



The Implementation of *Awiq-Awiq* for the Protection of a Forest in Highland Kakong, Lombok Indonesia

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This article focuses on local legislature stemming from customary practices installed by the local government of the *dusun* (hamlet) Kakong in the highlands of the *kecamatan* (district) Gangga on the island of Lombok in Indonesia to protect a lush forest surrounding a water spring. This water source is responsible for the distribution of drinking, washing, and farming water in three *desa* (municipalities), indirectly providing water for thousands of people. The legislature, or in other words, *awiq-awiq*, entails that if someone cuts down a tree in the protected forest, they have to replant 100 trees as punishment. I argue that the installation of this local type of legislature has transformed the perception of the inhabitants of Kakong concerning sustainability, biodiversity, climate change, and weather variability. Examples of adaptation processes and lively discussions about anthropogenic change are manifold in Kakong, as the effect of such change is highly present, materializing in a higher rate of precipitation, the entry of new pests such as the white fly, failed yields, and shifting temperatures. Effective leadership at the *dusun* level, in combination with the initiation of a new political role in the village (pekasih [canal manager]) for the empowerment of the *awiq-awiq* and *adat*, supports the adaptation and conservation effort area in Kakong. Based on qualitative data collected in 2022, I argue that local leadership and customary legislature and practices positively support adaptation and conservation processes in the highlands of Kakong, Lombok.

Keywords: Highlands, Lombok Indonesia, *Awiq-awiq*, Environmental Protection, Climate Change, Politics

We heard chainsaws in the distance coming from the protected forests surrounding the water spring. Everyone in the village was directly alerted and started running towards the mountain where the lush, protected forests are growing. After a while of searching, we found the perpetrator and dragged him and his chainsaw down the hill into the village. He told us that he was new in this area and simply did not know the forest was protected. Although this might be true, the rules are the rules. We broke his chainsaw with hammers, and he was prohibited from entering the forest ever again after he of course replanted the 100 trees to make amends for the one tree he had cut down.

This story was something that I experienced first-hand during one of my visits to the village of Kakong (*desa* Bentek) in Gangga, Lombok Utara, as I researched the protected forest and smallholder farmers' perceptions of climate change. In one reaction it reveals action – people running towards the sound of chainsaws – and a pragmatic reaction: protect the forest to protect our future water supply. In times of contemporary climate change and ever-changing weather patterns, the locals in Kakong understand why their future water supply is so important. The story also introduces a third agent: the community – 'we' broke his chainsaw, and 'we' heard the sounds in the distance. During this event it became clear who had to deal with the consequences if the protected forest was to be destroyed: the local community.

Such stories of localized responses for the preservation of nature are emerging from locations around the globe, although not every response is evenly successful in doing so. According to Maxton-Lee (2018), Indonesian deforestation persists and conservation in the archipelago mostly fails due to mixed messages from the policy level to the 'intent and wish' of the local communities for urban development. While many communities do see that deforestation is highly dangerous for their livelihoods, the rate of deforestation in Indonesia is higher than anywhere else in the world (Maxton-Lee 2018). This deforestation directly contributes to anthropogenic climate change, more frequently occurring landslides and the loss of habitat for endangered species of animals (Austin et al. 2019; Indarto, Kaneko, and Kawata 2015; Miyamoto 2020).

One of the largest contributors to this environmental change is agricultural development (Maxton-Lee 2018; Barraclough and Ghimire 1995; Krishna, Kubitzka, Pascual & Qaim 2017). Also, in the case of Kakong, Gangga, one of the major contributors to deforestation before the instalment of the *awiq-awiq* was agriculture and forestry. The newly migrated groups of people from other parts of the island founded the village of Kakong and utilized the forests surrounding their newly built village (personal communication with the village leader, August 2023).

The water spring in Kakong is a source of water for approximately 6,000 people in the area because not only the village of Kakong but also the *desa* Genggelang and Gondang are using the water for farming, drinking, and washing. Hundreds of years ago, the three *desa* (municipalities) agreed to work together to protect the forest surrounding the water spring to continually support all the people with clean water (conversation with village elders, 22 June 2022). However, before the local legislature *awiq awiq* was installed in 2010, the forest was approximately 135 hectares large. After 2010, the protected area was around 35 hectares large and has remained at that size. The loss of territory of the forest raised calls from other officials, elders, and locals in the *desa* Genggelang and Gondang. They called the people of Kakong out for not taking care of the protected area well enough, which they were tasked to do. Consequently, the villagers in Kakong instigated an *awiq-awiq* to uphold their promise to their downland neighbours.

