Animal protein in the pot : the ethnozoology perspective of native Papuans

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ABSTRACT

Human collect great variety of food resources from wild animal, including mammals, birds, reptiles, amphibians, fish and also invertebrates. Wildlife resources are utilized in various ways among tribes that are reflects economic, socio-cultural and ecological differences. Certain animal species are extremely popular to particular tribes therefore they are commonly hunted for certain reason such as food for protein source. The present paper reviewed and discussed food security based on wildlife utilization in Papua.

Key words : Ethnozoology, animal protein, native Papuans, hunting activities

INTRODUCTION

Forests provides food and income that is important and often critical to the people around the world in securing a stable and adequate food supply. Forests is one of the most accessible productive resources available to people. Forest is also home to approximately 300 million people who live adjacent to forest areas and depend on shifting cultivation, hunting and gathering for some aspects of their food security (FAO, 1996).

Gathering plants and other non-wood forest products (NWFPs) including wild animals has direct contribution to food supply. In many areas, small rodents, reptiles, birds, snails and insects, as well as larger animals contribute an important portion of the diet than it has generally realized.

Great variety of food resources from wild animals, including mammals, birds, reptiles, amphibians, fish and also invertebrates are still being collected by men today. Evidence obtained by anthropologists in various parts of the world indicates that primitive men already had certain preferences in the use of animal protein.

It is well known that tropical forests are rich in biodiversity. Wildlife in tropical forest is an important resource for local communities living in and around those forests. In Papua wildlife utilization has not been well studied despite the increasing exploitation of wildlife for various purposes. Therefore, the objective of this paper is presenting the observation on how wild an animal contributes to the food security.

Biodiversity richness of wildlife and its utilization

Indonesia, is one of the nations with the richest terrestrial biodiversity, second to Brazil. Approximately 12 % of the world's mammal species are found within the 17,000 islands of the Indonesian archipelago. Indonesia is located within the Indo-Malaya fauna of tropical Southeast Asia and Australo-Papuan fauna (Whitmore, 1987 *in* Riley, 2002). It is a unique location and together with its species-rich forest environment contributes to the high diversity of animals occur in the area.

Conservation International report on the biodiversity priority setting workshop in Biak indicated that Papua (previously Irian Jaya) probably represents one of the highest levels of diversity and endemism of flora and fauna in Indonesia. Geographically, about 146 mammals, 329 reptiles and amphibians and 650 birds inhabit its diverse ecosystems, these represent more than 50% of Indonesia's terrestrial biodiversity (Pattiselanno, 2003).

In Papua the harvesting of wildlife is a part of traditional culture. The use of bird's plumage (*Goura* sp, Birds of Paradise and *Cassowary* sp.), canine teeth (wild pig) and hide of mammals (Cuscus) and reptile (Monitor lizard) are common in traditional costume displays and ritual ceremony. Papuan hunt animals for display materials of traditional costume and musical instrument (Kwapena, 1984, McKinnon, 1984, Beehler, 1985; Petocz, 1994). Particular wild species are also considered as symbol for example, one of the state universities in Papua uses Bird of Paradise (Burung Cenderawasih) as an official symbol, the use of Cassowary for the logo of Manokwari City, and Merauke is known as the city of deer (Pattiselanno, 2003). In addition to socio-cultural importance, in some parts of the world, wildlife has a strong relationship with spiritual and cultural practice, and acknowledged as it potential ethnozoology aspect or traditional medicine (Ntiamoa-Baidu, 1977, Kwapena, 1984)

As food source, wildlife also plays an important role to people in rural areas. Limited access to animal protein from domestic livestock and the availability of wildlife are the major reason for acquiring wild animals for consumption. Economically, the difficulties to afford animal protein from domestic livestock led people to find alternative source from the nature (Pattiselanno, 2004[a]).

Hunting as tool of utilization

Harvesting wild animals in West Papua is purely done through hunting. Hunting by local communities in Papua plays an important role in traditional life as part of their culture. It is believed that the most important purpose of hunting is to look for essential protein as food sources. On the other hand, the tendency to gain more economic benefits by selling wild animals and their products was also observed. Pattiselanno (2006) showed that hunting in Papua often refers to subsistence hunting, which relies on traditional tools included both active and passive techniques. Lee (2000) and Riley (2002) mentioned that active hunting requires hunter actively pursue the animal, labor intensive and time consuming, whereas passive techniques require intensive effort at first e.g. building a trap. setting a snare, etc..

People have maintained a relationship with nature where the use of forest materials to build traps, arrow and bow, spear and snare to catch wild animals adopted and practiced nowadays. Hunters acknowledge that most of the traditional hunting tools were produced from bamboo, rattan, fiber ropes, and some elastic plants which, were used to set trap and snare. Paijman (1976) examined that materials used for making traditional tools usually derived from the forest such as *Hibiscus* spp., *Trema* spp., *and Ficus* spp, *Syzigium* spp., *Aglaia sapindina* and *Dodonea viscosa.*

It is realized that both subsistence and economic value play an important role is hunting and these are the reasons for hunter to maximize meat yielded and to gain more commercial benefits. In due course, traditional hunting tools (arrow, bow, spear, trap and snare), and firearm, which is far more efficient technique compared to the traditional one are widely used in Papua now a days.

