



***COMMUNITY-BASED WATERSHED
MANAGEMENT FOR SOCIO-CULTURAL
BENEFITS IN HAWAI'I***

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Introduction

Hawai'i's recent water shortage and contamination events warrant the revitalization of mechanisms towards community-based watershed management now more than ever before. The dominance of both the tourism industry and the military in Hawai'i's economy have long raised concerns over their impact on environmental degradation, including water degradation. In late 2021, these concerns received global attention as over-tourism and drought contributed to water shortages, particularly in Maui, while the military-operated Red Hill Fuel Storage Facility contaminated the drinking water of tens of thousands of residents in O'ahu. (Lipscomb 3 Aug. 2021; Cramer 11 Dec. 2021) Although public criticism over the management of Hawai'i's water resources is not new, little action has been taken to incorporate community voices that could potentially enhance adaptability and prevent the onset of water-related disasters. Due to the vitality of water, the absence of community participation in watershed management has implications for a wide range of

issues including those related to disaster management, food security, and human security.

This paper explores the human security aspects of watershed management in Hawai'i, specifically the role of indigenous rights and practices in the adaptive capacity of ecosystems. It investigates the benefits and limitations of applying traditional, community-based approaches to the management of the Ko'olau Mountains and West Maui watershed areas. In pursuit of this topic, interviews were conducted with three watershed experts based in Hawai'i. This paper argues that adaptive watershed management in Hawai'i can and should be achieved by enhancing the socio-cultural benefits of Native Hawai'ian communities.

Context

As an archipelago, Hawai'i relies heavily on groundwater aquifers that are naturally recharged by rainfall in its upland watersheds. (Gopalakrishnan et al. 2005, 15) Although the term 'watershed' has commonly been used to refer to the upper slopes of mountains since the early 20th century, Hawai'ian land was historically divided into *moku*, or regions, and further into units known as *ahupua'a*. (Derrickson et al. 2002, 569; Buldoc 2018, 74) While all Hawai'ian land was held in trust by the highest king or chief of the whole population, *ahupua'a* were communally-governed, ecological and social units that extended vertically from *mauka* (mountains) to *makai* (sea). (Campbell 2017, 3) Native Hawai'ians, or *Kānaka Maoli*, managed natural resources holistically, emphasizing interdependence between natural resources and resource users. (Winter et al. 2020, 4) Holistic management of the *ahupua'a* promoted self-sufficient food systems, disaster resilience, and societal well-being. After the arrival of Captain James Cook in 1778, however, *Kānaka Maoli* society, culture, and *ahupua'a* management practices declined dramatically.

The greatest change incurred, specifically after the Great Mahele in 1848 when Western settlers were granted the right to own land, was the privatization of water. Similar to land, water was previously treated as a public good by *Kānaka Maoli*. (Gopalakrishnan et al. 2005, 7) It was not until 1978 that surplus water

was legally determined as state property during the *Mcbryde Sugar Co. v. Robinson* Supreme Court decision. (Kloos et al. 1983, 8) That same year, the Hawai'i Constitution was amended to adopt a public trust doctrine for natural resources and provisions that safeguard indigenous rights. (Sproat 2011, 148-150) The Water Code, adopted in 1987, has similar provisions that protect public interests and Native Hawai'ian rights in freshwater resources. (Sproat 2011, 147) These statutes, however, have failed to meaningfully empower community involvement in natural resources management against private interests. (Sproat 2011, 150)

Cultural connections are the primary consideration when it comes to community-based watershed management. Place-based knowledge is prominent in Hawai'i and across the Pacific; the same applies when discussing *ahupua'a*. (Hawaii Watershed Guidance 2010, 81) Understanding this intimate connection is what was lacking when foreigners came in and disturbed the forests and watershed system in the 1800s. The *mo'olelo* (oral stories) are rooted in the people's responsibility for the land, and whether one is native Hawai'ian or not, this responsibility remains. (F. Koethe, personal communication, 2022) As previously alluded to, watershed management has not always been handled by people who are cognizant of cultural management. After the Great Mahele in the 1840s, foreigners directed native Hawai'ian to divert vast amounts of watershed resources due to a lack of understanding. (F. Koethe, personal communication, 2022) That is also when Hawai'i saw a shift toward cattle, pineapple, sugar, and other mono-crop plantation crops, which were later found to be ecologically damaging. Once the foreigners realized the responsibility to protect watershed areas, drought conditions began to emerge. With this realization in mind, the 1900s were characterized by foreigners learning about indigenous practices and identifying the gaps in their forestry knowledge. (F. Koethe, personal communication, 2022) In a sense, the progression of watershed management plans was sufficient, but there is still a need for more equal and equitable methods acknowledging the indigenous population.

Expert Perspectives

In interviewing expert Frankie Koethe, the Community Outreach Liaison for the Ko'olau Mountains Watershed Partnership (KMWP), it is clear that building education and awareness is the best long-term commitment for the watershed movement. Recognizing that change does not happen overnight, the more hands-on experience community members can get and repetitively come back and take action, the environmental standards will improve. (Hawaii Watershed Guidance 2010, 66) Watershed Coordinator of the West Maui Ridge to Reef Initiative, Tova Callender, highlights the importance of multidisciplinary participation. At the fieldwork level, having various people integrated into the process allows for new perspectives to be considered because ground-level work involves more than just the scientist or a policymaking organization. (T. Callender, personal communication, 2022)

According to all three of the experts interviewed, watershed management's most significant limitation is funding. Because watershed partnerships need funding to survive, it has become increasingly difficult for non-profit organizations and non-governmental organizations (NGOs) to criticize large donors, such as the military. On the issue of Red Hill, organizations like the Ko'olau Mountains Watershed Partnership knew about the problem but feared targeting such a prominent entity in case funding could be lost. (F. Koethe, personal communication, 2022)

