



## Research article

## Living side by side with nature: evidence of self-governance in three local communities in Indonesia

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## ABSTRACT

Environmental damage is a severe problem faced by humankind today. Nature has become a victim of human economic activity, especially in developing countries. This paper analyzes a group of local community entities in Indonesia that live side by side with nature. This paper explores self-governance in three local community entities in Indonesia. The Baduy community, the Simanau community, and the Rumbio community are examples of people who uphold their customs to live side by side with nature. They have Self-governance to regulate the lifestyle of their people to live simply with nature. The Baduy community represents self-governance in Banten Province, where they highly uphold the customs handed down from their ancestors. The Simanau people in West Sumatra Province can manage forest resources well and apply severe penalties for those who violate their rules. The Rumbio community in Riau Province is sage in managing the customary prohibition forest. The self-governance that has been implemented so far has gone quite well. By regulation, the applied self-governance does not conflict with the formal rules that apply in Indonesia. This paper is a reflection that humans can live in harmony with nature.

## 1. Introduction

This paper shows how several local community entities in Indonesia can manage forests sustainably. The local community can live and survive amid modern life today. As a natural resource in Indonesia, the forest is a part of everyday life economically, socially, and culturally. Because their use is related to people's daily lives, forests can be considered common property (Hardin, 2009). Regarding forests, everyday property matters have been regulated in the 1945 Indonesian constitution, Article 33 paragraph 3, which states that the land and water, and natural resources contained therein are controlled by the state and used for the people's greatest prosperity. Here, the state is the leading actor protecting natural resources, including forests, making many direct contributions to communities' lives to be appropriately managed.

Common ownership means that a group of people holds it; this is not open access to anyone but exclusive access to a small group of users who have the same rights (McKean, 2000). Ostrom et al. (1999) discuss the forms of change that occur when 'shared resource structures' are challenged, and individual property rights are implemented alongside

various forms of collaboration with natural resource managers, as has happened in Indonesia in the Soeharto's Regime (1967–1998). The government has not recognized that a 'co-ownership regime' gives private ownership rights to 'communal property' to groups of people, such as forests and water bodies, and that these individuals also have a management relationship over these properties. The government did this to boost forestry industrialization as one of the economic boosters. This also coincided with a "dirty game" between the government and businessmen to make the most of the existing forest resources in Soeharto's regime.

Nowadays, Indonesia's forests play a crucial role in the environment as they shield the earth from climate change's adverse effects (Purnomo et al., 2019). The biggest concern is that Indonesia has a high deforestation rate, and the ecosystem would be affected (Colfer et al., 2002). Not just that, established forests are frequently burned by forest fires during the dry season. Deforestation occurring due to the plantation of oil palm is one of the key reasons causing forest loss (Adriani et al., 2016; Wicaksono, 2019).

Studies on local community-based forest resource management continue to develop in Indonesia (Ohorella et al., 2011). Excellent and

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valuable institutions will ensure the sustainable use and management of natural resources (Ostrom, 2011). Behind the Indonesian government's ambitious program to maintain Indonesia's position as a world palm oil producer, several local community entities still protect their forests well. The local community can make self-governance to make the forests in their area sustainable. Their self-governance is based on customs that their ancestors have applied for hundreds of years.

Self-governance is the ability of an individual or community to take power and regulate themselves without external regulation (Sørensen and Triantafyllou, 2009). It may refer to personal actions and organizations such as families, social groups, affinity groups, legal bodies, business bodies, religions, and political entities on both a formal and informal level. Decisions are usually based on autonomy, liberty, self-regulation, self-discipline, and sovereignty (Sørensen and Triantafyllou, 2009). Indonesian society has local wisdom invaluable in fostering harmony with nature (Komariah, 2016). Many local communities in Indonesia can live side by side with nature with self-governance as a way to make this happen.

This paper explores three local communities that have proven that humans and nature can care for each other. The three entities are the Baduy community in Banten Province, the Simanau community in West Sumatra Province, and the Rumbio community in Riau Province. These three local communities illustrate how self-governance is practiced, particularly in forest management, compared to several other local communities that may accomplish the same thing.

