

**SOCIO-ECOLOGICAL DYNAMICS AND LOCAL WISDOM TOWARD
ADAPTIVE CAPABILITY TO USE AGRICULTURAL TECHNOLOGY
BY THE COMMUNITY OF KASEPUHAN SINAR RESMI**

***DINAMIKA SOSIO-EKOLOGI DAN KEARIFAN LOKAL TERHADAP
KEMAMPUAN ADAPTASI PENGGUNAAN TEKNOLOGI PERTANIAN
OLEH MASYARAKAT KASEPUHAN SINAR RESMI***

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ABSTRACT

The obligation to maintain and preserve the environment, in the view of all religions and beliefs, is a must for the community so that religious values and local wisdom of the community also become binding provisions to maintain and preserve the environment. This study aims to describe, analyze, and solve problems regarding socio-ecological dynamics and local wisdom about the adaptability of using technology in the community of Kasepuhan Sinar Resmi. This study uses a descriptive-analysis method which is to describe the analysis and discuss it comprehensively and integrally. Data collection techniques were carried out through interviews and literature review. This study found that the community's local wisdom based on its adaptability to use agricultural technology at the Community of Kasepuhan Sinar Resmi is related to environmental preservation and the effort to make the environment useful for life.

Keywords: socio-ecological dynamics, local wisdom, Kasepuhan

ABSTRAK

Kewajiban menjaga dan melestarikan lingkungan dalam pandangan semua agama dan aliran kepercayaan adalah suatu keharusan bagi masyarakat. Nilai-nilai agama dan kearifan lokal masyarakat juga menjadi ketentuan yang mengikat untuk memelihara dan melestarikan lingkungan. Penelitian ini bertujuan untuk mendeskripsikan, menganalisis, dan mencari pemecahan masalah dinamika sosio-ekologi dan kearifan lokal mengenai kemampuan adaptasi penggunaan teknologi pada warga Kasepuhan Sinar Resmi. Metode penelitian menggunakan pendekatan deskriptif-analisis, yaitu menjabarkan hasil analisis dan membahasnya secara komprehensif dan integral. Teknik pengumpulan data dilakukan melalui wawancara dan kajian pustaka. Penelitian ini menemukan bahwa kearifan lokal dalam kemampuan adaptasi penggunaan teknologi pada Kasepuhan Sinar Resmi terkait dengan pelestarian lingkungan dan upaya agar lingkungan bisa bermanfaat bagi kehidupan.

Kata kunci: dinamika sosio-ekologi, kearifan lokal, Kasepuhan

INTRODUCTION

Moral values, religiosity and ethics tend to provide valuable clues to protect and preserve the environment. Environmental problems are not only solved by technology and scientific methods but also assisted by other forces, namely religion, belief, and local wisdom, as well as the influence of ethics on human attitudes towards nature. Attitudes towards the environment become the basis for real behavior or concern for ecology (Pudjiastuti, 2020). Humans as individual and social creatures take everything from their environment to fulfill their needs. As God's creatures, humans are the perfect creatures, therefore they often feel they have the right to be in power to control and exploit nature beyond their needs. This can be the cause of the global crisis. According to Zuhri (2013), this condition is exacerbated by the positivist view of life offered by Auguste Comte (1798-1857) and his predecessors (Rene Descartes, Thomas Hobes, John Locke, and Davide Hume). The impact of the positivism views, among others, is that humans feel they can do anything in controlling and exploiting nature and fellow human beings without worrying about having to be held accountable before *AllahSubhanahu wa Ta'ala* (lit. Exalted and Glorified is He).

The global environmental crisis is caused by wrong and failed policies, low political commitment, and deviant behavior from state actors. Trans-national corporations, consumerism culture and individualism, in principle, can damage the environment (Pudjiastuti, 2021). The awareness to raise and rediscover local wisdom is motivated by the economic and social progress of the world community, which is currently accompanied by various environmental damages. Day by day, it can be felt that there is an increase in the extent and intensity of the degradation of natural resources and the environment and even the occurrence of pollution in the biosphere, hydrosphere, and atmosphere. Public knowledge of the existence of natural disaster warnings determines early preparedness for the impact of future disasters (Pudjiastuti, 2019). Indigenous knowledge, known as local cultural wisdom, is

an accumulation of intergenerational collective experience that must be developed to enrich perfect future technological innovations so that they will be sustainable.

Humans are the main factor causing a lot of environmental damage. Without realizing it, the activities of human life in daily life can damage the environment due to economic pressure and low public education (Maridi, 2012). Human interaction with the environment is not always harmonious; there are negative impacts that occur because of human behavior towards the environment. According to Suparmini, et al. (2013) this interaction can cause negative effects that can be the cause of disasters, and other losses. To overcome the situation, the local wisdom owned by the community can be used to minimize those negative impacts. If followed, implemented, and believed, the values of local wisdom of the community, which are implemented from generation to generation, will have a major role in the preservation of the socio-ecological environment.