There are other environmental stressors that pose a challenge for cooperative efforts. From sewage to waste water, and feral pigs and deer, therefore identifying and managing local sources of pollution is exceedingly important. ("Ridge to Reef 101," West Maui Ridge 2 Reef, 2022) Because water flows downhill, coastal erosion, and significant amounts of in-stream sediment have settled and exacerbated environmental issues. (T. Callender, personal communication, 2022)

NGOs are critical in managing cultural ecosystem services, or the 'nonmaterial benefits of ecosystems,' but are often underrepresented in watershed

partnerships. (Pleasant et al. 2014, 14) On the other hand, NGOs have seen success in grassroots aspects by building community rapport. Experts from the West Maui Ridge to Reef initiative have hinted that consistency is vital in maintaining community participation and fruitful discussion and physical action. (“Ridge to Reef 101,” West Maui Ridge 2 Reef, 2022) Ko‘olau Mountain Range experts echo these sentiments and argue that ‘looking at maps isn’t enough.’ When all facets of the community come together, the magic can happen. By strengthening awareness, these organizations have successfully bridged the gap between larger businesses and private owners— this is why *ahupua‘a* should be strengthened to enhance public participation in watershed management.

Support from the legal side is also limited. At the bare minimum, signs near watershed areas have shown legal aid. For both O‘ahu and Maui, there is a public understanding that there are linkages between doing things on land to protect the coast. (K. Oleson, personal communication, 2022) However, there is no authority to mandate action, so when watersheds and other water issues are known, there is nothing that can be taken to fix it legally. This occurs partly because watershed management is a low priority for the state of Hawai‘i. (F. Koethe, personal communication, 2022)

Recommendations

1. Strengthen the recognition of the *ahupua‘a* as a basic land management unit

Modelling current watershed management strategies after the *ahupua‘a* concept is a viable starting point toward greater community-focused efforts. First, the holistic aspects of *ahupua‘a* management resulted in impressive adaptive capacity and resilience. Second, although they have no legal standing, the *ahupua‘a* are historically defined areas that continue to be acknowledged by community members to this day. They are culturally associated with unique traditions and stories, thus their re-introduction is unlikely to be met with resistance. (Derrickson et al. 2002, 574) Third, because Hawai‘i only has two levels of government (the state and county), the various

ahupua‘a on each island are contained within a single county. (Derrickson et al. 2002, 574) This creates flexibility in delegating watershed management decision-making roles within each *ahupua‘a*.

Re-adopting approaches that place emphasis on the historical *ahupua‘a*, however, could be challenging in today’s world. For one, there is a greater movement of people and goods within each island, making it difficult to define legitimate stakeholders. (Derrickson et al. 2002, 574) Additionally, Indigenous institutions during the time of *ahupua‘a* that come into conflict with contemporary democratic ideals such as autocratic rule by the *konohiki* could be seen as a threat. (Derrickson et al. 2002, 574)

2. Adopt a Payments for Watershed Services scheme

One approach that could particularly address financial constraints is a Payments for Watershed Services scheme. Payments for Environmental Services (PES) is described as a ‘voluntary transaction where a well-defined environmental service (ES) is bought by a ES buyer from a ES provider if and only the ES provider secures ES provision.’ (Wunder 2005, 2) Because PES creates a financial incentive for service providers (i.e. landowners) to manage the environment more carefully and diligently, it can lead to improvements in natural resource quality and adaptive capacity. Although most upland land in Hawai‘i is privately or publicly owned, the adoption of a Payments for Watershed Services scheme could potentially relieve the funding shortages faced by Watershed Partnerships, especially for state landowners and NGOs.

These types of schemes have been experimented in numerous countries, including the watershed areas of Northern Thailand. Although PES was intended to alleviate poverty among ethnic minority service providers in watershed areas, its impact was limited because it failed to meet other necessary conditions. Namely, it was not accompanied by in-kind rewards, such as the allocation of resource rights or interagency partnerships, and was insufficient as a sole source of income for service providers. (Neef 2012, 258) Indeed, Northern Thai minorities are legally marginalized by the Thai state and their traditional practices are

frequently blamed for causing land and water degradation by downstream users.

3. Legally establish environmental personhood for mountains and waterways in watershed areas

Finally, granting environmental personhood status to mountains and waterways could potentially remedy environmental and socio-cultural concerns in Hawai'i. In New Zealand, the Whanganui River obtained status as a legal person in 2017, protecting native Maori community notions of ancestral connection to nature. (Evans 20 Mar. 2020) As similar beliefs are found in *Kānaka Maoli* cultural systems, Hawai'i could follow New Zealand's lead.

Potential shortcomings, however, include the difficulties associated with legally defining one natural feature but not those surrounding it as well as the potential issues that come with assigning primacy to indigenous beliefs, which do not necessarily protect the value of nature. (Shelton 2015, 12)

Conclusion

The Indo-Pacific region is filled with cultural diversity, including indigenous communities that continue to be underappreciated and marginalized within the nation-state system. Even though the importance of native Hawai'ian, or *Kānaka Maoli*, rights, knowledge, and practices have been legally acknowledged in state statutes, there is a vast lack of integration in practice. *Kānaka Maoli* participation is crucial in the trend toward community-based watershed management in Hawai'i. Although watersheds management is not considered a high priority concern for the state, poor approaches and practices have recently led to destructive, yet preventable, incidents. Hawai'i can enhance the adaptive capacity and resilience of its watersheds by taking community-centered approaches that focus on enhancing the socio-cultural benefits of native Hawai'ians. It can do so by strengthening the recognition of the *ahupua'a*, adopting payments for environmental services schemes, and establishing legal personhood for its natural resources.

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