Awiq-awiq, which will be defined more thoroughly in the next paragraph, is a system of customary *adat* laws. *Adat* can be defined as a set of local customs, traditions, and laws that are different from the rules imposed by central governmental institutions. *Adat* existed before Dutch colonization and the forming of the Indonesian central state, and it differs across islands and cultures.

Before continuing with this paper, it is important to define the term *highlands* or at least, the definition that I am following in this paper. Highlands are upland regions having intricate relationships with their downland regions, although being a regions with unique characteristics taken from their geographical location. However, this is often a term that people from lowland regions impose upon highland peoples. Maybe, in local epistemologies, people in those highland areas do not define themselves as being highlanders and groups that are in a lower geographical location do define themselves as such.

In the case of Kakong, local epistemologies and vocabulary from communities on a lower geographical position describe the people of Kakong as *yang di atas* (those from high-up) and the people of Kakong describe the lower laying communities as *yang di bawah* (those from below). Meaning, the people of Kakong, while living 800 metres above sea level, view themselves as upland people. However, there are cases of surrounding villages on the same level of altitude where the people do not necessarily view themselves

as upland. Because the people of Kakong need to protect a forest and its water source for the area below, they constantly need to define and redefine what it means to live in an upland region while navigating the wants and needs of every stakeholder and agreements made with the people from below.

At the time of writing, there are still 30 protected forests (*hutan adat*) in Lombok, of which 29 are in North Lombok and one in East Lombok (Bae et al. 2014). In these forests community-based management has continued, having been passed down through generations, albeit for forest conservation, household needs, economic benefits, and cultural and religious practices. In conclusion, much of the exploitation of these protected forests was at a subsistence level.

In this paper, I argue that due to local legislature, the remaining forest is well-protected in terms of biodiversity, forest reclamation efforts, and conservation since the *awiq-awiq* was installed in 2010. I gathered data during my entry in the field in the first half of 2022 when I conducted participant observation among farmers, joined meetings specifically held for the protection of the forest, and met with locals, governmental institutions, and people from the surrounding *desa* to write down oral histories.

Exploring Kakong and Bentek

Dusun Kakong is located in *Desa* Bentek in the regency of Lombok Utara in the province of Nusa Tenggara Barat (NTB), Indonesia. The name of Bentek stems from *makam bebekeq*, which translates to the *bebekeq* tomb, which locates in the middle of the protected forest area. The protected forest is as high as 800 metres above sea level, while the community is located at 600 metres above sea level. In Figures 1 and 2, *Desa* Bentek and *dusun* Kakong are specified on the map.



Figure 1: *Desa* Bentek (taken from Google Maps)

In terms of local epistemologies, this area is defined as a highland region and is characterized by intricate upland-downland and upstream-downstream politics. These politics pertain to ownership of the protected forest, the water spring it provides, and the irrigation water that comes from said water spring. The lowland and upland communities have monthly communication about water supply in normal conditions, but when there is a case of prolonged drought, the village leaders gather once a week.



Figure 2: Kakong (taken from Google Maps)



Figure 3: Protected Forest in the distance and agricultural lands in the front (photo by author)

In Figure 3, the protected forest is depicted with a fertile valley underneath, through which the irrigation- and river system from the water spring flows. In Kakong, farmers generally have coffee, cacao, durian, coconut, and banana plantations. They combine this with peanut- and rice farming on the plateau beneath the protected forest area. The area is furthermore characterized by being the home of a multitude of people from various religious backgrounds, which is noteworthy since most of the people on Lombok are Muslim. In Bentek, Hindus and Buddhists are living in Seelos, and Muslims in Kakong. These various religious groups all come together to give protection to the forest, honour its connected rituals and ceremonies, and all have a say in how the forest is to be governed through local government-appointed groups.

Defining *awiq-awiq*

Awiq-awiq is rooted in a pre-existing conceptual order known as *sawen* (boundary delineation) and stems from local Sasak culture. According to *sawen*, the forest is regarded as ‘the mother’ since it was regarded as the source of water. If the forest was disturbed, the entire ecosystem would be affected by the hydrological system, eventually highly influencing the farmlands and the ocean. This human ecosystem concept provided the rationale for integrated resource management in the region.

