

## Farmers' Knowledge Construction and Social Embeddedness Encountering Social Disasters (Case Studies in Malang Regency)

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**Abstract:** In Pakis and Poncokusumo sub-districts, Malang Regency, the agricultural values, knowledge, and embeddedness are expected to be sustainable amid the social disasters. This research aimed to analyze how agricultural values, knowledge, and social embeddedness among farmers in Pakis and Poncokusumo sub-districts, Malang Regency, can sustain amid social changes. It involved economic Sociology and theoretical frameworks such as Giddens' structuration, Bourdieu's social capital, and Granovetter's social embeddedness. This qualitative research used in-depth interviews, observations, and literature resources. The findings showed that social capital bonds among stakeholders such as landowners, farm workers, and traders are crucial in maintaining collective agricultural values. Additionally, knowledge transmission relied heavily on the interplay between agents and social structures through cultural practices. The research strengthened the dimension of social embeddedness, which positions the economic and social orientations as not opposing entities. Transferring knowledge and preserving value in agriculture when dealing with social disasters required deliberate efforts to adapt and ensure the sustainability of the practice.

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**Keywords:** Farmers' Knowledge Construction, Social Embeddedness, Social Disasters.

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### A. INTRODUCTION

The construction of Indonesia as an agricultural country where the people's welfare mainly depends on the agricultural sector now should be questioned. This is because Indonesia still has massively imported rice to fulfill the nation's demand for staple food. It makes the price expensive for the lower class [1]. Moreover, the condition worsens when the agricultural production in Indonesia is considered low. According to Indonesia's economic report 2018 compiled by the Central Statistics Agency, the agricultural sector experienced a significant decrease [2]. On the other hand, sectors such as mining, electricity generation, financial services, insurance, and real estate demonstrated positive growth. At the same time, despite the country's agricultural identity, agriculture does not seem to contribute as significantly as expected [3].

The decline of agriculture as a sector expected to contribute to the nation's development through business cannot be separated from international policy. The study *Agriculture and Food in Crisis: An Overview* shows that market-based international development policies significantly impact the agricultural and trade sectors [4]. Since the 19th century, agriculture has shifted towards capitalism, which is now further evolving with industrialized patterns. Under these circumstances, farmers are placed as laborers with inferior contractual

agreements in the agribusiness supply chain. Corporations utilize genetic modification to control agriculture on a large scale instantly. The World Food Organization's regulations restrict developing countries' progress and lead to the mass migration of rural farmers to urban areas, causing a shift in occupations depending on the availability of job demand. Meanwhile, the Green Revolution brought about technological advancements that reduced labor recruitment and increased agrochemical use, which appeared to be an efficient mechanism. However, it simultaneously caused environmental degradation [5].

The dynamics evoke a significant challenge, particularly the long-term viability of the agricultural industry. The farming communities in Poncokusumo and Pakis, Malang Regency, manage to be resilient to nurture agricultural values. They internalized local shared knowledge related to agriculture management systems. The preservation of the agricultural sector in the Poncokusumo's local community is closely linked to nature, which could be conditioned through rituals deeply ingrained in the community's cultural heritage. Another preservation is an annual event called the Karo—a ceremony that expresses gratitude for blessings such as good harvests. Meanwhile, in Pakis, the Nahdlatul Ulama (NU) tradition is prominent, such as yasinan-tahlilan—reciting prayers together for the deceased. Thus, integrating religion and local culture has become a means of social resilience in preserving the transfer of agricultural values and knowledge by connecting elements of society.

Studies have investigated the intersection of agriculture with faith and culture. As human beings are a part of nature, people must respect invisible guardians without destroying nature to ensure welfare. This is why protecting nature equals the agricultural preservation values in several traditions that aim to purify farming methods and equipment [6]. However, it is preserved in local customs and infiltrated within Islamic practices in Muslim communities. Connected by their faith, agriculture practices urge collaborations with some actors to make them more sustainable [7].

These previous studies show how agriculture, as the majority livelihood in Indonesia, has positioned itself in crucial positions and supported maintaining its values and customs. Agricultural values are inseparable in society. However, when discussing agriculture in a particular location focusing on social disasters, none of this research focused on how social and economic aspects can strengthen people's intention to keep their culture and unity. It is essential to discuss more the characteristics of agricultural culture preservation in Pakis and Poncokusumo, Malang Regency. Moreover, there was no research discussing social disasters and how knowledge construction in agriculture, especially in Poncokusumo and Pakis, Malang Regency. This research analyzed the foundations that unify people in practicing traditions while fulfilling their needs and embracing nature.