The first is the Baduy tribe in Banten Province, which shows a traditional way of life connected with the environment. The Baduy tribe's presence is widely known in Indonesia and abroad. Baduy is only 160 km from Jakarta, Indonesia's capital city (and center of modernity). Of course, how they handle natural resources, particularly forests, warrants more analysis. The second local community to be analyzed is the Simanau Community in West Sumatra Province. The Simanau village exemplifies sustainable forest management following Minangkabau norms. Finally, there is the Rumbio community in Riau Province. If Simanau is based on Minangkabau customs, Rumbio is based on Malay customs, including applying norms for the management of natural resources in their area, especially forests, independently.

The three local community bodies continue to exist in their respective regions, and the Government of the Republic of Indonesia, in particular, permits them to do so as long as they do not offend other official regulations. This is clearly stated in Article 97 paragraph 4 of Law Number 6 of 2014 concerning villages which states, "A customary law community unit and its traditional rights as referred to in paragraph (1) letter C are following the principles of the Unitary State of the Republic of Indonesia if the customary law community unit does not interfere with the existence of the Unitary State of the Republic of Indonesia as a political and legal entity which: a. does not threaten the sovereignty and integrity of the Unitary State of the Republic of Indonesia; and b. the substance of the norms of customary law is following and does not conflict with the provisions of laws and regulations" (Law Number 6 of 2014 Concerning Villages, 2014). This paper then explains how sustainable forest management in the three local community entities above uses self-governance to institutionalize the rules they make themselves.

## 2. Methodology

This research uses a qualitative approach with a case study design. The case study is a research method that uses various data sources (as many as maybe data) that can be used for research, to describe, and explain a comprehensive range of aspects of an individual, group, program, organization, or event systematic (Meyer, 2001; Tellis, 1997; Vanwynsberghe and Khan, 2007; Yin, 1989). Analysis of various data sources. This requires a variety of instruments for data collection. Therefore, researchers can be using in-depth interviews, observation participants, documentation, questionnaires (survey results), recordings, and other physical evidence (Gerring, 2004; Meyer, 2001;

Vanwynsberghe and Khan, 2007; Woodside and Wilson, 2003; Yin, 1989). We include an original study from a research design reporting original data on self-governance in three local communities in Indonesia. The secondary data used in this research is government reports which are regularly reported to the public. Other secondary data used in this research is also in the form of field documentation such as photos and field notes written directly by researchers at the location. All data collected is processed by coding the data first. Then the data coding process is carried out by paying attention to the categorization of the available data before the data is interpreted. The interpretation process uses the Kroeber and Kluckhohn (Huberman and Miles, 1994) approach to the cultural cycle. The last stage is the process of presenting data.

This research begins by looking at the development of village governance in Indonesia that implements self-governance. Of the many cases, there are three villages (tribes) that the researcher considers to be able to represent self-governance well, namely Baduy, Simanau, and Rumbio. The researcher then collected data by conducting field observations and collecting available literature data. After the data is obtained, the researcher analyzes it to explain the data obtained. In this case, the researcher uses data triangulation so that the data obtained can be of good quality and used as material for analysis (Guion et al., 2002; Heale and Forbes, 2013; Hussein, 2018; Jick, 2016; Leech and Onwuegbuzie, 2007; Oppermann, 2000). There is no treatment of humans (subjects) and objects (animals, plants, and so on) in research, ethics is not required in this research.

## 3. Result and discussion

### 3.1. Self-governance: one of society's ways to organize life

In contemporary society, self-governance is a vital mode of social governance: it is the concept of a social entity's ability to rule itself autonomously (Kooiman and van Vliet, 2000). In ethnically, linguistically, and religiously diverse societies where corresponding group identities have developed and become salient, the degree of self-governance enjoyed by various segments of society is frequently viewed as more or less directly proportional to the level of acceptance of an overarching institutional framework within which these various segments coexist. Thus, self-governance regimes are intended to provide institutional solutions that enable various groups of diverse communities to realize their ambitions for self-determination while maintaining the social and territorial integrity of existing states. Thus, self-governance regimes provide tools for conflicting parties to resolve their differences peacefully (Wolff, 2009). I conclude that the self-governance referred to in this research is the community's government that regulates many or several things in their lives, which regulates the management of forest resources. In this case, some local communities in Indonesia still apply self-governance to live their lives, especially regarding how to manage natural resources sustainably.

