

## Management of the Arfak Mountains Nature Reserve Based on Local Wisdom of the Arfak Tribe for Sustainable Development

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**Abstract:** The people of the Arfak Mountains since the time of their ancestors have depended heavily on nature/forests for their livelihoods. On the other hand, the Government feels the need to take preventive action to prevent uncontrolled exploitation which causes natural damage, including clearing land for infrastructure development and also building access roads. connecting Manokwari district, South Manokwari district. Therefore, communities around the Arfak Mountains Nature Reserve area are adapting to the new 'reality' they face, through social and ecological construction. The aim of this research is: To determine the socio-ecological construction of the Arfak Mountains community as a social adaptation and ecological adaptation to the existence of the Arfak Mountains Nature Reserve. The research was conducted from November-December 2023. The research method was carried out by interviewing traditional tribal heads, people who hunt, and village heads. As a result of the searches carried out, all respondents in this study clearly expressed the benefits of the existence of a forest environment (including areas designated as Nature Reserve areas). The main benefits obtained from the environment are: as a source of food (especially game animals), a source of traditional medicinal ingredients, rope, and construction materials. The existence of these beneficial values makes the Arfak Mountains environment an integral part of the life system of the Arfak tribe in general, including the Hatam sub-tribe. Traditional knowledge about environmental management, including local wisdom, and local genius in society can certainly be revealed and useful if studied scientifically to become a scientific product which can then be integrated into a better and measurable conservation area management system. Universities and Research Institutes here play a significant role as independent institutions capable of producing new knowledge for society, including in regional management systems.

**Keyword:** Arfak Mountains, Local Wisdom, Management, Sustainable Development

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### INTRODUCTION

The Arfak Mountains are a group of mountains in West Papua Province which is inhabited by the large Arfak tribal group. Most of the Arfak tribe's population occupies two districts, namely Manokwari district and Arfak Mountains district. Arfak Mountains Regency is a mountainous area that is administratively a division of Manokwari Regency which was formed based on Law of the Republic of Indonesia Number 24 of 2012 concerning the Establishment of Arfak Mountains Regency in West Papua Province. The area of 2,774.73 km<sup>2</sup> consists of 10 districts, namely Anggi District, Surey, Anggi Gida, Membei, Didohu, Taigei, Catubou, Testega, Minyambou, and Testega District. Testega district has the largest area (493.34 km<sup>2</sup>) and Membey district has the smallest area (57.45 km<sup>2</sup>). The number of villages in the Arfak Mountains district is 166 villages, with the Menyambou district having the most villages, while the Membey district has the fewest villages, respectively 37 villages and 6 villages. The population in 2021 is 38,491 people. The population density for each square kilometer (km<sup>2</sup>) is 25 people/km<sup>2</sup> (BPS, 2021; Sagrim et al., 2017).

The large Arfak tribe is actually a combination of several sub-tribes or sub-tribes. Without ignoring other sub-tribes in the large Arfak tribal group, the dominant sub-tribes in this group are the Hatam sub-tribe, Moile sub-tribe, Meyakh sub-tribe, and Sougb sub-tribe. Arfak tribe residents from various sub-tribes occupy urban areas to rural areas which occupy the largest portion (Salosa et al., 2014). The Arfak tribe people who live in rural areas generally still apply traditional lifestyles both in agricultural systems and other livelihoods (Sagrim et al., 2017; Salosa et al., 2014).

The rapid development of technology and information is currently able to reach the interior areas where the Arfak tribe lives, so that they can easily obtain information and innovation in their living systems (Laksono et al., 2001). The innovations received by the Arfak tribe occur in various sectors including agriculture, medical systems, education, consumption patterns and lifestyle in general. Along with the changes that occur as a result of this innovation, lifestyle changes become something that we can easily observe in their daily lives. This research will try to look at the reciprocal relationship that occurs between society and the ecology of flora and fauna regarding several issues that must be sought and answered. The aim of this research is to determine the

socio-ecological construction of the Arfak Mountains community as a social adaptation and ecological adaptation to the presence of CA. Arfak Mountains (Sagrim et al., 2017; Tongco 2011).

### **Methodology**

This research lasted for 4 months, starting from September to December 2023 in the Hatam tribe residential area. Some of the villages that were research locations include: Minyambouw village, Hink village, Syoubri village, Mokwam village, Amber village, Kwau village, Watariri village, Mirowi village, and Warkapi village.