As a result, it becomes an alternative approach that promotes agriculture sustainability. This research explored the construction of knowledge and values of the farming community encountering social disasters in agriculture. In this research, social disasters were limited to socio-economic challenges dealt with in farming communities in Poncokusumo and Pakis. According to Law No. 24 of 2007 Article 1, social disasters can be defined as disasters affected by human-caused events such as social conflicts between groups or between communities and terror [8]. In this context, conflicts of social disasters are not always about physical clashes or quarrels. Social disasters in Poncokusumo and Pakis are notably caused

by industrialization that enforces the extension of the infrastructure. Infrastructure is needed to optimize the potential of the modern era, even though it could cause social problems, either in construction or accidents [9]. This research focused on how development can be a socio-economic problem for local farmers.

To be resilient in encountering social disasters, farmers in Poncokusumo and Pakis uphold their knowledge construction. Knowledge construction refers to an active learning process bringing the learners as the subject to practice their knowledge, experience, and critical thinking to formulate their prior knowledge to be the new one. Knowledge construction becomes a strategy for dealing with social disasters. Farmers maintain their resilience through farming techniques and cultural practice sustainability. Despite the challenges, the roles of individual and communal participation are crucially needed and complement each other to be collaborative knowledge construction. [10] Resilience is the power of a community using its sources to cope with vulnerability in terms of power relations. For those who are in the powerless state, they determine themselves as the marginalized ones. This collective identity strengthens the people to preserve their values to survive as a consequence of the global crisis, which affects the economy at the macro level and provokes social shocks [11].

The Government chose Poncokusumo as a part of a tourism triangle in Malang Regency. Consequently, it must deal with wetland conversion to be the apple tourism sector. It worsens when the wholesaler controls the system and the price. Thus, farmers do not have a right to get more earnings. Moreover, Pakis has undergone land acquisition to construct a toll road. Previously, around 60 hectares of land were managed for farming, but it must be converted to a toll road. This program was executed in 2015, 2017, and 2018. These wetland transitions unsettle the farmers' stability.

Further, this condition constructs how farming communities, especially the younger generation, see themselves and their future. Along with modernity, they tend to be materialistic. However, some farmers still maintain their farming occupation despite the challenges and try to engage their children to participate in farming activities. It indicates how strong their resilience is forming from the social embeddedness among members of society.

Specifically, this research explored two research questions. The first one is what are the knowledge, values, and embeddedness of the farming communities in Poncokusumo and Pakis, Malang Regency. The second question is how the existing farming communities deal with social disasters in sustaining agricultural activities. From these questions, there are two research objectives. The first point is to interpret multidimensional knowledge, values, and embeddedness. The second one is to examine the farming communities' efforts to deal with social disasters.

This research intended to fill the gap by considering the previous studies, research questions, and objectives. The essential point of knowledge construction is the sustainability of inheriting the local farming techniques. Farmers in Poncokusumo encourage their children who have graduated from junior and senior high school to be farming laborers for various commodities such as vegetables, apples, and rice. Moreover, in Pakis, farming sustainability

is on the land ownership through the family so that they can perpetuate the power. Even marriage can depend on this feudalistic culture to gain more power.

Thus, talking about agriculture is not always about the production quantity, but the focus is on how farming communities in Poncokusumo and Pakis still maintain their agriculture work ethos despite the obstacles. Through culture, they are resilient, enhancing the networking among farmers. Moreover, their embeddedness is interlinked with the traditional culture, which supports nature conservation and, in effect, fulfills their life needs. This is why their effort to maintain agriculture is worth exploring.

## **B. METHOD**

This research was conducted in two regions. They were Poncokusumo and Bunut Kidul Hamlet, Asrikaton Village, Pakis subdistricts, Malang Regency, East Java Province, Indonesia, from September 2016 to December 2018. This research was a multi-year study. In 2016, the researchers observed the field; in 2017, the culture was investigated; and in 2018, the research focused on resilience strategy. However, the interviews were conducted from July to December 2018.