Self-governance is a way for a community entity to regulate and manage the affairs or interests of the community entity. The implementation of self-governance is widely practiced in various cases. In Norway, self-governance is well practiced by fish farmers. They make self-regulation to solve common problems and coordinate outputs to minimize negative externalities (Osmundsen et al., 2021). In China, Self-governance in the village has been considered to have contributed to China's political reform and democratization. Self-governance was established initially to deal with the chaotic situation in the countryside after the collapse of the commune system in the late 1970s (Louie, 2001). In Namibia, Self-governance is implemented to protect forest resources by imposing penalties for people who violate the provisions that have been made (Vollan et al., 2019). In Bolivia, self-governance for indigenous people has also received considerable attention from various parties. The Bolivian government establishes a strict regulatory framework for its implementation (Tockman et al., 2015).

In Indonesia, the local community can apply its own rules without conflicting with other applicable regulations. At the village level, village communities that still have traditional solid ties are given the freedom by the state to apply these rules. Villages that still apply rules following customs are called traditional villages (Law Number 6 of 2014 concerning Villages, 2014).

In the authoritarian New Order regime that collapsed in 1998, Indonesia implemented democracy in all aspects of government and people's lives. One of the most fundamental changes in the Indonesian government is the implementation of regional autonomy, which gives regions greater autonomy to manage their regions. This thing is related to village regulation. The government finally issued Law number 6 of 2014 concerning villages.

The freedom granted by the Indonesian government to traditional villages then provides legal status for traditional villages to implement self-governance. Of the many villages, several villages in Indonesia are related to sustainable forest management in implementing self-governance. The Baduy community, the Simanau community, and the Rumbio community provide examples to the world that implementing self-governance, especially in forest management, can positively prevent environmental damage and coexist with nature (see Figures 1 and 2).

### 3.1.1. Communal land ownership and living in harmony with nature: self governance of Baduy

Baduy is a tribal community that administratively exists in the Kanekes Village area, Leuwidamar District, Lebak Regency, Banten Province. Baduy is a cultural group that still upholds traditions, while modernization is currently high in shaping human relations. In controlling the lives of his people, Baduy has his government. However, Baduy nevertheless accepts and adheres to national governance on one side.

In daily life, Baduy is divided into Inner Baduy and Outer Baduy. Inner Baduy and Outer Baduy differ slightly in some of their customary rules (even though they live in the same village). Symbolically, the Inner Baduy people dress in white, while the Outer Baduy people wear black or dark blue clothes (Ichwandi and Shinohara, 2007). Inner Baduy tends to be more traditional than outer Baduy. The Baduy people do not use modern technology to carry out their lives. They do not use electricity, mobile phones, formal/informal schools, or any modern tools in their lives. In this position, the Outer Baduy are less open to modernity. In many ways, they are more open to the progress of the times even though they still maintain the customs they adhere to.

Geographically, the Baduy people live in the southern part of Lebak Regency, Banten Province, where the topography is mostly hilly. Settlements are usually located in hill valley areas, in flatter areas close to groundwater sources or rivers. This tribe is administratively included in Kanekes Village, with 5,101.8 ha (Setioaji, 2010) and 11,699 people in 2021 (BPS Kabupaten Lebak, 2019) (see Figure 3).

To control land use by the community, Baduy does not have land ownership. The land there is customary land used collectively (Suparmini et al., 2013). There is no sale, purchase, or lease of land, only ownership

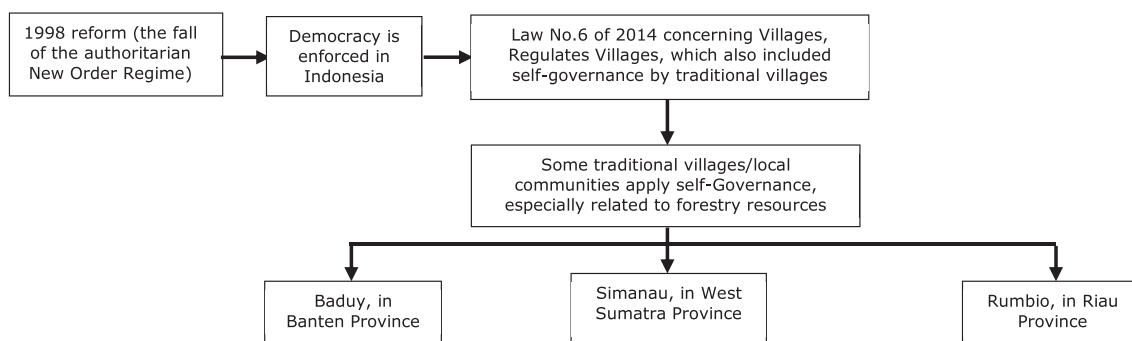
of plants. Plants belong to the people who plant them, while the land remains the customary property (Suparmini et al., 2013). With such a system, customs can control land and allocation (Senoaji, 2010). The land that can be used as agricultural fields is used in rotation by the families there.