The research was conducted using interviews, FGD and documentation methods. These respondents also included village heads and religious leaders, as well as community leaders from the Hatam tribe. Apart from these respondents, interviews were also conducted with staff of the West Papua BKSDA (Natural Resources Conservation Agency) as the institution responsible for managing the Arfak Mountains Nature Reserve where this research was conducted. At each location, key respondents were initially determined, namely village heads, customary land owners and community leaders (Nurdiani. 2014). After that, a search was carried out using the Snowball sampling technique to obtain further respondents. The use of the snowball sampling technique was carried out with the assumption that knowledge about biological natural resources around the Nature Reserve area was only understood by certain people. Information regarding the use of resources around the Nature Reserve, including socio-cultural aspects, was also obtained through open discussions with the community involving women, youth and community leaders from the Arfak tribe. Data analysis was carried out by describing the results of the interviews in the form of narratives and pictures.

### **Results and Discussion**

The presence of the community in a conservation area, as in CAPA, is actually a force that can be integrated directly in planning, application, monitoring and supervision. The Arfak tribal community has long been an important part of the existence of the ecosystem in the Arfak mountain area, so they understand well the characteristics and character of the area. The traditional knowledge inherent in the life of the Arfak tribe can guarantee good management in the future.

Sustainable development is actually an effort to increase the sufficiency of the needs and welfare of society on an ongoing basis. Sustainable development and its goals, also known as Sustainable Development Goals (SDGs), are a continuation of the Millennium Development Goals (MDGs) which were implemented between 2000 and 2015.

#### **Conservation Perspective in the Arfak tribe**

Papua's land with its very high biodiversity provides space for all life on it to utilize to meet their needs. The existence of resources in an area is of course ecologically related to carrying capacity which is not only viewed from the aspect of quantity but also quality. According to Suwarno, et al., (2016), damage to the ecosystem or environment can be used as an indication of a decrease in carrying capacity in an area.

The existence of biological resources on mainland Papua today cannot be separated from the role or intervention of traditional communities who have for generations managed the resources around them to meet their living needs. Not only do they use it, they also have a strategy to maintain ecosystem function from generation to generation. As explained in another part of this dissertation, the Arfak tribe, especially the Hatam tribe, has the concepts of Igya Ser Hanjop and Igya Hon Hanjop which are interpreted as traditional conservation by many groups. This concept, which is actually interpreted simply as a "boundary" for the Arfak tribe, has had quite a broad impact in terms of conservation development in this area (Mulyadi et al., 2016; Syartinilia et al., 2020).

Maintaining boundaries which is interpreted as traditional conservation is not built in a short time, but requires a long time, even between generations. The perspective that underlies the attitude to protect existing resources is realized as the impact of experience passed down through generations and passed down to the current generation. According to Laksono (2001), to build a pro-conservation attitude, there are at least three stimuli that must be had, namely natural, beneficial, and religious/willing. The Arfak tribe, with its inherent culture, up to the time the research was conducted, still upholds ancestral values, as well as values originating from nature for their survival. The belief that nature has provided food and necessities, even being analogous to them as a mother, shows a high level of faith in the universe. When talking about benefits as a stimulus, of course it cannot be separated from the high benefits of environmental resources for their lives. Awareness of the importance of nature which is actualized in a pro-conservation attitude is the basis for the development of the Igya Ser Hanjop and Igya Hon Hanjop concepts which still exist today, although in several research locations it is indicated that this concept has begun to be abandoned, especially in coastal areas (Ungirwalu et al., 2019).

Conservation is actually an effort to regulate the use of biological resources and the environment in such

a way that their benefits can be felt over a long period of time in order to ensure the continuity of their benefits for future generations. The traditional conservation concept of the Arfak tribe is the result of the Arfak tribe's interaction with the surrounding environment, including socio-cultural aspects which continue to develop dynamically from time to time. The experience of utilizing resources forms a complex knowledge system in this tribe, so that over time they have the ability to adapt well to every change that occurs. According to Sutarno et al., (2019), traditional communities not only have local knowledge and local wisdom, but also have local genius which makes them able to defend their culture from external elements that influence it. Local wisdom and local genius in the Arfak tribe is an adaptation mechanism based on local knowledge related to socio-cultural elements, including mastery of technology and art.

Limiting area use and protecting areas that have certain resources is a strategy to maintain the carrying capacity of the environment and the sustainability of its benefits. Hanjop or ancop in the Sougb language (another sub-tribe in the large Arfak tribal group) is something sacred and its existence must be respected. Even though there are no written rules regarding hanjop, the people of the Arfak tribe really respect its existence.

### **Local knowledge of the Arfak tribe and sustainable management**

As a result of the searches carried out, all respondents in this study clearly expressed the benefits of the existence of a forest environment (including areas designated as Nature Reserve areas). The main benefits obtained from the environment are: as a source of food (especially game animals), a source of traditional medicinal ingredients, rope, and construction materials. The existence of these beneficial values makes the Arfak Mountains environment an integral part of the life system of the Arfak tribe in general, including the Hatam sub-tribe (Mulyadi et al., 2007).