Each section of the *sawen* had its own management position called a *mangku*. The forest was managed by the *mangku alas*, the *mangku bumi* managed agricultural land, and the *mangku laut* was responsible for the ocean and fishery. These leaders issued *awiq-awiq* when they observed that their responsible field was under pressure. They had several tasks such as survey and observation of their fields, visual mapping and boundary marking, and opening for fishing, harvesting, foraging, and extraction (Satria and Adhuri 2010; Bayo, Santoso, and Samadhi 2018). When a particular field was closed, the *mangku* appointed guards who voluntarily participated through *gotong royong*.¹

Although these political positions are currently waning due to the influence of national politics and religion, a revival of *awiq-awiq* has been observed in recent years (Satria and Adhuri 2010; Bae et al. 2014). A recent *awiq-awiq* that has been installed by the regions Tanjung and Pemenang is, for example, the prohibiting of blast fishing and the use of poisons while fishing. This *awiq-awiq* was even installed before the national ban in 2004 and is still upheld to this day. If fishers continued to use poison and bombs, their boats and gear would be burned by local fishers as retribution. During the recent earthquakes of 2018, an *awiq-awiq* was issued by local leadership against illegal forestry, whereby locals should replant the trees they cut down with new trees. The locals did this to not destroy the natural environment out of fear of more earthquakes and for the protection of the water supply. Local ontologies entail that the natural environment is protected by spirits, and when these spirits are disturbed, they can instigate natural hazards as an answer to environmental destruction.

Other forms of environmental protection stemming from *adat* have been observed throughout Indonesia, for example, *sasi* in Maluku, the work of local *adat* communities in Sulawesi, Kalimantan, Sumatra, and so on (Santika et al. 2017; Humaedi 2014). From this, we learn that in various locations in Indonesia, similar legislations stemming from *adat* are in place to protect forests, to foster a supply of water and food for the local community. However, *awiq-awiq* is not only to protect the environment but is in general local legislation. The local legislature can also be installed for the prohibition of child marriages (Siti et al. 2022) and plastic waste management (author’s own accounts).

Implementation in Kakong, Gangga and government support

While the *awiq-awiq* has existed for hundreds of years in the Kakong area, the legislation has strongly been enforced only since 2010. The locals from Kakong and the *desa* in the downland areas of the mountain

1. *Gotong royong* translates to mutual help and communal service.

range were concerned by the fact that already 100 hectares of the originally 135 hectares of protected forest had been lost due to forestry and agriculture. In Kakong, most of the farmers cultivate cacao, coffee, fruit-bearing trees, and coconuts, while the cultivation of rice and peanuts is decreasing because of anthropogenic climate change, influencing weather conditions in the region.

During conversations about the protected forest, most locals I interacted with pointed out that parts of the forest have different functions. There is the protected forest of 35 hectares that no one can enter without permission and, bordering on the protected forest, an agricultural production forest that expands to a few mountain tops in the neighbourhood where different crops are cultivated. These production forests also have land certification, making it difficult for local politicians to create legislation about how the farmers should cultivate their lands.

You can see the protected forest from here, that lush forest on the mountain stretching all the way to the river. The forest on this side of the river is tended to by us, the people of Kakong, and the forest on the other side is tended by the people of Genggelang. What about the forest on those mountains? I asked, pointing to the mountains close to the Kakong village (question by the author). Those are production forests, earlier they were protected too, but as more and more people moved here and sought means of living, they started to cultivate it. That is why the awiq-awiq is so strong now.

Interview with Adi, Kakong village on the 24th of June 2022 [translated from Sasak]

The *awiq-awiq* in Kakong entails that if someone enters the protected forest without permission of the *kepala dusun*² or the *kelompok adat*³ and cuts down a tree, they have to replant 100 new trees of the same species in the forest. Since 2010, three people have been caught red-handed, after which they had to replant trees at the places where they had destroyed the forest. After offenders are caught, their chainsaws are destroyed and a large mob of angry locals usually gather at their house to protest. This can be quite a daunting experience, but the locals do so to scare away other perpetrators from the forest and protected territory in the future.

Over the last few years, the Ministry of Forestry of the province of West Nusa Tenggara Barat (NTB) has also been involved in forest protection. It supports the locals in their protection efforts with funds, knowledge, and official legislature, making the forest even better protected than before. Currently, the province is helping the creation of a large *kelompok hutan* (forest management group), requiring every *dusun* surrounding the protected forest to create a *kelompok hutan* designated for the protection of the forest that meets once per week to discuss matters related to the protected area. After that, once per month representatives of all the *kelompok hutan* gather and discuss matters with representatives from the regency and the province to provide politically grounded support. While there is no KPH (Forest Management Unit) (Bae et al. 2014) present yet, because of local endeavours to get this forest officially protected there are plans to create such a KPH in the future to support local means of forest management.