Preservation of local cultural values and religious teachings related to nature protection on environmental ecology is a form of traditional conservation carried out by the community. Nababan (cited in Suhartini, 2009) explains that the principles of traditional community conservation include (1) respect that allows traditional communities to have the principle that they are part of nature hence their relationship with nature is always in harmony; (2) a sense of ownership of the environment which is a common property, hence a desire can arise to be able to sustainably maintain these resources as common property; (3) the knowledge system owned by the community in order to have competence in solving existing problems to manage very limited natural resources; (4) the ability to adapt to the use of appropriate technology to suit local environmental conditions; (5) the allocation system and customary law enforcement system that can protect the environment based on ecological concepts from abusive usage of excessive resources by the community or migrants by being stipulated in customary institutions and norms; and (6) procedures for distribution hence

the harvest can be enjoyed evenly to prevent inequality in society (Pudjiastuti, Iriansyah & Yuliwati, 2021). Environmental care is not just aesthetics (beauty) but rather the implementation of the goals of implementing Islamic values (Stanis, S., 2005).

The implementation of the local culture of the community is expected to create changes in community behavior related to wise behavior towards the environment. This change can be realized if all parties have a sense of awareness and sincerity in the process of social mobilization. Changes in behavior and social structure are related to values, norms, and social institutions that become the lifeblood of people's lives so that they are better and more permanent than before. Local cultures and religions that are embraced and obeyed by the community must be protected and preserved. Siswadi, et al. (2011) explained that there are several factors that can be done, namely (1) strengthening the existence of traditional and religious communities through driving forces, for example, government, environmental experts, and religious leaders; (2) increased awareness, understanding, and concern, as well as community participation to have wise behavior towards environmental ecology; and (3) the availability of a legal umbrella. Maridi (2012) in his research explains that efforts that can be realized to empower the community to be wise to the environment include increasing citizen participation through dialogue and commitment from government officials and related parties, conducting counseling, coaching, and training for community members in utilizing and preserving the environment. Furthermore, Pudjiastuti (2020) explains that the behavior is closely related to the relationship between humans and their environment, where the results of their actions can be a mirror of personal self, imitate other people's styles or due to ecological factors that naturally affect human behavior (Smith. T.L. & Paul F.Z., 1970).

The Kasepuhan community in general does not own land that is privately owned outside the area, even though it is located within the Mount Halimun area. The main livelihood of Kasepuhan residents is agriculture, especially

rice plants in the form of *huma* or rice fields. Their occupations are farmers, and some are farm laborers. Farm laborers in Kasepuhan have arable land (rice fields/*huma*) but the number is limited, so they double as laborers after the land has been worked on.

After the rice is harvested, the land is used to plant secondary crops, until it is time to plant rice again. *Huma* is the main rice crop, and rice fields are only used as a companion crop. Sinar Resmi Village is a central area of Kasepuhan. The inhabitants are living in small villages with only 10-30 houses forming the farm village type settlement pattern (Smith & Zopf, 1970). The village capital is the largest village (Pudjiastuti, S.R. & Rumiati, S., 2019). Usually, one village consists of one large family. The location of the village is around the rice fields and plantations. The position of the village is connected by paths made of mountain rock.

Although the current of modernization is rushing through the lives of the Kasepuhan people, the community's loyalty to local wisdom is still preserved. For example, they only plant the types of rice according to regulations, and they are committed to not selling rice and not moving to other places; all these practices are still strictly maintained. All this local wisdom is related to the existence of ancestral orders in the form of *wangsit*, which is continuously maintained by *Abah* (father) and his followers. Denial of *wangsit* will affect the ancestral punishment in the form of "*kabendon*". The people of Kasepuhan strongly believe that if they violate customary norms, they can be subject to customary sanctions in the form of *kabendon*; for example, they may experience an illness that even medical treatment cannot cure. One example of being exposed to *kabendon*, for example, is that someone can get lost in the middle of the forest until he dies. A person can be free from *kabendon* if he remembers the mistakes he has made, and immediately asks for forgiveness and apologizes to *Abah* with a promise not to do it anymore.