Just like a tribe that still adheres to its customs, they make nature friends who look after one another (Ichwandi and Shinohara, 2007). The Baduy tribe has the principle that "if we do not disturb nature, then nature will be good to us." This principle is passed down from their ancestors (Ichwandi and Shinohara, 2007). Farming is the primary occupation of the Baduy group to support their economic life (Iskandar and Iskandar, 2017). In their agricultural operations, they use the cultivation system. The farming system they operate on, according to the Baduy culture, is through their values and philosophy of life, namely not to make large-scale changes to nature since it would create an imbalance in nature (Arisetyawan et al., 2014). They do not change nature with the farming method since they plant according to the current nature. According to the slopes' contours, they cultivate rice and other plants and do not make terraces (Suparmini et al., 2013). The irrigation system does not take advantage of technical irrigation but uses only existing rain. There is a ban on river or spring water to irrigate rice fields because, in the Baduy community, there is an opinion that turning the river would destroy the balance of nature (Suparmini et al., 2013).

In Kanekes Village, the Baduy people divide their territory into three regions: the lower zone, the middle zone, and the upper zone (Iskandar and Iskandar, 2017). The lower zone used as a residential zone by the Baduy group is the hill valley area, which is relatively flat. The second or middle zone is above the lower zone, used as rich farmland, such as garden fields and mixed gardens (Ichwandi and Shinohara, 2007). Their farming method, namely the clearing of forests as agricultural land and gardens, is still traditional. A secondary forest or production forest is a forest cleared for fields. The land for farming is used for one year, after which the land is left for at least three years to become forest again. They think it is a cropping cycle that will help humans and nature (Iskandar and Iskandar, 2017). (see Tables 1 and 2).

The region at the top of the hill is the third zone or upper zone. This area is protected and cannot be built for fields. This region is referred to by the Baduy people as "*leuweungkolot*," meaning that the old forest or entrusted forest must be protected. They obey the prohibition without the regular officials' permission to enter old forest areas (Iskandar and Iskandar, 2017). The Baduy region has high biodiversity, with protected forest areas or old forests. Ecologically, this situation would establish a natural balance and provide other advantages, such as germplasm tools that can be established in the future for plant cultivation and crossing (Senoaji, 2012). The presence of diverse vegetation will protect the local atmosphere, prevent global warming, protect against strong winds, protect the sun, protect wildlife, prevent the risk of erosion and conserve the ecosystem (Senoaji, 2010).

There are several main rules that all the Inner Baduy people must obey (Saleh et al., 2020; Senoaji, 2012; Suparmini et al., 2013):



**Figure 1.** A brief illustration of how self-governance evolved from 1998 to the present at Indonesia's traditional village/local community level. Resource (Senoaji, 2012; Hamzah et al., 2016; Firdaus, 2017).



Figure 2. Baduy tribe. Resource <https://dispar.bantenprov.go.id/>.



Figure 3. Nagari simanau. <https://gadangdirantau.com/2012/09/01/solak-batu-bajanjang-jalan-tidak-begitu-rusak/>.

1. They cannot enter the leuweung kolot (ancient timberland) and take something from that timberland, indeed a dry leaf. The ancient timberland is found within the south of the Inward Baduy settlement. The forbiddance to enter the ancient timberland is the most elevated put in that range. The Baduy community ensures it since spring is found south of the Inward Baduy settlement. It is the most noteworthy put in that zone. The Baduy community protects it because spring could be a source of the Cisemut and Ciujung waterways. Since there's a spring, the timberland could be a rainwater-catching range. The abuse of this range is much forbidden. The headwaters environment could be a crucial region since it ensures all of the parts of the stream underneath. On the off chance that there's misuse in this range, it'll be disintegration or flooding.
2. Furthermore, diminishing zone retain water since deforestation can cause dry spells within the dry season. Developing a few crops near water springs is additionally precluded since it'll diminish water quality. The stream is basic for the Inward Baduy individuals since they depend on it day by day. They take water from the waterway to cook and wash their clothes
3. They are not permitted to alter the waterway stream for a few reasons. Individuals can not utilize water from the stream to inundate their crops. The changing of a stream may cause a diminishing in water amount, particularly within the dry season. The result of the inquiry

Table 1. Distribution of land area in Kanekes village (Baduy).