Discontent from other stakeholders

Other stakeholders in the region, such as in the neighbouring *desa* Genggelang and Gondang, express discontent about the way the people of Kakong protect the forest area. Before the founding of Kakong village, the forest was around 135 hectares and shrank to 35 hectares due to human activity in the area, as previously mentioned. One of my collaborators, Supardi, told me this:

This can become a source of conflict when the people of Kakong do not take their task of protecting the forest seriously because it is also our lifeline of water which is used for crops, drinking, washing, and whatnot. I often

2. Hamlet head.

3. Village elders and important village figures deciding upon customary laws.

go to the leaders of Kakong and the desa, but they are not responding quickly enough to the impending dangers of illegal logging. Can you imagine, in the time of my grandmother there were still 135 hectares? Now all that is left is 35 hectares. Even though they are planning to utilize the water spring for tourism... It is unheard of! Do they have awiq-awiq now? Good. Only 30 years too late in my honest opinion.

-Interview with a political leader in Genggelang on the 2nd of June, 2022 [translated from Sasak]

In the quote above, one of the people of the downland villages is voicing their discontent about the present situation in and surrounding the forest. As the topic of the protected forest is particularly sensitive because it provides a viable water source for over 6,000 people in the villages beneath, emotions are rising among people that are discontent about how the people in Kakong take care of the forest.

Conflict can arise when different stakeholders in forest management have different goals (Niemelä et al. 2005; Fisher 1999; Riggs et al. 2016; Krishna et al. 2017), as all stakeholders have different goals and ideas about how to preserve the forest as well as they can. Besides that, conflicting interests between *desa*, locals, and the government have been present about illegal land tenure and land certification whereby parts of the already lost territory of the protected forest (c. 100 ha) had been given illegal certification and were resold to others. As Riggs et al. (2016) argued, land tenure and certification conflicts in Indonesia are very hard to solve.

Another conflict surrounding the protected forest is its water supply. Water conflicts often arise from misunderstandings between upstream and downstream communities pertaining to ownership and rights (Astawa 2004). These conflicts pertain to property rights concerning water storage, division, and disposal. Astawa (2004) argues, in his conference paper on communities in the Rinjani National Park, Lombok, that the majority of communities experience water conflicts between upland and downland areas. The case of upland Kakong and downland Genggelang and Gondang mirrors this conflict.

Although the upheld customary *adat* laws surrounding the protected forest in Kakong also pertain to water management, institutional laws make it more complex. Part of this complexity lies in the fragmentation of laws concerning water use and preservation. Surface water is under the jurisdiction of Public Works, groundwater is the responsibility of the Department of Mining and Energy, and water conservation, specifically in upland regions, is governed by the Ministry of Forestry (Astawa 2004; Santika et al. 2017).

While being a problem that needs solving, the *kepala dusun* needs to take a key role in these matters to give resolution. The position of *kepala dusun* at the village level is very important as he can effectively mobilize its citizens and give voice to unheard and unseen stakeholders and redirect them to the larger stakeholders at play (Koopman 2021, 2022). Furthermore, he can function as a bridge between customary *adat* laws and institutional laws, by participating in the local government and the designated *adat* groups. While *adat* rules can sometimes be a bit cryptic for laypeople, the *kepala dusun* can translate them effectively.

In the case of Kakong, the *kepala dusun* was the person that instigated the strong *awiq-awiq* in 2010 to ensure a future water supply and enough forest to support that source. Although very valid concerns, due to the strong local legislature that has been installed and close partnership with the Ministry of Forestry these problems will be resolved in the near future, as collective action and cooperation are needed to maintain this lush and protected area.

Increased perception of anthropogenic change

Perception research on localized responses to forestry is necessary because protecting a forest from various factors and dangers potentially influences the way locals think and perceive anthropogenic change. To incorporate perception theory in this paper I have included four overlapping axioms which need to be explained to paint an all-encompassing picture: how people perceive forestry through cultural lenses (perception); how people comprehend what they see based on their cultural models and social locations (knowledge); how they give value to what they know in terms of shared meanings and memory (valuation);

and how they respond, individually and collectively, based on these values and meanings (response) (Roncoli, Crane & Orlove 2016).

In the case of Kakong, villagers display all four axioms of perception in terms of forestry and anthropogenic change. The board of elders from Kakong told me the following:

We need to protect the forests because through the ages we have already done that. The water spring in the middle of the forest is like a lifeline, without it, we could not do agriculture nor wash or live in this place. I think if we allowed the diminishing of the forests to continue that we had to migrate away because life would simply not be possible without it. We can already feel the area becoming drier and weather variabilities have been rising lately. Because previous generations from other desa and this village have tried to protect it, we see it as our duty to continue that tradition. Hence the reason that every year we give thanks to God through a ritual, called Menunas-Memule, for the cleansing of the water and the forest before the planting season. Once per five to ten years, we make a sacrifice to appease our God and to show that we are still taking care of our water spring and its forests. This ritual is called Sedeqah Gumi Paer Bebekeq. Besides that, it is our duty to protect this lifeline for the next generations and the people living in the lower parts of this area, they are all dependent on this forest and its water.