Because of the strong belief in ancestors' *wangsit* and fear of being exposed to *kabendon*, this has caused various local traditions and

knowledge to be preserved and carried out. However, there have been some changes, for example in the ownership of television, cellphones, cars, and even changes to the shape of the house and the use of chemical fertilizers. This is permitted by the ancestors with *Abah's* permission. As long as he gives permission, the ancestors are considered to have given their approval because his permission represents the ancestral blessings. The priority of the Kasepuhan tradition/culture lies on the livelihood system, which depends on the rice farming. The traditional agricultural system carried out by the Kasepuhan residents demonstrate close relationships between agricultural practices, social institutions, and belief systems with natural elements such as soil, water, air, sunlight, weather and so on. This has been done since centuries ago, from generation to generation. People have known and interacted intimately with their natural environment.

METHOD

This study uses a descriptive-analytical method to describe the analysis and discuss it comprehensively and integrally, to provide an explanation of the problems related to socio-ecological dynamics and local wisdom regarding the adaptability of technology usage by the Kasepuhan Sinar Resmi's community. This study focuses on the general principles as a basis for realizing the symptoms contained in social life. Therefore, the approach used in this study is a qualitative one that aims to describe the data. Data collection techniques were carried out through interviews and literature studies. The research discussion was carried out through descriptive analysis supported by secondary data and literature studies (Pudjiastuti, 2019). This research is in the form of a case study that prioritizes on investigating interrelated phenomena and contexts and utilizing a lot of evidence or information to find data (Dharmawan, 2006).

RESULTS AND DISCUSSION

The indigenous people of Kasepuhan Sinar Resmi are local people who live in Sirna

Resmi Village, Cisolok District, and Sukabumi Regency. The location is in Mount Halimun at Salak National Park. Based on stories passed down from generation to generation, the Kasepuhan community is a relic of the Pakuan Pajajaran Kingdom. According to the records, the first displacement occurred 634 years ago from the Jasinga area to Bogor. According to Dharmawan (2007), currently, the village (locality) has become an arena for contesting the attraction of socio-political and economic interests which makes its existence not always free in determining the direction of its future development (Cited in Silito, P., 1998). From the perspective of world-system theory, the symptom of articulation (power struggle) of regulatory systems in which the local social system represented by indigenous civilizations continues to be pressured by the very pressing forces of the western global world. This pressure continues to occur through the expansions of the "Western knowledge system" which urges the local knowledge system, "Western European-style modern cultural values" (displaced local-specific patterns of life), "capitalism-economic system" which goes hand in hand with the expansion of capital, as well as Trans-National Corporations (TNCs) that drive the local economy.

Escobar (2005) explains that the 'regime of developmentalism' which runs according to the "logic" of modernization theory is considered to have become a new colonialism force. This is not only a powerful mechanism for production and economic management (TNCs), but localities have also become new objects. Western-style penetration of knowledge (TNKs). The penetration of ways of thinking, all foreign investment, all economic accumulation, and all-capital expansion, will later produce cultural dominations in a way of thinking that perpetuates the dominance of local political powers in the western capitalistic institutional models in the local regulatory order. The penetration of the western knowledge system, which is Euro-centric, towards indigenous knowledge through the strength of TNKs has a very depressing effect that can deceive local

arrangements. The inability of local institutional structures, for example, customary leaders, customary rules, and customary norms, in regulating and negotiating cannot be avoided. Escobar (1998) recommends the 'three-nature' concept to be able to observe the defeat of local environmental ecological regulatory systems (Adimihardja, 1989). The three realms are "organic nature" (a natural system managed by local communities), which is the domain of locality forces in the environmental management regime. Second, "capitalist nature" is a natural or ecological system controlled by the power of capitalism; third is "technological nature," which is a natural system that can be controlled by advanced (Western) technology owners. According to Escobar's conception, only organic nature is fully in control of the local area. The other two realms are in the area of socio-ecological governance of the Western-modernity pattern, which is loaded with global-transnationalism interests.

Behavior, cognitive factors, imagination, and understanding of the nature of the universe gave birth to a Kasepuhan cosmology. In the Kasepuhan environment, there is a view that the universe is an orderly and balanced system. The universe will exist as long as the elements are still visible and controlled by the laws of order and balance that are controlled by its cosmic center (Escobar, 1998). The cosmology is summarized in *pancer pangawinan* 'blah blah blah', namely carrying out *sara*, *nagara*, and *mokaha*. *Sara* is a religion, *nagara* is government, and *mokaha* is salvation or Kasepuhan. *Sara*, *nagara* and *mokaha* must be able to unite. Each decision made by Kasepuhan refers to the principle of 'must be based on law, support the state, agree with the people'. In terms of understanding the existence of God, the Kasepuhan concept teaches '*pur kuntu pur kurungan nganti jeung gusti geura ngaraga jeung nukawasa, sara nagara mokaha, ngajina kudu ngajirim*' (if violating customary provisions, *matak/kualat* 'consequence' or the term *kabendon* 'punishment' will occur).