The Arfak tribal community, with its complex knowledge, is a link in the conservation system built in this area. The existence of the Arfak tribe is a vital component that must be integrated into the conservation area management system in the Arfak Mountains. No matter how well the program is designed to develop conservation areas in this area, it will not be successful without involving the Arfak tribal community as part of the management itself.

It must be acknowledged that the Arfak tribe has for generations had a good biological and environmental resource management system with a system that we understand as "traditional conservation", namely Igya ser Hanjop, and Igya Hon Hanjop as explained in the previous chapter of this dissertation. This concept even exists today and also acts as a strategy to overcome every change, whether natural, including environmental changes or changes in management policies implemented by the government and other stakeholders. Igya Ser Hanjop and Igya Hon hanjop are a reflection of the local knowledge and wisdom of the Arfak tribe which protects their socio-cultural system from every change that occurs. Awareness of protecting forests, water sources and traditional agricultural land as well as the potential of biological resources encourages communities to carry out self-management, especially in the field of ecotourism (Nasution et al., 2023). Traditional knowledge about environmental management, including local wisdom, and local genius in society can certainly be revealed and useful if studied scientifically to become a scientific product which can then be integrated into a better and measurable conservation area management system. Universities and Research Institutes here play a significant role as independent institutions capable of producing new knowledge for society, including in regional management systems. The use of scientific methods accompanied by in-depth analysis of the potential of local knowledge is of course very important to elevate local knowledge to a wider realm and be recognized globally. Collaboration between universities, research institutions and traditional communities is expected to be a bridge between modern conservation programs and the goals of sustainable development itself (Figure 1).

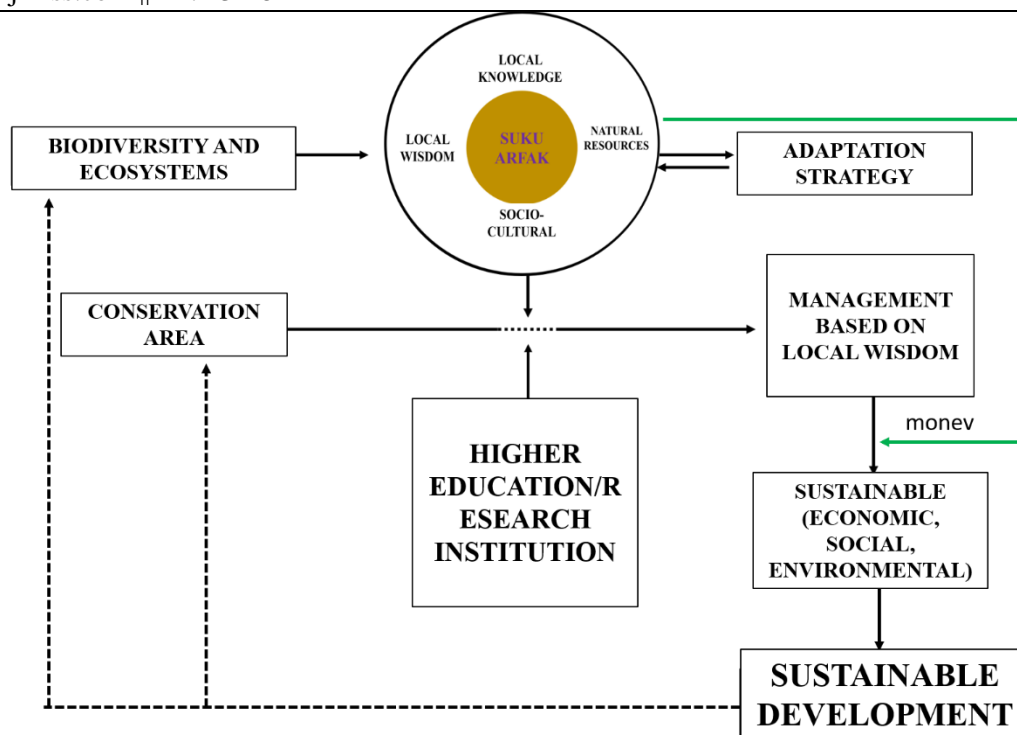


Figure 1. Conservation Area Management Model Based on Local Knowledge for Sustainable Development