-Interview with a village elder in Kakong, 12th of June 2022 [translated from Sasak]

In this quote, all four of the previously described axioms of perception theory are effectively described:

(1), Perception can be effectively described as perceiving the world through our senses. In the quote above, my collaborator says: *We can already feel the area becoming drier and weather variabilities have been rising lately.* This shows that locals are already effectively thinking about the changes that happened and the changes to come.

(2), Knowledge, in local Indonesian epistemologies, is understood as closely related to experience (Roncoli, Crane & Orlove 2016; Larsen et al. 2012). What people ‘know’ about anthropogenic change is as much a reflection of their beliefs, values, worldviews, and objectives as a descriptive account of what anthropogenic change is and what they must do about it (Weber 2006). In the quote above, my collaborators say the following: *Because previous generations from other desa and this village have tried to protect it, we see it as our plight to continue that tradition.* They have learned the practice of protecting the forests from their elders and others in the region. Elders are vested with knowledge because they have accumulated past experiences, including climate events, impacts, and changes (Barnhardt and Oscar Kawagley 2005). Since local knowledge is often passed down by elders to their children, cultural, collective, and social memory play a huge role in giving shape to knowledge systems.

(3) Valuation, people’s perceptions and knowledge systems are framed by cultural contexts with which they ascribe meaning and value to what they see and know (Roncoli, Crane & Orlove 2016). Shared meanings and sense-making of memory are tightly connected to the axiom of knowledge. The locals of Kakong have received a lot of knowledge from the elders and generations passed, and they value that knowledge highly. Take, for example, the ritual that is being held every year: *hence the reason that every year we give thanks to God through a ritual cleansing the water and the forest before the planting season.* The *pekasih*⁴ confessed to me that there was a time in recent history when they stopped this ritual, however, in the years after that crops started to fail, the forest shrank, and the water was not as pure as it normally was. They reinstated the ritual soon after, as they did not want to anger God. The ritual might have given an extra incentive to the people of Kakong to care for their environment through a divine practice such as a ritual.

(4) Response, is captured in this part of the quote above: *Besides that, it is our duty to protect this lifeline for the next generations and the people living in lower parts of this area, they are all dependent on this forest and its water.* Understanding the interactions of culture and climate, and in particular, the role of perceptions,

4. A position elected democratically. The *pekasih* is responsible for even water distribution in times of droughts. *Pekasih* literally translates to ‘canal manager’ and is unique to Lombok, as it stems from *adat*.

knowledge, and values as elements of these interactions, brings us to focus on adaptive responses (Roncoli, Crane & Orlove 2016). Adaptive responses to mitigate the effects of anthropogenic change on the water quality and the protected forests are threefold in Kakong. Firstly, the newly created role of *pekasih* in the village supports the control of water in the region. If there are prolonged droughts, he creates a schedule for the villages and farmers that need water, in order to provide everyone equally in their needs. He is also responsible for the management of irrigation lanes in terms of maintenance. Secondly, *awiq-awiq* prohibits any people to cut down trees or to enter the protected forest without permission. Lastly, the people in Kakong take active measures to ensure a viable future for the forest via government support and tourism activities surrounding the water spring, enabling them to gather the funds for the management of the forest.

Heightened perception of anthropogenic change in plantation farming

Another factor that contributes to an enhanced perception of anthropogenic change among the people of Kakong is the increase of invasive and climate-related pests in the region. In the following quote, one of my interlocutors is describing the entry of the white fly (*Bemisia tabaci*):

Because of the weather conditions the last few years those white flies have become a real pest. They have multiplied so much, that if you would run around in the morning in a black shirt it would be white in a few minutes. The white fly causes all the leaves of our coffee, cacao, durian, and other fruits to turn black. Because of this, our harvests fail and even in some cases, the fruit-bearing trees die.

-interview with a farmer in Kakong, 4th of May 2022 [translated from Sasak]

According to Kriticos et al. (2020) and Aregbesola et al. (2019), white fly pests are a direct consequence of a warming but also wetter climate which makes the area more suitable for the insects to flourish and reproduce. These pests, as shown above, directly influence the yield the farmers can harvest from their orchards. Additionally, the white fly also has been seen to affect horticulture in the area whereby, due to the influence of rapidly changing weather conditions, the white fly wreaks havoc with viruses and bacterial diseases among tomato and chilli plantations, causing harvests to fail.