The locations chosen are sub-urban and rural areas. Considering these selected locations, we examined and explored two farming communities challenging a transformation. Pakis subdistrict, on the border with the city, is an essential consideration for its impact on maintaining knowledge and values as it involves social embeddedness, especially in the Muslim community when facing changes. Even though some agricultural areas are shifted to be the toll road, people still maintain their culture and belief in farming. Meanwhile, the Poncokusumo sub-district is part of the rural cluster and an agropolitan area west of Bromo Tengger Semeru National Park (TNBTS). The community is unique as it adheres to tenggerese culture, which is prominently authentic to the local inheritance. In this region, farmers still engage one another to survive by working in agriculture while maintaining their culture and beliefs.

This study was exploratory qualitative research. Corbin and Strauss explained that qualitative research can reveal more profound meanings than numbers in quantitative narratives. In this study, qualitative research brought up various perspectives of individuals. Personal narratives contain rich quality content to explore from several points of view. The highlighted subject was human beings, and it contributed valuable data to the completion of this socio-humanity research.

Moreover, researchers also used case studies to explore social phenomena in depth and broadly. Case studies allowed the development of ideas by exploring related phenomena [12]. Furthermore, Creswell [13] explained that case studies examine the real-life context, whether single or multiple cases exist. The researchers explored Poncokusumo and Pakis from their socio-economics aspect, and both of them face the social disasters caused by wetland conversion. However, the farmers had to adjust to this situation, but they ensured that agriculture must be maintained. It can be seen from how they maintain their culture.

Data exploration was implemented through in-depth interviews, observation, and literature. The informants were selected using purposive and snowball. These informants were stakeholders in the agricultural sector, such as land owners, forepersons, cultivators,

farm laborers, and intermediaries or collectors. Furthermore, the data analysis used is an interactive model analysis from Miles and Huberman [14], which consisted of several steps: data collection, data reduction, data display, and conclusion. Data collection was carried out on the data generated through in-depth interviews, observations, and literature. In this research, the researchers formulated the interview guide that was handed by five enumerators with specifically targeted respondents from land owners, forepersons, cultivators, farm laborers, and intermediaries or collectors in Poncokusumo and Pakis. After that, the interview results were fully transcribed. The data were classified into some categories according to the research questions (i.g. farming system, social disasters, and some others). Then, the data were interpreted and analyzed using theories. Here, the literature enriches the theoretical references in qualitative data analysis.

Several theories, such as Anthony Giddens' structuration, Pierre Bourdieu's social capital, and Mark Granovetter's social embeddedness, were selected to sharpen the analysis. Giddens' structuration emphasized the duality of structure and agency, which made both interplay with each other. Individual action can be constrained by structure as well as people can change the structure. This theory was used to see farmer communities deal with changes from social disasters that force them to reconstitute their position as agents upon a particular structure in an agriculture sphere [15] In addition, Bourdieu said social capital exists in individuals who make efforts to attain their power by developing goodwill. For Bourdieu, social capital is closely linked to stratification, which will contribute to mutual advantages [16] In this context, social capital particularly generates the farmer's communities to strengthen their positions in society despite the wetland conversion. Moreover, it is employed among stakeholders such as landowners, farm workers, and traders. All of this is possible because there are mutual benefits, so they can create embeddedness. Moreover, Granovetter stated that Social embeddedness tides up in mutualism and involves social structures as the effect of economic action. Embeddedness happens as a result of atomization, which means that society consists of atomized actors. They cannot be traced one by one but merged into one. Altogether, they can create products or initiate a business. As they form a network, they also expand and connect to other networks. In Poncokusumo and Pakis, it is reflected in social gatherings held by farmers; they shared stories and discussed solving problems. For the agriculture stakeholders, these events helped in managing the agriculture systems [17] These three theories are beneficial to explore the data comprehensively in this research.

## **C. RESULTS AND DISCUSSION**

### **1. Social disaster risk in the agriculture sector**

#### **a. Capitalists' power in co-opting the land of agriculture**

Social disasters are mainly caused by industrialized development that only benefits those with capital. Farmers in Poncokusumo and Pakis must overcome the challenges after being converted as an apple-picking tourism destination and getting to be a land acquisition to be a toll road. In Pakis, the toll road construction limits the farmers to be productive in agriculture—even it degrades the water quality. Moreover, in Poncokusumo, the biggest challenge is the capitalist supremacy of wholesalers. They

co-optate on the land, determine the daily pay for the farmers, and determine the apple price. This is why farmers who do not have another option are forced to work despite the low wages. This condition traps them in endless poverty.

