Gunungkidul Regency.

Attachment 1 shows the villages and form of activities carried out by the *resan* communities in the Gunungkidul Region. Most of the activities consist of *besik* (springs maintenance) and planting trees around the springs. *Besik* is an activity that cleans the pennant or spring water sources, followed by planting *resan* trees. It can be highlighted that many activities carried out are focused on areas with a moderate risk level. However, such activities are also not limited to places with low and high drought risk levels. The distribution map (Figure 1) was produced by making an overlay with a map of the drought risk level of Gunungkidul Regency to see a comparison of areas where *resan* revitalization activities were located. Figure 1 shows that four Villages—Nglora, Girijati, Serut, and Watugajah—have high vulnerability and have not yet undergone conservation activities by the Gunungkidul *Resan* Community. Therefore, this movement needs to develop further priorities regarding the location of villages prone to high drought in the future.

### 3.2 Types of activities

Various posts on the *Resan* Gunungkidul Community Instagram account show that this community strongly supports community traditions that are still carried out today as a form of *nguri-uri kabudayan* (preserving culture). This is evidenced by most of the activity posts where this community enlivens and contributes its role and contribution to a series of traditional ceremonies such as *Rasulan*. This community also uploads pictures' activities related to the conservation and revitalization of natural springs that have been abandoned (Figure 2). They dig back closed springs and collect the water with simple technology. The aim is to raise awareness of the importance of maintaining springs in the surrounding environment for the public and younger generation. Young people's contribution holds significant value in conserving local water sources.

The *resan* community is deeply committed to cultivating fundamental values through the principles of *Adiwiyata* on a small scale, particularly in education. This effort aims to raise awareness among the younger generation and foster pro-environmental character. Additionally, the *resan* community actively explores local knowledge as a medium to educate the public. The *Resan* Gunungkidul Community's social network, @rebowagen, shares this knowledge. One notable publication is the "History of *Cing Cing Goling* Traditional Ceremonies," which aims to preserve cultural values that are increasingly being forgotten. Furthermore, the *resan* community emphasizes the importance of maintaining *resan* trees as

an expression of gratitude for their significant contribution to human life.



Figure 2 . Revitalization of local springs in Wanagama Teaching Forest

In their tree planting efforts, *Resan* Gunungkidul Community select *resan* trees that functions as water conservation, such as *beringin*, *bulu*, *trembesi*, *asam jawa*, *bulu kepuh*, *randu alas*, *jambu klampok*, and others. Additionally, fruit-bearing plants are included to attract community interest in the conservation movement and to help restore the ecosystem of long-tailed macaques. The destruction of their habitat or ecosystem often causes problems, as the macaques disrupt local farmland. The *Resan* Gunungkidul Community obtains tree seedlings through independent propagation in *Rumah Bibit Resan* (RBR) nurseries located in several areas. The propagation process includes seed germination, grafting, budding, and other methods. They also occasionally request seedlings from BPDAS (Watershed Management and Protection Agency) as part of the local community's collaboration with the government.

This community is also actively involved in organizing or participating in traditional ceremonies related to water sources as a cultural heritage to preserve water as a source of life. These traditional ceremonies include:

1. *Rasulan*. *Rasulan* is a form of gratitude to God Almighty for the harvest provided. From a folklore perspective, *Rasulan* is also a tribute to Dewi Sri (the Rice Goddess) for the blessings of the harvest
2. *Merti Sumber*. This activity involves a communal feast (*kenduri*) held near a water source. Typically, it is preceded by a communal effort to clean the water source area. The feast is a way for the community to express gratitude for the life-giving water in their surroundings. This ceremony also serves to preserve local water sources by promoting their care and maintenance
3. *Nyadran Serabi Kocor*. Unlike the previous two ceremonies, this one is intended to pray for rain during prolonged droughts. It is closely tied to the agrarian culture of the Gunungkidul community, which relies heavily on water for farming processes

### 3.3 *Mysticism as a means to preserve nature*

The *Resan* Gunungkidul Community integrates local wisdom into forest protection efforts by preserving traditional rituals passed down through generations. The community's ecocentric ethos is evident in its unique practices, such as using traditional clothing (*gagrag*) during pre-planting rituals and planting events and incorporating Javanese terminology in their social media content. These distinct cultural touches have captured the general public's and young people's interest. Another notable strategy involves placing shrouds and offerings on trees to create an aura of sacredness or a "haunted" impression. This approach effectively deters people from harming the trees. Such strategies have proven successful in Yogyakarta, where Javanese culture remains deeply ingrained.

The *Resan* Gunungkidul Community has a unique perspective on mysticism. While it is often viewed as taboo, this community regards it as ancestral technology for preserving nature. One tradition that often causes misunderstandings is *nglangse* (dressing *resan* trees). Ordinary people may perceive this as idolatrous and something to be avoided, leading to the *resan* community being stigmatized as "tree worshipers". However, the true meaning of this tradition is to honor the tree for its role in sustaining nature, including providing water sources. Prayers are directed only to God Almighty, with the tree serving as a cultural intermediary to preserve ancestral heritage.