The religion adopted by the Kasepuhan residents is Islam, and there is a mosque in the middle of the village. However, they still practice

the ritual of giving offerings to Dewi Sri. Rice in the Kasepuhan concept is interpreted as Dewi Sri (Mother). The ritual is practiced since the stage of planting to harvesting, cooking, and eating.

There are many traditional ceremonies related to rice farming, among others, when starting agricultural activities, you must first ask permission from the father (*Abah*). After *Abah* receives the new *wangsit* 'divine inspiration', he gives permission to the *descendants* (descendants) to carry out agricultural activities simultaneously in a certain month determined by custom. In agricultural activities there are various kinds of ritual ceremonies, including when choosing seeds, performing ritual ceremonies, namely burning incense, and offering prayers, as well as when sowing seeds. Time to open the fields, burn incense and prepare the cone.

The traditional ceremony is similar in treatment to human rituals, namely *mapag pare nyiram* or 'when the rice begins to thrive'. When the rice plant ceremony is carried out, the ritual is the same as that of a woman who is 7-month pregnant. The ceremony is marked by preparing 7 types of *rujak* 'fruit salad', red and white porridge, and reading the salvation prayer the same as humans, for example reading the Qur'an, Surah Yusuf, and Surah Maryam. The purpose of the ceremony is to make rice that has begun to bear fruit safe and produce abundant harvests. Before and after harvesting (*nganyaran padi* or 'new rice'), a ceremony is also held, namely by providing incense, coffee, cigarettes, and cakes as well as prayers. The biggest ceremony is the time to store rice in the barn, which is during the annual *seren* 'shifting' ceremony. The ceremony is carried out for 3 days - 3 nights by all family members, namely the descendants led by *Abah* (the father).

Mother Earth, Father Heaven and Master Prey

By treating the earth as a mother, the ancestors convey the teaching to not force the mother to give birth more than once a year. Coercion to the mother will eventually waste energy with the use of super fertilizers, for the sake of the birth of life. It is a shame if the mother has to

give birth more than once a year. In addition, cultivating land is also done manually and traditionally according to the direction of the ancestors. The goal is to be able to go directly to the mother without distance. It is also a form of solution for mother earth. In addition, it can read omens from the father of heaven. The sky always gives a sign regarding the right time for humans, and the right time for life other than humans are derived from the science of the stars called *Kidang* or Orion and *Kerti* or Pleiades. The date of *Kerti Turun Wesi*, the date of *Kidang Turun Kungkang*, is an astrological concept. This is the basis for the right time for humans when they see a sloth or *walang sangit*. It is said that this sloth has no place on earth. When the sloth descends, it is said that the father has given a sign to life on earth, reminding him that the time for humanity is over. At that time the opportunity for the life of other beings just begins, for example the opportunity for insects to breed. Therefore, planting must not be done while they are breeding. It will be a problem when humans are forced to take advantage of the time that should belong to the lives of other creatures, just because they do not understand the science. Then, they regard it as a pest hence the insects are sprayed with pesticides, which means they are killed.

Langit or sky describes that there is local knowledge based on events in the universe (sky) related to cultivating agricultural land. When setting the time to cultivate the land, the ancestors will start by seeing the presence of *Kerti* and *Kidang* stars. *Kerti* and *Kidang* are star constellations in the sky at night. *Kerti* is a *ngaronyok* star (clustered stars), *Kidang* is a Waluku star (*nu tilu* 'the three') shaped like a kite. The natural law of *Kerti and Kidang* applies everywhere the iron tin has to go down; everywhere, when the star of *Kerti* appears, the farmers immediately prepare their agricultural tools, such as hoes, machetes, etc. When the star of *Kidang* is visible, the farmers are allowed to go down to the fields or *huma* to manage the land).

Guru Mangsa or 'Master of Time' means learning from the universe related to determining the time when you can start farming and when

you cannot. The goal is *ngudag* 'pursuit' acknowledgment (claiming land rights). The star of *Kerti* is used as a sign of the early time to manage the land. Even though the rain has not yet arrived, the community continues to cultivate the land according to the traditional rules. September-April is the right time for farmers; May to August is the right time for other creatures such as pests and so on (not to be disclosed). After rice planting, the cultivated land is fenced off with a prayer (prayer): '*ulah arek cumokot kana teuteundeunan aing* 'never steal from my belonging', '*ulah heureuy, ulah badeur*' ('don't play games' and don't be mischievous'). Protective act was carried out based on the principle of '*opat kalima pancer*' (four wind directions, i.e., West-East-South-North, and one center), which means they have different meanings but one goal.