### Management Problems

Community-based conservation that is developed should also adopt existing local wisdom values so that they can synergize in the management of an area. So far, the management of the conservation area in the Arfak mountains has only adopted the concept of *igya ser hanjop*, but in its implementation it does not involve local communities as the legal owners of this concept. CAPA management seems to be a fictitious program that takes advantage of the existence of natural resources in the Arfak Mountains area to meet the interests of certain institutions and/or groups. Search results around the CAPA area show that the majority of people do not receive direct benefits from the existence of CAPA. So far, the people of the Arfak tribe understand and know about the boundaries of the conservation area, but the implications of the existence of these area boundaries for their lives are not felt. Some facts found regarding the existence of CAPA in the midst of the lives of the Arfak tribe, especially the Hatam people, are:

1. Protected area boundaries. The community is aware of the boundaries of areas that are understood to be conservation areas, and agrees on several rules regarding the existence of conservation areas (based on proof of statements regarding several agreements). However, until now they do not know who or which institution is responsible for this statement because the statement was made without stating the institution or its objectives, so they do not know where to look for solutions when they encounter problems in the field.
2. The community is never directly involved in management. In some areas (mokwam and surrounding areas) people used to receive compensation for working as stake installers (once at the beginning of the determination), and then no more. Ban on hunting. The public is advised not to hunt in conservation areas, especially protected species without providing compensation related to the provision of animal protein.
3. The presence of foreign researchers. There is concern among the community regarding the presence of researchers and foreigners who collect data in their customary areas without providing the results to them.
4. Environmental changes and past trauma

Environmental change is something that cannot be avoided, especially for traditional agricultural system practitioners in the Arfak Mountains area, namely the Arfak tribe. Armed with traditional knowledge in carrying out shifting cultivation (commonly applied by the Arfak tribe, although there are also those who have settled), the Arfak tribe community has fulfilled their food needs for generations. All locations selected as study locations generally apply a shifting cultivation system. Based on observations and interviews, information was obtained that the area of land cultivated by each individual generally does not exceed half a hectare, and is even

smaller. Apart from that, not all members of the Arfak tribe have active gardens that are cultivated intensively. One of the basic reasons that arise for not cultivating land intensively is decreased productivity and crop failure. It is acknowledged that currently it is very difficult to predict the environment, especially the weather. If in the past they had a clear planting calendar, now it can no longer be implemented. The rainy season is unpredictable so it is also difficult to determine the planting period. It is not uncommon for people to experience crop failure due to high rainfall, or vice versa due to very low rainfall intensity. Apart from this, the trauma caused by the natural disasters they experienced which resulted in significant material losses and even lives, including garden land, made some people, especially in mainland Hink, reluctant to plant gardens or farm. The fear of the recurrence of natural disasters (floods and landslides) has made quite a few people no longer want to garden, especially on a large scale.

Regarding the agricultural system of the Arfak tribe, Sagrim et al., (2017) conducted research in the Arfak Mountains CA area regarding analysis of the constraints and sustainability of agricultural development in the highlands of the Arfak mountains in West Papua. The research revealed that communities around the Arfak Mountains experienced obstacles in developing agriculture, which is their main livelihood. These obstacles or constraints include motivation for farming, performance of government officials and capital or investment. Apart from that, another factor is land availability. To increase production, apart from intensification, land extensification is carried out, namely by opening new agricultural land. The opening of new agricultural land will of course be a challenge in itself for the existence of the Arfak Mountains CA. Efforts to increase farming motivation among the Arfak tribe are absolutely necessary because traditional agriculture is one of the main sources of life for the Arfak tribe (Therese. 2019).

### **Conclusion**

The development that is being promoted in various regions, including in the Arfak Mountains area, will not be successful without involving traditional communities, in this case the Arfak tribe, as targets and perpetrators of the development itself. Traditional knowledge, including local wisdom and local genius, must be integrated into every sustainable development program. Apart from being a form of appreciation for the existence of traditional knowledge, community involvement in management will foster a sense of responsibility for preserving the natural resources they own and can minimize conflict between managers and the community.

### **Recommendation**

Opening a space for dialogue between the management of the Arfak Mountains Nature Reserve area and the communities around the area. The management of the Arfak Mountains Nature Reserve area has always seemed exclusive to the Arfak tribal community itself. Exclusive here means that the manager is the party who seems to have considerable power to regulate the conservation area, so that the rules issued must be obeyed by the community. The community does not have a bargaining position because there is no clear space for them to express their opinions and desires. The results of discussions with respondents revealed that so far there has been very little or no sharing or open discussion activities with the people who own the area to hear input directly from them. Not all residents of the Arfak tribe are willing and able to visit the management office just to express their wishes and hopes regarding the management of the conservation area. The people of the Arfak tribe are of the opinion that conservation areas are recognized as important, although some of them also think that the establishment of conservation areas actually limits them from meeting their living needs due to the protected land. Opening space for intense dialogue with the community is absolutely necessary if you want sustainable CAPA management without harming the community.

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