It is not only the production forests bordering the village of Kakong and the protected forest area that is affected by anthropogenic change. The areas below the protected forest area that can normally be harvested up to five times with a variety of rice and peanuts are heavily influenced by on the one hand wet conditions during the peanut season and on the other hand pests and viruses during the rice season. Normally there are no such problems in the highland area of Kakong, as water is abundant due to the protected forest, and because of its elevated geographic location pests such as the white fly and other insects do not thrive in its climate. Local farmers have sought to adjust to these new realities through means of a combination of pesticides and traditional techniques such as the use of cross-planting species that keep these flies at a distance.

As described above, locals in Kakong are reliant on the protected forest for the viability of their livelihoods, and they are also invested in the area for spiritual guidance and guardianship.

Spiritual guardianship

Astawa (2004) argues that “the ecological and sacred functions are no longer important to people in Lombok. On the contrary, people are more interested in the economic value of forests”. There is indeed a rise in economic interest in forested areas, however, arguing that the ecological and sacred functions are no longer important to people in Lombok is overgeneralizing at best. While there is a decline in Indonesia of spiritual activity connected to forests, it has not vanished nor become less important in local Sasak epistemologies (Libasut



Figure 4: *Purba lian* tree, regarded as *istana* (anchor) and dimensional gateway by locals (photo by author)

2016; Telle 2009; Rahayu et al. 2021). In the case of Kakong, the yearly and five-yearly rituals are a striking example of spiritual activity and guardianship pertaining to the forest.

Local epistemologies also explain that there are several anchors – or *istana* (palace[s]) in the local language – located in the forest where spirits live, see Figure 4 for such an anchor. An anchor can be defined as a physical (often natural) object such as a rock, tree, waterfall, or river that functions as a gateway between the dimensional plane of spirits and ours. These spirits are believed to be governed by *Dewi Anjani*, the spirit queen (Smith 2021), who resides on the top of the volcano Rinjani. People from the upland regions of Gangga, and in general throughout Lombok (while becoming less in urbanized centres),

have intricate relationships with magic, the spirit world, and a system of ancestry that can influence day-to-day life. Furthermore, they have a relationship with the presence of multiple *makam*, or holy gravesites, in the forest where members of the local community and people from outside the region pray, meditate, and visit to honour their ancestors.

These gravesites are often surrounded by very large *Purba lian* trees (see Figure 4) which are viewed as *istana*, or anchors that are a gateway between our dimension and the other. Locals call that other dimension *alam ghaib* – the closest English translation would be the ‘the other world,’ as *alam* translates to ‘nature’ and *ghaib* to ‘unseen’ in *Bahasa Indonesia*, the official and national language of Indonesia. It is thereby a different dimensional plane where beings live that is, according to local beliefs, interconnected with ours. The term *alam ghaib* stems from the Arabic expression *al-ghaib* and translates to ‘the unseen’. However, the local notion of *alam ghaib* is also heavily influenced by pre-Islam animism, Hinduism, and Buddhism, thus creating a syncretic belief system.

Regarding the protected forest, the locals believe that if the forest is taken care of, the spirits, or in local terms *jinn*, living there will support their battle against new pests introduced by anthropogenic change. They believe that the spirit world is thoroughly connected with our plane of existence and can influence events in this world. For that reason, the anchored palaces need to be treated with the utmost respect. If not, it will cause adversity for the local community. When one enters the forest, they will be greeted by the sound of many types of birds, see a lot of tracks of mammals and reptiles, and be enveloped in a lush green forest. The locals believe that the animals living there are owned by the *jinn*. For this reason, the locals will not bother them, which thereby contributes to the health and prosperity of the forest.

Conclusion

This paper addressed the question of how the local legislature and *adat* practices are instigated by the local community to protect a lush forest area of 35 hectares surrounding a water spring which is the primary water source for over 6,000 people in the *desa* Genggelang, Gondang and *dusun* Kakong. Furthermore, this paper sought to explore how these protective practices improved the perceptions of anthropogenic change of the locals in Kakong.

The forest surrounding the water spring in Kakong Village Lombok is protected by the local practice of *awiq-awiq*, a type of legislature that is instigated by the local community themselves rather than the government. By instigating this practice, it is forbidden to enter the forest without permission and to cut down trees. If caught, perpetrators need to pay a hefty fine or need to replant 100 trees per tree that was cut down.