Adaptation of the Use of Agricultural Technology in the Kasepuhan Sinar Resmi Community

Basically, conservation is an effort made to preserve, use efficiently, and regulate the direction of development in the future. Today, these efforts must be supported by technological developments. The use of technology and alternative materials is needed to facilitate environmental conservation. The use of this technology must therefore be in the corridor of environmental preservation.

The local cultural wisdom as described above is related to the time set for managing the land, and only once a year managing rice agricultural land is carried out even though it is in the rice fields. This cropping pattern is known in conservation tillage as reduced tillage. Adaptation of technology applied by the community in managing agricultural land once a year (reduced tillage) is by controlling the density of the soil to be worked on and utilizing post-harvest mulch. The mulch plays a very important role in the decomposition process of organic plant residues into inorganic compounds (minerals) which are very beneficial for the growth and development of plants in the next cycle.

However, the adaptation process is certainly contrary to modern agricultural knowledge with the principle of intensification; in principle, agricultural land can be cultivated more than once; yet, if necessary, three times in one year is allowed to pursue productivity.

The people of Kasepuhan experienced heavy pressure during the Green Revolution. The officers came and obliged them to plant twice a year in the paddy fields. They know that this is not in accordance with the traditions or orders of their ancestors (*karuhun*). Yet, they dare not to refuse it. Then they act; it is up to whoever wants to follow them. Indeed, there are those who follow. From their experience, it turns out that the twice-a-year cropping pattern makes the soil thinner. The results in the first year were good. In the years that followed, however, the results declined even more. Even the capital used for buying fertilizers or pesticides is greater than the results they get. Fertilizers do fertilize rice but reduce nutrients. Based on the concept of modern agriculture, the more often the land is cultivated, the higher its productivity will be. So that the land can continue to produce well, chemical fertilizers are used. However, it turned out that the results of further research proved that the use of chemical fertilizers whose intensity was often used resulted in land dependence on chemical fertilizers and then the longer it took the higher the dose (Escobar, A., 1998).

There is evidence explained by Abah Asep, if people plant twice in one year, the barn becomes two. But this is not the case. Even the barn was empty. The rice products introduced by the government were immediately sold because they were not durable. In times of famine, people have to buy rice. Meanwhile, residents who apply the once-a-year cropping pattern can store their rice in a traditional barn called *leuit* until the next harvest. Even local rice can last for decades. Therefore, the community continues to carry out the cultural heritage of their ancestors. "This is a tradition, the blessings are certain," according to Uwa Amir Buchori, the Kasepuhan secretary. The concept of farming with a modern pattern which is carried out through an "intensification" system is contrary to the pattern of local communities in cultivating their land.

Abah Asep explained that if it was calculated based on productivity, Abah's farm yields should have been a loss. But what the Kasepuhan residents are pursuing is not just productivity, but harmony with nature. *Saeutik mahi loba nyesa'* (when having only a little, it should be sufficient; when having abundant, we should save the rest).

The agricultural model is managed based on local knowledge based on customary norms which are principally based on community knowledge, including '*beuteung seubeuh, baju weuteuh, imah pageuh, pamajikan reuneuh*' (full stomach, new clothes, strong house, pregnant wife). It means agricultural products from land management do not have to produce high productivity if the impact on the land is damaged. The main thing, however, is that these agricultural products can meet all the necessities of life and make a peaceful life based on the principle of "*pamajikan reuneuh*" (wife can be pregnant means getting offspring and all their needs can be met).

The agricultural concept applied by the Kasepuhan indigenous people is certainly different from the modern farming concept with the principle of being able to achieve high productivity. If necessary, planting rice that can be harvested 3-4 months and rice fields are planted 2-3 times a year. This concept has become an agricultural policy adopted by the Indonesian government to increase agricultural production, through an intensification program. Intensification is carried out in various ways that can increase land productivity.

The uniqueness of the traditional Kasepuhan residents in the Sirna Resmi Village is that rice is not allowed to be sold but can be bartered in the form of other objects called *sosoroh* 'voluntary job'. Rice has a sacred meaning for the people of Kasepuhan because it is considered the incarnation of *Nyi Pohaci (Dewi Sri)* which is a symbol of fertility. To give appreciation to this rice, a special place was built to store rice called *leuit*. Their belief is 'if you stay in the house, then the rice must stay in the house too'. There is a ritual process when storing rice in the barn (*leuit*) is part of *adab* 'respect'

for rice. It is the same in principle as when rice is planted in the rice fields (*ngaseuk* or sow) up to the time the rice can be eaten after the harvest for the first time (*nganyaran* 'replant').