Mysticism can positively impact on the environment when rationalized with modern scientific knowledge. From a modern perspective, mystical beliefs related to village guardian spirits or other supernatural entities, commonly referred to as *lelembut*, serve as a method of environmental preservation. These beliefs deter people from approaching or damaging natural areas, as they fear the consequences of disturbing what they perceive to be sacred.

### 3.4 *Symbol representation of resan*

The conservation and revitalization movement of springs led by the *Resan* Gunungkidul Community is not merely a pro-environmental initiative. The concept of *resan* embodies diverse symbolic meanings that deserve to be explored and managed further. First, *resan* is a value of life. *Resan* is not simply a tree that fulfills water conservation functions; it is regarded as a symbol of life itself. The community believes that life's origin is tied to springs' existence. Planting *resan* trees is viewed as an act of sustaining life for future generations, who will inherit and depend on the land.

Second, *resan* fosters awareness and a sense of need. Preserving and revitalizing *resan* reflects a deep calling that nurtures the awareness and character of *resan* activists. Caring for *resan* becomes a way of life and a form of character-building. The community acknowledges that *resan* trees are as essential to daily life as water and air, reminding people of their indispensable connection to nature.

Third, *resan* is a symbol of care. The *resan* movement

begins with addressing minor, localized issues—such as protecting springs—before tackling larger global challenges like climate change. The community embraces the philosophy of "starting with small actions in our immediate environment rather than ignoring them in favor of larger issues". Environmental campaigns often spark their sense of care, inspiring them to take tangible steps to protect their surroundings.

Fourth, *resan* is a symbol of local wisdom. The *resan* movement's knowledge is rooted in local wisdom rather than formal scientific education. Activists observe that large trees often accompany abundant springs, leading to the belief that these trees play a role in sustaining the water source. This tacit knowledge, passed down through generations, highlights the value of local traditions in environmental conservation.

Fifth, *resan* symbolizes tolerance toward diverse perspectives. The *resan* movement reflects the coexistence of varying perceptions. While some view *resan* as an environmental conservation activity, others associate certain rituals—such as lighting incense—with superstition or idolatry, leading to misconceptions about tree worship. Additionally, some believe tree planting is less effective than building concrete reservoirs for water management. These diverse perspectives highlight the importance of open dialogue and mutual respect in conservation.

Sixth, *resan* is a real action. The community emphasizes the importance of concrete actions within their neighborhoods. These actions include preparing and planting *resan* seedlings near springs to ensure a reserved water source in case of disruptions to piped water supplies. Such tangible efforts showcase the community's proactive approach to addressing local water needs.

Seventh, *resan* is a symbol of collaboration. The *Resan* Gunungkidul Community acts as a bridge between government programs and local communities. For instance, they facilitate the development of tourist sites around springs by connecting interested groups with government initiatives. Instead of relying on government funding, they empower local communities to take charge, creating sustainable partnerships and fostering self-reliance.

Eighth, *resan* is a forum for participation. *Resan* provides a platform for those passionate about tree planting and environmental conservation in Gunungkidul. By accommodating and encouraging community participation, the *Resan* Gunungkidul Community ensures that individuals who care about the environment have an avenue to contribute meaningfully to water conservation efforts.

The Gunungkidul *Resan* Community movement corresponds to other youth movement in other countries, for example in India, called the *Vishu Thaineetham*, a program engaging Generation Z in tree-planting activities in India. Raman et al. (2024) refer to the *Vishu Thaineetham* as innovative ecological preservation, illustrating the capacity of culturally adapted practices to enhance collective environmental involvement and advance cleaner production methodologies. Revitalizing *resan* through the use of indigenous tree species underscores the necessity for a

multidisciplinary strategy in tree planting, accentuating the engagement of grassroots people and their viewpoints on the human-nature relationship (Hopkins et al., 2022).

## 4. CONCLUSION

The *Resan* Gunungkidul Community exhibits pro-environmental conduct among youth by rehabilitating neglected water sources through diverse technical, social, and cultural initiatives. This community functions in 42 of the 144 villages in Gunungkidul, significantly contributing to the fortification of rural communities against future droughts resulting from the depletion of local springs. Their establishment was motivated by a communal consciousness after the Cempaka hurricane catastrophe, functioning on the tenet of collective accountability. The community derives conservation knowledge from implicit understanding, indigenous wisdom, and informal sources like the internet.