Moreover, external factors such as Government and industries also promote development that does not pay attention to the lower class. They limit the farmers from choosing other options besides following the system. It also affects the marginalization of the agricultural sector. Factors threatening farming sustainability include Government rules and policies, development projects such as toll highways, and land commercialization demands through land conversion. The power orientation of central and regional governments employing the modernity paradigm is incompatible with the agricultural sector. Public policy is an obstacle in the social and institutional context, which cannot significantly encourage farmers' motivation to boost food production [18]. Through the development paradigm, developing access is to businesses out of the agricultural sector, which attracts large investors to take over the function of farmland and lead the industries. This development model is full of city bias and excludes the region's potential. A political economy analysis explains that the connection between state development, food security, and globalization competes for power, allowing a country's policies to perpetuate inequality, poverty, and even hunger [19]. This issue can be indicated by the most dominant industry in Indonesia, which was importing inexpensive raw materials. This is why the agricultural sector is hampered and needs to be optimized [20].

b. The younger generation's lack of interest in the agricultural sector

Succeeding generations, particularly, have their perspective on farming activities due to societal change and its many complications. One of the informants interviewed while cultivating his land stated that none of his four children were interested in the agricultural sector. This shift did not happen unexpectedly and immediately. The various preferences of young people over other jobs outside of agriculture become an impetus for them to leave farming—an occupation that has become the basis of their parents' livelihood.

The paradigm shift results in the logical consequence of pragmatism: the fundamental goal of working is life earnings. Farming is no longer regarded as a life rite that holds for the sake of community but emphasizes transactions. *Seng penting oleh bathi* (the purpose is to get benefit) constructs the framework for most people. Due to capitalism, the notion that farming is filled with local wisdom values or seen as a noble profession is starting to fade. Thus, capitalism leads to the degradation of the predecessor's values that have been rooted over generations. Relay on agricultural land that declines from time to time, accompanied by the weakening of farming knowledge transfer within the farming families, has pushed the ecosystem maintenance of the agricultural sector to inflict. This situation is part of the farm sector's social disaster, especially in preserving future generations' lives.

c. Negative stereotypes of working in the agricultural sector

The changes inherently carry negative perceptions about working in agriculture. Some assumptions revolve around the fact that working in agriculture should be dirty, engulfed in mud, and generally unattractive for younger generations. As a result, the average age of farmers is above 50, with many being very elderly. Meanwhile, those who are teenagers or young adults under 25 are more likely to be interested in working in other industries to avoid unfavorable preconceptions about being a farmer.

The research findings also reveal that parents send their children to higher education and to work in companies or Government institutions rather than bringing them back to farming. This situation is legitimized by expressions, such as *arep dadi opo* (what do you want to be), which likely implies that farmers do not have a promising future. Furthermore, parents justify that becoming a farmer is not a good choice. Unlike their parents, the succeeding generation is expected to elevate the family's dignity by working in other promising industries.

## 2. How to overcome social disasters in Poncokusumo and Pakis

a. Enhancing the local wisdom as collective awareness of farmers

Farming communities with various stakeholders, such as land owners, forepersons, cultivators, farm laborers, and intermediaries, have inherited local wisdom over generations. Local wisdom is a fundamental knowledge acquired through living in harmony with nature, both abstract and concrete, as an experience and truth, according to Nakorntap et al. [21]. Here, integrating human beings and nature can create a strong connection that causes social embeddedness in farming communities. Farming communities in Poncokusumo and Pakis already know about farming as a collective knowledge in the ability to prepare agricultural land until post-harvest phases. They also comprehend the mechanical aspects and local wisdom in the form of ritual practices that have become a tradition in the community. This collective knowledge is collaborative, where each element cooperates or synergizes. The following are several local values and wisdom found in farming communities:

1) Farming communities infiltrated the hereditary local knowledge

The farming lessons from parents are highly socialized, exemplary, and prominent as parents intend to preserve the agriculture knowledge for their generations. The shared knowledge transferred over generations occurs by determining the planting season based on the Javanese calendar system called *titimongso* [22]. In Poncokusumo, it is applied to determine the suitable crops for planting in the following order: (1) *Oyot* (root), planting plants that have tubers, for example, cassava; (2) *Wit* (stem), planting plants that are utilized for stems, such as sugar cane; (3) *Godong* (leaves), planting plants that leaves are used, like green vegetables; and (4) *Woh* (fruit), planting plants for their fruit, for instance, oranges. The ancient community's local knowledge, passed down to guide the understanding of agriculture, has become an essential source of value. This knowledge should be

noted as technical and tested to maintain the sustainability of the agricultural sector by integrating environmental considerations.