Number	Usage	Area (Ha)	Percentage (%)
1.	Settlement Land (the lower zone)	40,5	0,8
2.	Agricultural Land (the middle zone)	2.569,2	50,4
3.	Permanent forest (old forest/the upper zone)	2.492,1	48,8

Source: (Senoaji, 2010).

Table 2. Identification of local wisdom in the form of prohibition in the rumbio prohibited forest.

No	Local Wisdom in the Form of Prohibition
1.	No cutting down trees
2.	Not allowed to use forest products without the permission of ninikmamak
3.	No excessive use of forest products
4.	It is prohibited to sell forest products that are prohibited from the Rumbio custom
5.	Not allowed to enter the Rumbio custom ary prohibited forest without the permission of the ninikmamak
6.	Do not be arrogant while in the Rumbio customary forbidden forest area
7.	No hunting for forest fauna, the customary prohibition of Rumbio
8.	Do not do bad things in the forest that is prohibited by the custom of Rumbio
9.	No unkind words in the forest

Source: (Ritonga and Mardhiansyah, 2014).

about appeared that the dams and conduits within the waterway diminished remarkably.

4. They are not permitted to utilize cleanser or cleanser when they take a shower and wash within the waterway. As depicted some time recently, they use river water in lifestyles, such as cooking and drinking. The contamination of stream water is perilous for their well-being. The cleanser bolsters the development of a few microorganisms such as E. coli, P. Vulgaris, Pseudomonas, and Bacillus. Another investigation appeared that the utilization of cleanser caused angle in stream harming
5. They cannot culturing the soil employing a tool and make a patio to plant rice. Soil-developed plans without any preservation will be fine, have an awful surface, have moo natural matter substance, and dry faster. Baduy individuals develop within the slope. That region is inclined to disintegration and avalanche. The slope is one of the variables that can cause disintegration and avalanche. The more extreme the incline is, the more prominent the volume and runoff of the water that possibly. Subsequently, they don't culturing the soil sometime recently planting a few crops. They fair make a gap to put the seed. Baduy individuals burn the trees and shrubs to clear the arrive planted by rice, so they don't ought to culturing the soil sometime during the recent planting season.
6. They are not permitted to utilize chemical pesticides and inorganic fertilizers. The utilization of chemical pesticides was considered to harm the environment since it would have antagonistic impacts on non-target life forms like predators of bothers. Additionally, the bug is safer than pesticides. Baduy individuals incline toward utilizing natural bug control such as dragonflies and owls. Owl is utilized to control the populace of mice and gophers. The utilization of inorganic fertilizers will harm the soil structure. The utilization of inorganic fertilizer possibly diminished soil pH. In this manner, the Baduy individuals utilize natural fertilizers to control bugs. To recuperate the soil richness, they take off that arrives after collecting and replanted after five a long time. The moving development strategy utilized by Baduy Dalam could be a framework that depends on characteristic instruments such as the return and decay of natural matter. As long as the soil richness can be re-established, that framework will not hurt the environment. The disallowance of 'teu meunang being destroyed' or this illegal timberland that ought to not be harmed in case damaged by the community, it is accepted that they will get discipline from both standard authorities and their nature.

New communities have their way of sparing their environment from harm or contamination. Their intelligence is effective in ensuring their environment. Something that's considered unthinkable is more

successful to comply than logical clarification. They are not permitted to induce formal instruction, so they have restrictions in logical science. In any case, disallowances from their precursors can be clarified logically and demonstrated to secure their environment from natural harm.

Some of the changes that occurred in the Baduy tribe, among them they began to violate customary rules, due to several factors the influence of tourists, the government, and the development of communication technology which is starting to be enjoyed because it is considered to facilitate their activities. The form of the first shift The elements of technology and living equipment show a shift, which was originally the traditional culture of the Baduy tribe showing the impression of simplicity. They are forbidden to use modern tools, but now people have started using flashlights, radios, cell phones, and even vehicles that are placed outside the Baduy area.

### 3.1.2. The region's forest management: self-governance in simanau

Nagari Simanau is one area that implements self-governance in the region's forest management. Nagari refers to a village in West Sumatra's province due to the government's appreciation of the traditional system for Indonesia's regions that still practice their customs and traditions well (Tegnan, 2015). In Tigo Lurah Sub-District, Solok Regency, Nagari Simanau is located. Nagari Simanau is commonly regarded as a forest-protected area that has customary rules.