For residents who strictly maintain the procedures for cultivating land and planting rice, especially the rules for only planting rice once a year, the role of *leuit* is very important. The presence of *leuit* also regulates the availability of food in the Kasepuhan area which is located on the slopes of the forest. In the area where Abah lives, which is the center of Kasepuhan, there are two types of *leuit*, namely *leuit jimat* (sacred barn) that belongs to Abah personally and the traditional *leuit* of Kasepuhan, which is a customary *leuit* as a reserve for food for the descendants Abah or the descendants.

Each resident sets aside two *pocongan*, 'yellow rice stalks' from the harvest that was collected and put it into the Kasepuhan traditional *leuit*. Residents also have their own *leuit*; each family has at least one *leuit* with a capacity of 2-10 tons of dry grain. The harvest is put into *leuit* in the form of bonds or *pocongan*, which is about 400 *pocongan* per *leuit*. As for daily consumptions, residents usually use leftovers from last year's harvest. If there is a shortage, residents can borrow rice from the '*leuit adat*'. The rice can be paid at the future harvest and without interest.

There are times when *leuit* can be used as a dowry under certain conditions or as an inheritance to the descendants of a family. When getting married, the community prioritizes building a *leuit* first to give a house to the Goddess who is the supporter of their life. The concept of "*leuit*", which in the view of the community is a form of respect for "Dewi Sri", has functioned as food security for the community members. With a concept like this people are forced to store rice in "*leuit*" and regulate the way people consume it.

This concept is different from the concept of "market" in the style of capitalism. The market is a mechanism of allocation of limited resources, which becomes an effective engine of wealth creation. Capitalism by its greedy and cruel nature has made the markets unable to function socially efficiently. Capitalism and the

law of the jungle "The survival of the Fittest (who is the strongest - he wins)" have a tremendous social impact in creating a gap between the rich and the poor. This condition will not be seen in the Kasepuhan residents. Even if there are rich and poor people, the gap is not too big. The poor in Kasepuhan can still eat three times a day and the rich in Kasepuhan will not be a human being that exploits other humans. There is a belief espoused by the Kasepuhan community that whoever works on agricultural land and makes a living as a farmer, his or her life will not be lacking. The need to eat every day will be fulfilled from the results of his farm. Even if it is not enough, they can borrow rice from the traditional granary in Kasepuhan.

This principle is increasingly believed when there is an example that the richest person in the village is measured by the area of land he or she owns. Yet, it does not guarantee that his or her life is sufficient because that person does not cultivate his own land. Instead, his land is rented to others or "*paro*". Automatically the yield is only half, and it is not enough for self-consumption until the next harvest.

The idea of Escobar's (1999) is that the local knowledge of the Kasepuhan residents can be seen as an organic natural regime. Moreover, local knowledge teaches that nature is also a living creature like humans; its existence is for human benefits and therefore nature must be preserved as a deposit from the ancestors.

The setting is also regulated by the ancestor. Violations of these ancestral rules, such as cutting down a tree in a *leuweung* 'forest' deposit/cover, will result in *matak kabendon* 'punishment', which causes the loss of life from the body. As Escobar (1999) points out that nature is a different experience, referring to one different social position, and be applied by different groups or different historical periods.

The knowledge of the Kasepuhan indigenous people about agriculture, forest *wewengkon* 'area' and everything that connects the harmony of human life with nature and the environment is not always fixed. It gradually changes along with the rapid flow of globalization.

The current reality, the flow of globalization, has led to changes in lifestyle. The most striking changes are the ownership of cars and cellphones (HP). Abah Asep already has a car. However, compared to Abah Ugi, Abah Asep is far behind. In the past, when Abah Anom was led (Abah Ugi father) had 16 cars. It was even reported that the car used by the Sirna Village Head was a gift from Abah Anom. Not only Abah Asep but some descendants also have cars. Apart from cars, the cellphone phenomenon has hit the Kasepuhan community. Some of the informants met, generally use cell phones. Changes that occur in the Kasepuhan community is limited a mere lifestyle openly allowed by customs through Abah's permission.

However, evolutionary changes have also changed the cultural order, for example in terms of the shape of the house, which has also seen a shift. In 2003, Abah Asep once suggested that the people belonging to the *descendants Abah* group can be identified from the shape of their houses with thatched roofs and decorations on them. They can be distinguished from the decorations on the *leuit* or barn. In 2019, when the field study was conducted, there was a change that the descendants of *Abah* house does not always use a palm fiber roof.

The Kasepuhan tradition is also characterized by the way they cook, namely the necessity of using firewood. Currently this tradition is still strictly enforced; even the distribution of stoves and LPG gas cylinders, as a form of conversion from kerosene, is rejected by residents because it is not in accordance with tradition. However, several descendants of *Abah*, who are also village administrators, have used LPG for cooking. The government's insistence on using LPG gas, and the closed access to the forest to look for firewood, is an evolutionary way that will change this tradition.