2) Farming as a noble work

The transfer of agricultural knowledge was passed down over generations, which made teenagers who graduated from junior or senior high school involved in agricultural practice as vegetable, apple, and rice laborers. It happened in Poncokusumo. Meanwhile, in Pakis, being a landowner is a pride. It is an icon to maintain wealth and power. Here, farmer knowledge related to farming management is descended from parents by witnessing and coming to the farmland. Besides socializing farming systems, farmers also hope that from farming practices, their children learn to appreciate nature and work hard by nurturing the fields with patience and passion.

The old farming community views agriculture not only as a means of livelihood but also as a practice of worship and a way to support others. Farming provides an opportunity to contribute to food production for the community. Another narrative regarding the noble values behind farming work is that the glory of someone's job is not seen in how much money they can get but in how many benefits they can give.

3) Tradition as a mechanism of environmental harmonization to make peace with nature

Traditions figuratively reflect the strong connection between humans and nature. The leader of rituals, usually called dukun (the shaman) or legen (the shaman's assistant), implies the human body is similar to nature—mouth as the ocean, nose as the mountain, and others. It means that when people care for nature, they also protect it and themselves. This message has infiltrated the local culture.

The farming communities conduct specific ritual practices as part of their traditions—in Poncokusumo, people practice Karo rituals, which are held annually. The Poncokusumo's farming community currently inherits these traditions and ritual practices as part of the Tenggerese culture to honor their ancestors. According to research by Nakorntap et al., this respect is wisdom for organizing life [21].

The Karo tradition is intended to express gratitude to the ancestral spirits by the natural gifts bestowed. The term Karo is derived from the second month of the Tenggerese community. Karo consists of rituals where the farming community places offerings in leaves topped with bananas. Then, the offerings are placed at the intersection of the fields or sacred primary sources, such as spring and rice fields, where guardians are believed to reside. These offerings are presented with a purpose as the community believes that practicing the traditional heritage can prevent the ancestral spirits from disturbing their daily activities and maintain the product needed by the community. Agricultural products, such as rice, oranges, apples, and vegetables, are considered inadequate if grown purely conventionally by humans or an sich—without involving the ancestral spirits who have long inhabited the area.

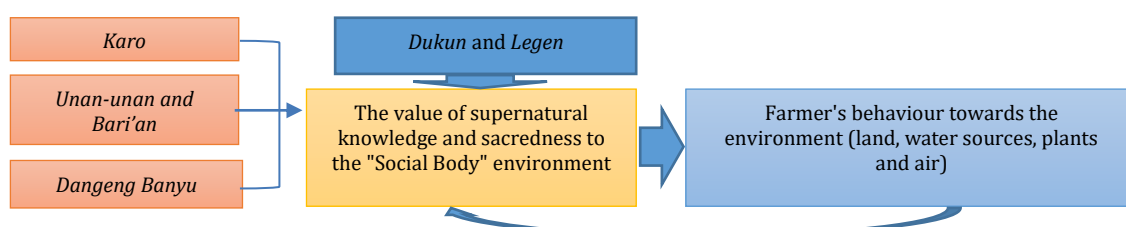


The constructed knowledge accumulated cumulatively and executed sustainably in the Karo tradition leads the community to ward off misfortune—natural disasters like floods, landslides, and droughts may be avoided. It is indicated by the statement of one of the local farming communities who said “Here, on average, the farmers believe in the supernatural. That is why there are Karo, Unan-unan, Dangeng Banyu, and other events. In the past, there was an incident, you know, because the residents did not do Karo and Dangeng Banyu. So, they ended up running out of water sources. Even though there are many water sources in Leduhuk River, suddenly the water does not flow as usual” (AM, Poncokusumo sub-district, 13/9/2018).