Nagari Simanau is located on the Bukit Barisan mountain range, with hilly topography, bumpy and steep. The total area of Nagari Simanau is 46 km<sup>2</sup>, with an altitude of 900–1000 m above sea level (BPS Kabupaten Solok, 2019). Geographically Nagari Simanau is located on a stretch of a valley surrounded by ecologically forested hills. Nagari Simanau has small rivers that surround the hills. Nagari Simanau is 1,157 people: 594 men and 563 women, grouped into 322 families. The population of Nagari Simanau is homogeneous, all of whom are of Minangkabau ethnicity, and all of them are Muslim.

In the government system, the Nagari is led by a leader who has two functions apart from enforcing state and customary laws (Vel and Bedner, 2015). The leader of the village is called the Wali Nagari. It can be said that Nagari and the values, norms/rules that exist within the Nagari Simanau community in regulating the management of forest resources that have existed and have developed from generation to generation are the local institutions they have. So far, these local institutions have been quite helpful because it can be seen clearly that community compliance with Nagari regulations is relatively high.

Nagari rules are unwritten rules used to reference the community in their daily lives. The implementation of the Nagari rules is supervised by two persons known as *dubalang* and *panghulu*; if a violation occurs, sanctions will be imposed. Heavier sanctions are given if those who violate are *dubalang* and *panghulu*, who should provide role models for society (Wulandari et al., 2018).

The total forest area that the government has determined is 1.088,21 ha, whose status is village forest (Tanahkita.id, 2017). The Nagari Simanau community's dependence on forest resources is quite significant because the forest's function is to maintain water availability throughout the year in meeting water needs for agricultural irrigation and clean water sources for the community. Then, the forest can provide additional income for the community. This dependence makes the community a good perception of the forest and their Nagari so that the community plays a role in maintaining forest resources' sustainability with values and norms/rules in forest resource management (Hamzah et al., 2016). This is indicated by the forest's good performance (density, number of species, diversity of species, and volume of trees per diameter class) in forest storage and prohibition.

The types of forest areas in Nagari Simanau are divided into three, namely (Hamzah et al., 2016):

1. A prohibited forest is prohibited from being managed for any purpose.

2. The Forest reserves are reserve forests for future generations. Forest savings can be used but must obtain permission from the tribal leader/clan owner of the custom land where the forest deposits are located.
3. The Processed forest is a forest area that can be managed for meeting community need

The Nagari Simanau communally owns the status of ownership of the forest area. This is a way to make forests still managed sustainably by customary provisions that have been mutually agreed upon (Hamzah et al., 2016). However, it may be owned individually for land designated for residence or housing and comply with the administrative laws that apply in Indonesian territory. Although individuals own the residential land, Nagari Simanau regulates and forces its people to sell land to people from Nagari Simanau. It is strictly prohibited to sell land to people outside Simanau (Hamzah et al., 2016). The prohibition on the community not to sell land to outside parties is indirectly a form of protection of resources and existing norms. The dependence between the forest and the community makes the community a good perception of the forest in their village so that the community plays a role in maintaining the sustainability of forest resources with the values and norms/rules in the management of forest resources. This is indicated by the still good forest performance (density, number of species, species diversity, and volume of trees per diameter class) in reserved and prohibited forests. (see Figure 4).

Several Nagari norms/regulations relating to the management of forest resource management (Hamzah et al., 2016):

1. It is prohibited to poison fish in the river. Prohibition of catching fish using poison or other types in rivers, fields, and houses. This prohibition arises based on the community's experience of the dangers of poison in the river, which can poison and kill fish in the community's pond
2. It is prohibited to take fruits that are still not ripe. The prohibited picking of young fruit, such as mangosteen and durian, is prohibited and stored in forests. This prohibition is a form of local wisdom derived from knowledge and experience in forest resource utilization from generation to generation. It is useful for maintaining these plants' growth process and not disturbing the productivity of the tree's fruit.
3. It is prohibited to cut down petai, durian, and jengkol trees in the forest. The prohibition of cutting down petai, durian, and jengkol trees in the prohibited and saving forests will eliminate one foodstuff source and a source of community income.
4. Do not cut down near trees close to springs in the processed and stored forest. The prohibition of cutting down trees close to springs will destroy water sources for agricultural purposes and the village community's clean water needs. The community protects the spring



Figure 4. Rumbio indigenous people. <https://kominfosandi.kamparkab.go.id/2022/08/28/halal-bihalal-dengan-persukuan-domo-kenegerian-rumbio-ka-msol-lestarikan-adat-istiadat-dan-jadikan-hukum-yang-kuat/>.

because of its enormous benefits in its survival because it has experienced famine caused by drought.