In history, the forest was protected by the *desa* Genggelang and Gondang, but since the people of Kakong migrated to the place where they are living now, they are taking care of the water spring and forest. This causes political and social tensions to arise, because before the people of Kakong migrated there the forest was 135 hectares large, while now, due to the construction of a settlement, the forest is 35 hectares large.

After the *kepala dusun* of Kakong noticed the decline of the forest, he tightened the rules surrounding the *awiq-awiq* and strengthened relations with the Ministry of Forestry of the central government to make sure the forest would not decline further. Besides that, he created multiple groups and positions that have the responsibility for water control, the condition of the forest, and the rules of *adat* to support the *awiq-awiq*.

The tightened form of *awiq-awiq* caused the people of Kakong to actively think about the effects of anthropogenic change and the role we humans play in that change. Examples are given of people actively talking and able to perceive climate and anthropogenic change in their surrounding environment. Local epistemologies about the otherworld and spirits promote the safety of the forest and its biodiversity, resulting in yearly and five-yearly rituals celebrating the water spring, the fertility of the land, and the condition of the forest.

In conclusion, although the area of protected forest used to be larger, since 2010 strongly enforced *awiq-awiq* in the forest has halted its decline and has given it a protected status through a localized type of

legislature combined with the support of the central government. With local epistemologies concerning the spiritual guardianship over the forest combined with government support and pressure from reliant downland and downstream villages, the forest is currently preserved and there is optimism for its future.

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References

- Aregbesola, Oluwatosin Z., James P. Legg, Lene Sigsgaard, Ole S. Lund, and Carmelo Rapisarda. 2019. "Potential impact of climate change on whiteflies and implications for the spread of vectored viruses" *Journal of Pest Science* 92 (2): 381-392. <https://doi.org/10.1007/s10340-018-1059-9>.
- Astawa, Budi. 2004. "Finding Common Ground in Rinjani, Lombok, Indonesia: Towards Improved Governance, Conflict Resolution, and Institutional Reform. *IASCP 2004: The Commons in an Age of Global Transition: Challenges, Risks and Opportunities*" the Tenth Biennial Conference of the International Association for the Study of Common Property Oaxaca, Mexico.
- Austin, Kemen G, Amanda Schwantes, Yaofeng Gu, and Prasad S Kasibhatla. 2019. "What causes deforestation in Indonesia?" *Environmental Research Letters* 14 (2): 024007.
- Bae, Jae Soo, Cheolmin Kim, Yeon-Su Kim, Sitti Latifah, Mansur Afifi, Larry A. Fisher, Soo Min Lee, In-Ae Kim, Jintaek Kang, Raehyun Kim, and Jeong Soo Kim. 2014. *Lombok A general profile*. Center for International Forestry Research. <http://www.jstor.org/stable/resrep02354.7>.
- Barnhardt, Ray, and Angayuqaq Oscar Kawagley. 2005. "Indigenous knowledge systems and Alaska Native ways of knowing" *Anthropology & education quarterly* 36 (1): 8-23.
- Barracough, Solon L., and Krishna B. Ghimire. 1995. "Grassroots Responses to Deforestation" In *Forests and Livelihoods: The Social Dynamics of Deforestation in Developing Countries*, edited by Solon L. Barracough and Krishna B. Ghimire, 106-133. London: Palgrave Macmillan UK.
- Bayo, Longgina Novadona, Purwo Santoso, and Willy Purna Samadhi. 2018. *In Search of Local Regime In Indonesia: Enhancing Democratisation In Indonesia*. Yayasan Pustaka Obor Indonesia.
- Fisher, Lawrence Alan. 1999. *Beyond the beruqaq: Conflict, policy and decision-making in forest and conservation management in Nusa Tenggara, Indonesia*. Cornell University.
- Humaedi, M Alie. 2014. "Tradisi pelestarian hutan masyarakat adat Tau Taa Vana di Tojo Una-Una Sulawesi Tengah" *Jurnal Penelitian Hutan dan Konservasi Alam* 11 (1): 91-111.
- Indarto, Jarot, Shinji Kaneko, and Keisuke Kawata. 2015. "Do forest permits cause deforestation in Indonesia?" *International Forestry Review* 17 (2): 165-181.
- Koopman, Jop. 2021. "The restoration of gotong royong as a form of post-disaster solidarity in Lombok, Indonesia" *South East Asia Research*: 1-18. <https://doi.org/10.1080/0967828X.2021.1966318>.
- . 2022. "Gotong Royong: a recent flood and strong leadership strengthen a system of solidarity in Lombok" *Standplaatswereld* (blog).
- Krishna, Vijesh V, Christoph Kubitza, Unai Pascual, and Martin Qaim. 2017. "Land markets, property rights, and deforestation: insights from Indonesia" *World Development* 99: 335-349.
- Kriticos, Darren J., Ross E. Darnell, Tania Yonow, Noboru Ota, Robert W. Sutherst, Hazel R. Parry, Habibu Mugerwa, M. N. Maruthi, Susan E. Seal, John Colvin, Sarina Macfadyen, Andrew Kalyebi, Andrew Hulthen, and Paul J. De Barro. 2020. "Improving climate suitability for Bemisia tabaci in East Africa is correlated with increased prevalence of whiteflies and cassava diseases" *Scientific Reports* 10 (1): 22049. <https://doi.org/10.1038/s41598-020-79149-6>.