Changes due to globalization and the swift urge of modern knowledge have also begun to change people's knowledge and procedures for doing agriculture. For example, the agricultural pattern carried out by the Kasepuhan community has partly used a "rational western" view, namely the use of chemical fertilizers in agricultural

processing, which was previously considered taboo.

The tug-of-war between local knowledge based on the *tatali paranti karuhun* 'ancestors' philosophy' versus the western rational knowledge system which has gradually evolved in an evolutionary way has begun to change the social order, and the traditional stakeholders have begun to realize it. Abah as the custodian of the tradition responded wisely to the urge of modern knowledge but remained on the principle of continuing to carry out customs without neglecting the elements of *sara* and *nagara*. The strict implementation of customary norms with the "*kabendon*" sanction has made some basic knowledge in agriculture as the main livelihood of the community maintained and has not changed.

The strength of this tradition is due to the reciprocal relationship between the indigenous people of Kasepuhan and their environment which has been going on continuously for a long time and has produced a tradition that the community does to anticipate environmental changes. This community adaptation strategy to environmental changes is based on local wisdom that is passed down from generation to generation. This local knowledge has not changed much since the days of Abah Harjo (his predecessor), although the dynamics of the physical and social environment have occurred.

The social reality experienced by the Kasepuhan community today shows that there is a clash between local wisdom/knowledge and government wisdom/knowledge, which is full of various political interests. Even so, the community continues to carry out and maintain local wisdom set by the customary stakeholders. This is because the community has directly proven the benefits obtained by implementing local wisdom in everyday life. In addition, the community is still very careful about the social sanctions that will be felt if they violate the established customary regulations.

Based on these empirical data, regional localization as a social container structure and local wisdom that has the characteristics of environmental ecological regulation in dealing

with vulnerable conditions is extraordinary when they must face globalism of capital and global knowledge system and conspiracies between countries that surround all those points of views. According to Dharmawan (2007), this vulnerable condition can have a fatal impact and appear in two forms of dilemma, namely (1) the dilemma of dependence on the source of livelihood, information, culture; and (2) the dilemma of losing local cultural identity through strategies to weaken local cultural structure or the process of blending the identity of local institutions into the currently dominant global identity. Through the belief that they still have assumptions about the functioning of the three elements of the current of globalization that penetrate customary areas. Dharmawan (2007) proposes his theory related to environmental ecological management for local wisdom communities. The theorization refers to Friedman's (1999) framework which suggests that global trends offer two domains of thought about "power structure identity" in the area of regulatory power and "local cultural identity" in the area of local socio-cultural systems.

In Friedman's (1999) theory, the realm of identity recognizes two opposing sides, namely the "self-directed regime" (local sovereignty) and the "other-directed regime" (colonization by foreign powers) at the other end. The two are connected by a continuum of identity that varies in the structure of power and derived authority. Both are known as the "cosmopolitanism" (total openness) pole, which is characterized by inter-and-multiculturalism on the one hand, and the "communitarianism" (total cultural isolation) pole, which is -characterized by an "enclave" cultural identity, that is homogeneous cultural traits, on the other hand. Both sides form an identity of culture continuum in which variations of the cultural identity of their descendants can be found between the two sides.

Various forms of local culture that are characteristic of the Kasepuhan Abah Asep (Sinar Resmi) community are characterized by some understanding of the interaction between humans and their environment and how humans manage based on ecological concepts.

This knowledge is also directing the pattern of human adaptation to the ecological environment and the family livelihood system that relies on agriculture. The community's understanding of Mother Earth, Father Heaven, and Master of Time, which relies on everything related to agricultural land management, is treated like a human mother. Meanwhile, the management of the earth should consider the capabilities of the earth. As a mother, the Earth cannot only give birth (harvest) once. Respect for Dewi Sri completes the concept of Mother Earth which is identical with Dewi Sri (rice). Likewise, the concept of the Heavenly Father and the Prey Guru relies on making decisions to cultivate the land according to the teachings the residents believe about the universe. Through the stars *Kidang* and *Kerti*, the residents learn certain good months for human beings, while the others are intended for other creatures (insects/ animals) of Allah *Subhanahu wa Ta'ala* (lit. Exalted and Glorified is He). All are given the right to live.

Public knowledge about agriculture is increasingly complemented by the existence of "*leuit*" (rice barn) as an institution for food security, which functions to store rice harvests; it cannot be sold because it will be for their own consumption. If the harvest is lacking, the traditional barn or *leuit* will be a solution to overcome food shortages.