Diverse perceptions about *resan* reflect an ongoing dialogue requiring stakeholders' further attention. The *Resan* Gunungkidul Community provides a platform for individuals who care about the environment and wish to contribute to conservation efforts. Community participation, especially the young generation, is a cornerstone of this initiative, promoting water conservation rooted in collective action. The *resan* community is recognized as a youth-led social movement committed to safeguarding springs and vital regions in Gunungkidul. This effort is commended for motivating the younger generation by including Javanese traditional features (*nJawani*). This paper suggests restoring *resan* by incorporating indigenous tree species highlights the importance of a multidisciplinary approach to tree planting, emphasizing the involvement of local communities and their perspectives on the connection between humans and nature.

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## CONFLICT OF INTERESTS

The author declares there are no conflicts of interest.

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## ATTACHMENT

Attachment 1. Location of resan communities during the COVID-19 pandemic across Gunungkidul Regency

District	Village	Types of Activities	Drought Risk
Gedangsari	Sampang	<i>Besik</i> and Planting	Medium
Girisubo	Pucung	Planting	Low
Karangmojo	Bejiharjo	<i>Besik</i> and Planting	Medium
	Gedangrejo	<i>Besik</i> and Planting	Medium
Ngawen	Ngawis	<i>Besik</i> and Planting	Low
	Karangmojo	<i>Besik</i> and Planting	Medium
	Beji	<i>Besik</i> and Planting	Medium
	Watusigar	<i>Besik</i> and Planting	Medium
Nglipar	Kampung	<i>Besik</i> and Planting	Medium
	Kedungpoh	<i>Besik</i> and Planting	Low
	Natah	<i>Besik</i> and Planting	Height
Paliyan	Nglipar	<i>Besik</i> and Planting	Low
	Pilangrejo	<i>Besik</i> and Planting	Medium
	Karangasem	<i>Besik</i> and Planting	Medium
	Kanigoro	<i>Besik</i> and Planting	Medium
	Grogol	<i>Besik</i> and Planting	Medium
	Pampang	<i>Besik</i> , Planting, & <i>Kenduri</i>	-
	Giring	<i>Besik</i> and Planting	-
Panggang	Grogol	Planting	Medium
	Kepek	<i>Besik</i> and Planting	Medium
	Girisekar	<i>Besik</i> and Planting	Low
	Patuk	<i>Besik</i> and Planting	Medium
Playen	Banyusoco	<i>Besik</i> and Planting	Medium
	Plembutan	<i>Besik</i> and Planting	Medium
	Logandeng	<i>Besik</i> and Planting	Medium
	Bleberan	<i>Besik</i> and Planting	Medium
	Banaran	Planting, Return <i>sidat</i> , <i>Besik</i>	Medium
	Banyusoco	<i>Besik</i>	Medium
Ponjong	Ngawu	<i>Besik</i> and Planting	-
	Kenteng	Planting	Low
	Sidorejo	<i>Besik</i> and Planting	Medium
Purwosari	Giriasih	<i>Besik</i> and Planting	High
	Giritirta	<i>Besik</i> and Planting	High
	Giricahya	<i>Besik</i> and Planting	High
Rongkop	Karangwuni	<i>Besik</i> and Planting	Low
	Semugih	<i>Besik</i> and Planting	Low
	Pringombo	Planting	Low
Semenu	Dadapayu	<i>Besik</i> and Planting	Low
	Ngeposari	<i>Besik</i> and Planting	-
Semin	Pundungsari	<i>Besik</i> and Planting	Low
	Candirejo	<i>Besik</i> and Planting	Low
Tepus	Purwodadi	Planting	Low
Wonosari	Siraman	<i>Besik</i> and Planting	-
	Gari	<i>Besik</i> and Planting	Low-Medium
	Banyusoco	<i>Besik</i> and Planting	Medium
Ponjong	Kenteng	Planting	Low
	Sidorejo	<i>Besik</i> and Planting	Medium
Purwosari	Giriasih	<i>Besik</i> and Planting	High
	Giritirta	<i>Besik</i> and Planting	High
	Giricahya	<i>Besik</i> and Planting	High
	Giriasih	<i>Besik</i> and Ziarah	High
	Giritirta	<i>Besik</i> and Planting	High
Rongkop	Karangwuni	<i>Besik</i> and Planting	Low
	Semugih	<i>Besik</i> and Planting	Low
	Pringombo	Planting	Low



## Continuation of Attachment 1.

<b>District</b>	<b>Village</b>	<b>Types of Activities</b>	<b>Drought Risk</b>
Semanu	Dadapayu	<i>Besik</i> and Planting	Low
	Ngeposari	<i>Besik</i> and Planting	NA
Semin	Pundungsari	<i>Besik</i> and Planting	Low
	Candirejo	<i>Besik</i> and Planting	Low
Tepus	Purwodadi	Planting	Low
Wonosari	Siraman	<i>Besik</i> and Planting	NA
	Gari	<i>Besik</i> and Planting	Low-Medium