- Larsen, Rasmus Kløcker, Åsa Gerger Swartling, Neil Powell, Brad May, Ryan Plummer, Louise Simonsson, and Maria Osbeck. 2012. "A framework for facilitating dialogue between policy planners and local climate change adaptation professionals: Cases from Sweden, Canada and Indonesia" *Environmental science & policy* 23: 12-23.
- Libasut, Taqwa. 2016. "Local Wisdom in The Management of Forests in North Lombok Bayan Indigenous People" Proceedings of the International Conference on Ethics in Governance (ICONEG 2016), 2016/12.
- Maxton-Lee, Bernice. 2018. "Material realities: why Indonesian deforestation persists and conservation fails" *Journal of Contemporary Asia* 48 (3): 419-444.
- Miyamoto, Motoe. 2020. "Poverty reduction saves forests sustainably: Lessons for deforestation policies" *World Development* 127: 104746.
- Niemelä, Jari, Juliette Young, Didier Alard, Miren Askasibar, Klaus Henle, Richard Johnson, Mikko Kurttila, T. B. Larsson, S. Matouch, P. L. Nowicki, R. Q. Paiva, Luigi Portoghesi, M. J. M. Smulders, A. Stevenson, Urmas Tartes, and Allan Watt. 2005. "Identifying and managing conflicts between forest conservation and other human interests in Europe" *Forest Policy and Economics* 7 (2005) 6.
- Rahayu, M, AP Keim, M Nikmatullah, H Rustiami, D Susan, and W Sujarwo. 2021. "The Ethnoecology of Sasak people in Mandalika, Lombok Island: Local Knowledge and Wisdom in Relation with Land Use" *Jurnal Pendidikan IPA Indonesia* 10 (3): 407-415.
- Riggs, Rebecca Anne, Jeffrey Sayer, Chris Margules, Agni Klintuni Boedhihartono, James Douglas Langston, and Hari Sutanto. 2016. "Forest tenure and conflict in Indonesia: Contested rights in Remppek Village, Lombok" *Land use policy* 57: 241-249.
- Roncoli, Carla, Todd Crane, and Ben Orlove. 2016. "Fielding climate change in cultural anthropology" In *Anthropology and climate change*, 87-115. Routledge.
- Santika, Truly, Erik Meijaard, Sugeng Budiharta, Elizabeth A Law, Ahmad Kusworo, Joseph A Hutabarat, Tito P Indrawan, Matthew Struebig, Sugeng Raharjo, and Imanul Huda. 2017. "Community forest management in Indonesia: Avoided deforestation in the context of anthropogenic and climate complexities" *Global Environmental Change* 46: 60-71.
- Satria, Arif, and Dedi S. Adhuri. 2010. "Pre-existing Fisheries Management Systems in Indonesia, Focusing on Lombok and Maluku" In *Managing Coastal and Inland Waters: Pre-existing Aquatic Management Systems in Southeast Asia*, edited by Kenneth Ruddle and Arif Satria, 31-55. Dordrecht: Springer Netherlands.
- Siti, Sanisah, Sarilah Sarilah, Hj Mas'ad Hj. Mas'ad, and Edi Edi. 2022. "Menekan Angka Pernikahan Dini melalui Awiq-awiq Dise" *Journal of Character Education Society* 5 (1): 81-95.
- Smith, Bianca J. 2021. "Sufism and the Sacred Feminine in Lombok, Indonesia: Situating Spirit Queen Dewi Anjani and Female Saints in Nahdlatul Wathan" *Religions* 12 (8): 563. <https://www.mdpi.com/2077-1444/12/8/563>.
- Telle, Kari. 2009. "Spirited places and ritual dynamics among Sasak Muslims on Lombok" *Anthropological Forum*.
- Weber, Elke U. 2006. "Experience-based and description-based perceptions of long-term risk: Why global warming does not scare us (yet)." *Climatic change* 77 (1-2): 103-120.