Moreover, the rituals practiced by farming communities in Poncokusumo are Karo, Unan-unan, Bari'an, and Dangeng Banyu. These traditions serve a similar purpose, expressing gratitude for blessings, but are articulated through distinct symbolic practices. Besides gratitude, Unan-unan is a symbol of being united with nature and has a meaning to extending a month in the Tenggerese calendar [23]. Practically, it involves dukun (the shaman) or legen (the shaman's assistant) as the central actor who recites a mantra to accompany the insertion of a buffalo's head under a banyan tree. In comparison, Bari'an is a ritual of giving and offering gratitude for blessings and avoiding misfortunes [24].

Meanwhile, Dangeng Banyu is a ritual that ensures the spring is sacred and blessed. After the procession, the farmers went to the water sources. Both Bari'an and Dangeng Banyu are a form of salvation procession to avoid drought by bringing jenang—a toffee made of glutinous rice cake to be recited by dukun.

There is a strong connection between the farming community and the supernatural realms. The farmers believe that if they did not hold these sacred processions, it could cause further problems, such as crop failures. The importance of preserving traditional traditions is shown in the statement below, "Because of the drought, we don't dare to leave the Banyu Karo and Dangeng traditions. That's a real form of gratitude. Besides that, it is a form of giving to the creatures who guard this village" (HR, Poncokusumo sub-district, 13/9/2018).



**Figure 1.** Traditional patterns of farmers in responding to supernatural values to the environment (Data processed by the researchers, 2018)

The diagram above shows that all of the rituals are led by *dukun* or *legen*, who become respected figures for their ability to connect with the supernatural world. *Dukun* or *legen* occupies a significant position in socializing the importance of nature's

protection in people's daily lives if they do not want to get misfortune. Being aware of the consequence, people construct the value of supernatural knowledge and sacredness to be one with nature, which becomes the social body environment. People follow and respect the spirits or gods that protect them and nature. Here, it will produce a behavioral system that aligns with the natural resources. Besides the agricultural method, this is also a part of the farmer's knowledge construction.

The community believes that performing these rituals helps prevent natural disasters. However, no direct scientific evidence supports this claim, though the rituals strengthen community resilience. Bell elaborated that customs with sacredly revered meanings and accepted by the locals are an effort to comprehend the environment of the group [25]. This knowledge is intertwined and relates to how farmers act and where they reside. Therefore, esoteric knowledge with sacred values is a social body in the farmer institutions.

However, the local traditions, as shown in the previous figure, are primarily abandoned in the sub-urban Pakis. Instead, the farming community tends to follow Nahdlatul Ulama's practices of practicing Islam. They emphasize religious events like yasinan-tahlilan (a form of local wisdom from the worship ceremony), including congregational prayers at the mosque, to foster social connection among farmers. Maintaining customary and Islamic traditions offers the dual benefits of advancing environmental conservation initiatives and promoting social interaction [26] to improve agricultural knowledge. On this occasion, farmers are invited to enhance their social embeddedness as they gather to discuss the farming problems in their fields. They now share recommended fertilizers and seeds to achieve the solution altogether.

Essentially, traditional preservation, which involves spirituality between soul, body, and nature, is the effort to achieve harmony. Moreover, it also enhances embeddedness among the members. Hess stated, "Embeddedness has initially been applied on a local and regional level, demonstrating the importance of place and spatial proximity in generating trust, developing regional socioeconomic networks, and thus leading to regional innovation and socioeconomic development" [27].

Preserving traditional values and harmonizing with nature are intertwined, maintaining the local knowledge firmly rooted in the community. This knowledge serves a practical purpose and contains teachings and life philosophies. Farming communities get indirect knowledge transmission from their forefathers to ensure their survival. In this context, it has been instilled that all agricultural rules that their predecessors have formulated are not merely a means of earning income but a long-term aspect of preserving the environment.

- b. Building alternative embeddedness: a synthesis between value retention and the dynamics of social disasters

The dynamics force people to adapt to a new environment. On the one hand, the embeddedness formed between agricultural actors with old patterns might not apply to people whose mindsets and behaviors have changed. On the other hand, the farming community's local wisdom has historically been manifested as a well-

established tool of social resilience. Thus, social disasters challenge society to maintain their belief and commitment to sustain their knowledge while preserving nature and fulfilling their needs. Those efforts are a point of resilience. Resilience is essential to surviving, overcoming challenges, and minimizing obstacles well [28].