5. It is prohibited to cut wood in the prohibited forest for any purpose. This prohibition was enforced because of the function of the prohibited forest as a rainwater barrier, as a prevention of floods and landslides

Also, there are regulations that outsiders may not enter the forest without permission from the Nagari. It is taboo for people to work in the rice fields on Fridays (planting rice, repairing paddy fields, mowing rice, or work related to rice fields), and restrictions on drying rice, pounding rice, grinding rice, and selling rice on Sundays (Hamzah et al., 2016).

The regulation of relations between community members with traditional values and norms applies to customs, binding for all Nagari Simanau. To enforce these customary rules in the event of a violation, the offender will be subject to sanctions by the established customary norms/rules. The village's regulation and forest resources management made the Nagari Simanau people manage and utilize forest resources properly, following mutually agreed village regulations. It can be seen from the values and norms/rules that persist in Nagari Simanau, such as the existence of a *dubalang* with the *panghulu* as supervisors and control over Nagari regulations' running, their forest is maintained.

### 3.1.3. The Rumbio prohibited forest: self governance to protect forest ecosystem in Kampar Regency Riau Province

The self-governance introduced in Kanagarian Rumbio, an indigenous group in Kampar Regency, Riau Province, is one of the fascinating stories to be explained. People's lives are still very strict with customs in Kanagarian Rumbio. Another name for the type of village explicitly given to a local group that still carries out customs as a way of life is Kanagarian Rumbio.

A forest area in Kenagarian Rumbio called the Rumbio customary prohibited forest. One of the customary forests with local wisdom is (Zulkarnain et al., 2016). The Rumbio Customary Prohibition Forest is located on the Pekanbaru-Bangkinang road at a distance of 40 km from Pekanbaru (the capital of Riau Province), which is included in the Kampar Regency area. The Rumbio Customary Prohibition Forest is a tropical forest ecosystem traditionally protected based on the Rumbio National Law Number 1 of 2007 issued by the Kanagarian Rumbio Customary Bodies; this forest area has an area of approximately 570 ha. This area includes Kampar and Rumbio Districts, consisting of 13 villages namely Rumbio, Padang Mutung, Sarak Island, Tinggi Island, Koto Tiban, Alam Panjang, Teratak, Payung Island, Simpang Petai, Pajajaran, Batang Bertindik, Pasir Jambu, and Tambusai. The population in Rumbio is 3,345 people consisting of 1,700 men and 1,645 women who are grouped into 843 households (Hikmah Z, 2021). The high biodiversity in this custom prohibits forests and people who strictly follow customary regulations (Insusanty and Ratnaningsih, 2015; Nursal, 2016; Saprudin Hasibuandan, 2016). Customary institutions around the customary prohibited forest of Rumbio have the purpose and role of maintaining traditional forests and the environment. Regulations and prohibitions are binding on the nation to uphold and act on environmental sustainability in forest management (Alviya et al., 2018; Muttaqin et al., 2019).

Identification of local Wisdom of the Rumbio customary prohibited forest community consists of two forms, namely (Ritonga and Mardhiansyah, 2014):

1. Local wisdom in the form of prohibitions
2. Local wisdom in the form of an invitation

There is local wisdom in the form of prohibitions that indigenous peoples obey. Forest management in customs and habits owned by the community is prohibited because it can damage the forest's function, namely as a source of water that can cause environmental sustainability to be disturbed (Njurumana, 2006). This statement follows the matters applied by the Rumbio customary prohibited forest community in

protecting and protecting the customary forest. For more details, see the table below:

These bans have been around for a long time, but nothing can eradicate one or more of these local legacies of wisdom. These prohibitions will allow the community to preserve the forest and protect it for future life. For those who violate it, the presence of this ban would also allow for fines. Hand clenched, shoulder to shoulder, is also strongly applicable to the simple prohibition. If there is a violation of this customary prohibited forest, then customary elders such as *ninikmamak* will judge him in a friendly and fair manner (Ritonga and Mardhiansyah, 2014).