Another form of knowledge for Kasepuhan residents that characterizes adaptation to the environment for environmental sustainability and benefit is the concept of *wewengkon*. It is based on the division of forests into three zoning, namely *leuweung tutupan* 'forbidden forest', *leuweung surupan* 'forest legacy', and *leuweung garapan* 'cultivated forest'. *Leuweung tutupan* is a forest zone that is closed and not generally cultivated by the community. The *leuweung* area covered mostly in the area of Mount Halimun National Park (Taman Nasional Gunung Halimun) and Perum Perhutani. *Leuweung tutupan* can be used on a limited basis for customary purposes with the permission of Abah which is intended as a raw material for making houses and *cawisan* (reserve areas of natural resources for future generations).

Leuweung surupan is a forest zone entrusted by the ancestors to the *descendants* (followers/indigenous people). The *leuweung* or forest is highly guarded by the community and cannot be disturbed by anyone because this area acts as a catchment area. The *leuweung* area entrusted at this time includes the Pasir Ipis area, Lebak Cimuda and the Parawilu Monument area which is directly adjacent to the Baduy Indigenous Community area.

Leuweung garapan is a forest zone designated as a location for open community activities, such as farming, gardening, livestock, and settlement. *Leuweung garapan* is also managed under the direction of Abah as the traditional head of Kasepuhan. One of them is the regulation regarding the agricultural system that uses the soil system once a year.

The concept of local wisdom regarding human relations with nature and its socio-ecology and how humans treat nature is summarized in the Kasepuhan cosmology in *pancer pangawinan*. *Pancer* means 'origin', and *pangawinan* means 'carrying a spear during the wedding ceremony'. The marriage ceremony is also seen as the union of humans with the land that lives them (Adimihardja, K., 1989). Kasepuhan residents must be able to harmoniously place and run *sara, nagara jeung mokaha*.

Sara is religion, *nagara* is government, and *mokaha* is salvation or Kasepuhan. *Sara, nagara* and *mokaha* must unite. Each decision made by the Kasepuhan custom is based on the principle: '*kudu nyanghulu ka hukum, nunjang ka nagara, mupakat jeung balarea*' (must be based on law, one view with the state, consensus with the people). In its development, this local knowledge has experienced a strong impact from the rapid flow of urbanization with the characteristics of several physical changes, both in terms of lifestyle, ownership of objects and changes in the shape of the house.

The process of cultural evolution is taking place. These changes also began to have an impact on local knowledge which began to be eroded with some residents starting to use chemical fertilizers to cultivate their land. However, the role of Abah (the father) and other Kasepuhan

structures as traditional guardians still maintains the existence of the local knowledge tradition. As a result, currently, it is still in accordance with the original tradition. It is not impossible that in the future there can be evolutionary changes if the pressure of modern knowledge and development continues to narrow the space for this Kasepuhan customary institution. Indigenous people have indigenous knowledge of how to maintain and utilize the natural resources in their habitat. Indigenous people have customary norms to maintain, and they have a strong institutional structure with structural elements that maintain customs according to their duties and functions.

CONCLUSION

Local cultural wisdom in adapting the use of technology is related to the timing of land management and the once a year only rice agricultural land management (even though it is in rice fields). This is contrary to modern agricultural knowledge with the principle of intensification, where in principle agricultural land can be cultivated more than once; the harvest can be done three times a year to pursue productivity. However, the Kasepuhan residents are pursuing not only productivity but also harmony with nature. The agricultural concept applied by the Kasepuhan indigenous people is different from the modern farming concept with the principle of achieving high productivity.

The Kasepuhan tradition is also characterized by the way they cook, namely the necessity of using firewood. Nowadays, this tradition is still strictly enforced; even the government's policy is sometimes disobeyed because it is not in accordance with tradition. However, the younger generation does otherwise. The government's policy regarding the use of energy source, LPG, and the limited accesses to forest for residents, will lead to an evolutionary change of this tradition.

The forms of local wisdom that characterizes the Kasepuhan of Abah Asep (Sinar Resmi) community are characterized by some understanding of the relationship between human beings and their environment and how humans manage natural resources. This local

wisdom also directs the pattern of technological adaptation to nature and a family livelihood system that relies on agriculture.

The community's understanding of Mother Earth, Father Heaven, and Master of Time, as the basis of the residents' local wisdom is related to agricultural land management and the earth management, astronomy (*Kidang* and *Kerti* star constellations), respect for God's other creatures, and food security. Equally important is another local wisdom of the Kasepuhan community that protects and preserves the environment for the sake of environmental sustainability and benefit of the area, through forest three zonation, namely *leuweung tutupan*, *leuweung surupan* and *leuweung garapan*.

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