The embeddedness patterns can be found in farming communities that rely on routines and are represented in the activities of Sahuri, a farmer who prioritizes farming to fulfill their livelihood. The survival of farming communities is determined solely by their agricultural capabilities. Basic routine systems and automatic processes intertwine as episodic events in the agricultural space, further strengthening people's dependence on this sector. People in this situation do not consider other activities outside of agriculture because they sacrifice their productivity if they do. In this context, Giddens stated that action is a form of experience perceived and contemplated by relying on the reflexive factor of the actor as a practice of causality intervention [29].

A similar embeddedness was also found in Munawi's agricultural activities. Working for 30 years has made this occupation the foundation of his life. Farming skills and activities that are continuously done have become daily routines. As Giddens stated, activity in the same space and time can gradually form a social structure. Giddens' viewpoint is also related to agents facing change, representing individual self-factors rather than a collective life that wants change [30]. In this context, it is necessary to understand Granovetter's idea about social embeddedness, which historically, in the development of economic sociology since the 1980s, has led to the construction of relations about institutional aspects. According to Granovetter, the significance of social embeddedness is that individual interests and economic actions are embedded in social interaction networks that affect the economy [31].

Other embeddedness comes from consistently performing traditions to maintain agricultural sustainability. Implementing rituals allows farming communities to gather and share ideas. A similar pattern underpins the construction of collective knowledge that supports farming activities, other than depending on formal practices involving agricultural institutions like farmer groups and other media.

This research found that farmers' habits or behavior patterns during agricultural activities produce two types of knowledge: farming knowledge and esoteric/religious knowledge. Maintaining the sustainability of transferring these two knowledge productions in constantly changing conditions takes time and effort. Central actors who play critical roles, such as shamans or traditional leaders, do not always guarantee that local wisdom will be passed down indefinitely. Intellectual capital can be developed primarily as a catalyst for adaptation to a sustainable community, allowing interaction between actors to improve social and economic welfare [32].

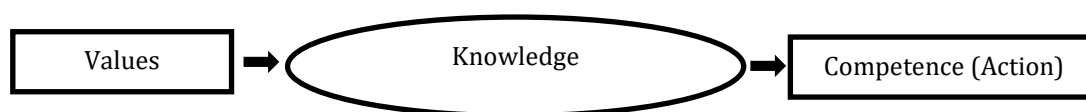
The young generation, who lives in a different environment, enables the shift of the critical role of actors from being symbolic, relying on moral legitimacy, to material, rational economic bases. Furthermore, the subsistence conditions experienced by

farming communities show that the farmers' opportunities to continue agricultural activities become limited. Thus, it is essential to widen access and strengthen synergies between actors and direct stakeholders in the agricultural sector, such as land owners, forepersons, cultivators, farm workers, mediators, and the involvement of shamans or chieftains and communities concerned with the environment. The synergy between actors allows for working relationships, conflict resolution, social responsibility, sustainability management, cultural diversity, and social inclusiveness. It aims to maintain abundant local wisdom combined with efforts to build a social body full of knowledge and competence as an inventory of intellectual capital that can be passed down to the successors [32].

Attempts to build alternative embeddedness can be made by intersecting social and economic aspects, referring to Granoveter's point of view. The social structure in the form of networks affects the economy regarding the flow and quality of information, the ability to appreciate or otherwise, and trust in others [33]. In this context, reaching a meeting point between social and economic aspects is possible. The social aspect is explored from local wisdom values treasured as a legacy of the previous farming community. In contrast, the economic element comes from realistic thinking-emphasizing rational and pragmatic matters.

For this reason, it is necessary to strengthen the functioning of social institutions—predominantly where the society consists of economic institutions and local Government. Therefore, the agricultural development will be optimized. It aligns with Bourdieu's view, which explains that social relations are not natural or accidental but constitutional, standardized, and based on family ties shaping the character of specific social formations. According to Giddens' structuration theory, the structure is based on humans, whose entire control over the life process [34].

A reasonably fundamental problem is related to efforts to develop knowledge sustainably and awareness of agricultural actors so that they can continue their agricultural activities. Thus, it can be interpreted that preserving agrarian sustainability depends on farmers' knowledge and adherence to binding values. The researchers borrowed a disaster term, which is mitigation [35]. Mitigation is chosen to describe actions to minimize risks associated with social disasters in the agricultural sector. Agrarian mitigation is proposed as a prevention strategy for social disasters arising from change dynamics. It is critical to do because social disasters affect the sustainability of the agricultural sector. This term establishes a comprehension that rural activity serves as a food supplier and a space for economic and social activities for people in rural areas, and that has become a dynamic agriculture arena related to other stakeholders. One of the essential terms that can be used as an alternative to enhance embeddedness is sustainability mindset. Most people have agreed that natural resources become the determining factor for sustainability. However, along with the dynamics of changes that exploit natural resources, Spence suggests that the sole solution is to develop alternative growth models adaptable to change based on two essential elements: education and values [36]. The following is an iterative effort to convert Spence's ideas into a model formulation.