The protection of the historically prohibited forest in Kanagarian Rumbio is the ideal of the indigenous people. Local wisdom is extended to nephews from generation to generation. Local life relies so much on this traditional forest, so local wisdom enables the community to conserve and preserve the forest. In Table 3, local wisdom in the form of invitations found in the customary forbidden forest of Rumbio can be seen:

In this local wisdom, the concern of indigenous peoples for the forest is articulated and implemented. Natural wealth is so significant that it must be protected for its preservation. The group makes fish ponds to preserve fish's life and use water from this traditional forest as a means of subsistence (Muttaqin et al., 2019). In terms of cultivation, the best use of the land, such as intercropping implementation, is also recommended (agroforestry and agrofisery). In particular, rubber plants are the favored plants planted around forests because they aim to control and preserve water discharge from traditional forests that flow through residential areas into rivers (Muttaqin et al., 2019). Rubber plants are also the crop of choice in hilly areas to prevent natural disasters, including landslides. In constructing buildings, society often pays attention to the location or topography of the property. In compliance with the invitation, in the forest region of the Rumbio customary prohibition, *ninikmamak* called for building a house not permitted on land with a slope. This request is intended to prevent the dwelling from being harmed or unsafe. *Ninikmamak* must offer warnings or penalties for people who do not heed this invitation (Muttaqin et al., 2019).

The customary village community of Rumbio has understood the value of maintaining this usually prohibited forest, defined by the dependence of community life on the usually prohibited forest of Rumbio, and the availability of clean water that depends on the usually prohibited forest Rumbio. The presence of forest plants around community settlements as a form of compliance with community settlements Awareness of forest protection, marked by adherence to customary rules, the variety of community-planting forest plants, and the sustainable use of forest products, has also been understood. This socialization to ensure local wisdom's survival is also an illustration of concern for protecting the customary prohibited forest of Rumbio. The socialization involved young people's inclusion in traditional processions and formal meetings of invites, restrictions, and customary regulations.

Based on the results of the analysis and interpretation, it can be explained that a good social system also influences the pattern of community interaction with the surrounding forest. This difference can occur due to past experience, availability of forest resources, and usage patterns. The behavior of indigenous peoples in caring for forests is also

**Table 3.** Local wisdom in the form of an invitation to the Rumbio prohibition forest.

No	Local wisdom in the form of an Invitation in the Rumbio Prohibition Forest
1.	an invitation to mutually conserve forests and protect rare animals and plants
2.	invitation to remain responsible in this life
3.	The community should plant plants that can maintain and regulate water discharge in arable land areas directly adjacent to the forest, such as rubber plants and take advantage of the water discharge.

Source: (Ritonga and Mardhiansyah, 2014).

influenced by their cosmology (Suharyono and Amien, 2013), where people with traditional patterns and lifestyles interact more strongly with nature.

#### 4. Conclusion

From the explanation of the three cases above, it is found that local communities' self-governance is essential in preserving the forest ecosystem in the area. The existing self-governance adhered to the local wisdom passed down and applied in the local community. This makes the right combination between local wisdom and self-governance.

People who still adhere to the customs in their area tend not to be easily influenced by the seduction of money, which is now the primary goal of many modern humans. These are behavioral values recognized by society (Ostom, 2005). They think humans must live in harmony and protect their environment; if humans protect nature, nature will protect humans. This pattern makes local people wiser and wiser in living their lives.

The institutionalization they do with self-governance is a case example that many communities can take care of themselves according to what they want. Then, as the case described in this paper, self-governance is also evidence that the institutionalization they implement does not conflict with what formal government generally makes. This is also proof that regulations in Indonesia can respect local people's life treasures.

Local communities' lives protecting the forest and in harmony with nature certainly have some significant challenges going forward. The fading of traditional values is increasingly unavoidable due to the flow of modernization coming into them through various channels. However, of course, this is a challenge for them to maintain their traditions. If modernization comes in, it is hoped that it will not damage the order of their lives but rather contribute positively to their better lives in the future.

#### Declarations

##### Author contribution statement

Agung Wicaksono: Conceived and designed the experiments; Performed the experiments; Analyzed and interpreted the data; Contributed reagents, materials, analysis tools or data; Wrote the paper.

Irni Yunita & Gede Ginaya: Analyzed and interpreted the data.

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##### Data availability statement

The data that has been used is confidential.

##### Declaration of interest's statement

The authors declare no conflict of interest.

##### Additional information

No additional information is available for this paper.

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