**Figure 2.** The mechanism of building a sustainable mindset [37]

As the figure above explains, the connection between values, knowledge, and competence is core to establishing sustainability; values are to uphold traditions; knowledge is to preserve local wisdom in general, while the competency dimension serves to apply skills and technology without sacrificing tradition. It aligns with Spence's perspective that we should prosper within the changing flow. Sustainability involves a bottom-up approach and support for local innovations and adjustments to social norms, lifestyles, and business behavior.

One agricultural activity that integrates work, religious beliefs, and social values is *ngasak*, which reflects the community's collective effort and spiritual significance in farming practices. *Ngasak*, a local agriculture term, refers to collecting crop residues. In rice harvesting, *ngasak* aims to collect the leftover grains from the harvest in the rice fields—which are usually consumed. Meanwhile, the term *ngasak* is also used in apple farming. The land owners or tenants permit residents to take the apples from the trees. Those who do *ngasak* are low-income residents rather than workers. Apart from being consumed, the *ngasak* production may also be marketed on the roadside, in small stalls, or in local markets. Most of those participating are middle-aged people and mothers living in poverty. Therefore, *ngasak* serves to supply food, offers economic opportunities, and connects socio-economic activities between upper-class stakeholders such as land owners or cultivators and lower-class stakeholders, farm laborers, and the impoverished in general who live close to rice fields.

This scheme demonstrates a natural mechanism for mutually beneficial cooperation patterns and provides a platform for landowners to share sustenance. The owner or cultivator of the land usually gives a particular additional portion as a form of alms to people who do *ngasak*. This positive relationship creates a rhythm that keeps repeating itself. Farmers and people who do *ngasak* get a larger share when the bountiful harvest happens. Here, it indicates that at least three sources of value are being carried out—religious, social, and economic—are being fulfilled by *ngasak*. Regarding religion, *ngasak* adheres to Islamic precepts found in Al-Baqarah verse 261, “The parable of those who spend their wealth in the way of Allah is like that of a grain that grows seven ears, in each ear a hundred seeds. Allah multiplies (rewards) for whomever He wills. Moreover, Allah is all-wide in His bounty and all-knowing” [38]. This verse becomes a belief and people's way of doing their economic activities, aiming to be pious by multiplying good deeds [39].

While in the social context, *ngasak* is a means to lessen other people's burdens. From the economic standpoint, *ngasak* can be interpreted as an attempt to empower the community and possibly alleviate poverty. In this case, if using the term from Bourdieu, the *ngasak* mechanism has distributed economic, social, cultural, and

symbolic resources [40]. As in the concept of social embeddedness, it is necessary to consider the relation of social relations with social expectations through a framework that justifies the practical aspects of constructing alternatives. On the other hand, it involves social mechanisms that have become living capital, such as beliefs, traditions, additional resources, and shared hope for the farming community. The farming communities in Poncokusumo and Pakis enhanced the social embeddedness through faith that can be implemented in cultural practices. Moreover, they help each other by practicing *ngasak* as a form of giving. Thus, their resilience results in agriculture sustainability.

#### D. CONCLUSIONS AND SUGGESTIONS

In responding to social disaster challenges in agriculture, the construction of knowledge, values, and embeddedness of farming communities should not be exclusive to ancestor worship but must focus on integrating social, economic, religious, and ecological aspects. The dynamics stimulate adaptability to secure the sustainability of two knowledge productions: agriculture systems and esoteric or spiritual knowledge. They are two important values passed down to the succeeding generations. They hope that they will choose farming as a promising field someday—not only for material orientation but also for culture's sustainability even though that intention is challenged by capitalism. The research findings suggest that the farming community must be viewed as a subject, not an object of change, through bottom-up agricultural mitigation based on local wisdom. Sustainability in Indonesian agriculture must be a concern for a brighter future.

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