In contrast to Robinson and Bodmer (1999), the use of gun is more common on modern/sport hunting than subsistence hunting. The study of Madhusudan and Karranth (2002) in India showed that the use of hunting arm varies depending on the animals targeted and it was observed there is a tendency to shift from traditional hunting gear to the modern one in order to perform efficient hunting (time consuming, yield gain and labor intensive). Bennet *et al.*, (1999) suggest that access to flashlights, batteries, outboard motors, mechanized transport and petrol or the use of new hunting technologies are commonly practiced by hunters to increase harvest rates.

Contribution to food security

Food security is defined as physical and economic access to food, for all people, at all times, and always concerned with food availability (Hoskins, 1990). However, some factors can also influence food security such as economic, social status, health, education and cultural background, and these factors play an important role in the contribution of wild animals to food security in Papua.

Based on socio-cultural background, hunting has always been considered as part of culture and life style of natives Papua that contributed significantly to food security. Semi-nomadic life style that is commonly practiced in rural communities characterized by highly relies of local people on the blessing of the nature by gathering plants and animals.

Wildlife has long been considered as one of the most important forest products that directly contribute to the food supply. Among different parts in Papua, nutrients, fat or other animal protein sources are supplied from wildlife hunting as part of the Papuans daily life. In Rumberpon, Timor deer *(Cervus timorensis)* is commonly hunting for the venison, Cassowary, and Timor deer are both wild animals hunting for their meat in Wasur, Merauke. Both Napan tribe in Nabire and Arfak tribe in Manokwari hunt monitor lizard for meat. Cuscus meat is commonly consumed by native, and this leads to extensive hunting in Yop Island and Napan Yaur in Nabire.

The previous facts are important factors that contributes significantly to food security in Papua. Regarding wildlife richness, food sources are always available nearby people. The coastal natives perform hunting for food supply beside fishing. While people

inhabited remote areas and far from the coast predominantly engaged in traditional agriculture and hunting for food (Pattiselanno, 2004[b])

Given the important of meat supply for the rural household member, some species have been recorded as hunting target for animal protein source in Papua, (Table 1).

In contrast to the regulation that has been ratified and implemented hunters face difficulty to comply. In fact during the hunting activity they face difficulty in selecting a particular animal when passive hunting performed (using trap and snare) as the animals have similar chance to be catched.

Species listed in Table 1 were hunted for several reasons such as species which are roamed closer to human habitation, easy access to be hunted, amount of carcass offered by the species and the economic value of species. Some studies have recognized different reasons in selecting species to be hunted. For example, hunting is significantly correlated to biomass yield and economic value combining both market and subsistence value (Bodmer 1995; Escamila, *et al.*, 2000; Fa, *et al.*, 2000; Peres, 2000). Madhusudan and Karanth (2002) suggest, based on their study in Muntjac and Sambar difficulties in hunting particular species direct hunters to look for other species as hunting target.

Table 1. Consumed species recognized as hunting target in Papua

No.	Species	English Names	Conservation status
1	*Cassuarius* sp.	Dwarf cassowary, Double-wattle cassowary, One-wattle Cassowary	P
2	*Cervus timorensis*	Timor deer	P
3	*Chelonia mydas*	Green Sea Turtle	E, A1
4	*Crocodylus novaeguineae*	New Guinea Crocodile	A2
5	*Dendrolagus dorianus*	Unicolored Tree-kangaroo	V, P
6	*Dendrolagus inustus*	Grizzled Tree-kangaroo	V, A2
7	*Echymipera* sp.	Common *Echymipera*, Long-nosed *Echymipera*	R
8	*Goura* sp.	Blue Crowned-pigeon, Victoria Crowned-pigeon	V, P
9	*Phalanger* sp.	Mountain Cuscus, Ground Cuscus, Common Cuscus	A2
10	*Spilocuscus maculatus*	Common spotted cuscus	A2
11	*Sus* sp.	Feral Pig	
12	*Varanus* sp.	Goul'd Monitor, Mangrove Monitor, Emerald Monitor	A2
13	*Zaglossus bruijnii*	Long-beaked Echidna	E, A2

Note : *A1= Appendix 1 CITES, A2= Appendix 2 CITES E = Endangered, P= Protected, R= Rare, V= Vulnerable*

Bush meat markets are found throughout Papua such as in Nabire. Venison distributors regularly sell fresh meats from Cenderawasih Bay area and with outboard motor retailer they often supply wild meat for Manokwari from Saukorem District. As the catch is not completely consumed in a day or immediately sold as fresh meat, some households recently implemented the traditional way of preserving meat in various forms through smoking (smoked meat) or a combination of salting and air-drying (jerk or "*dendeng*" in local dialect). Excess meat is often hanged in the kitchen above the traditional fireplace. During dry season, the common practice is combination of salting and air-drying.

Suryadi *et al.* (2001) reported deer meat (venison) is commonly sold in traditional market in Manokwari as fresh or in drying form called "*dendeng*". Lee *et al.* (2001) and Riley (2002) mentioned that a majority of large fruit bats were sold in markets by the people from Minahasa to supply local wild meat necessities.

Traditional conservation wisdom and sustainability of hunting

Taboos area related to beliefs, religion or culture practice that direct or indirectly protect/conserve wildlife is considered as traditional wisdom among the tribes. The traditional conservation wisdom of native Papuans in terms of establishing particular hunting season, initiating particular hunting area and prohibiting hunting on certain animal species is described by Pattiselanno (2003).

In some parts in Papua, hunting season is restricted by traditional law similar to "*sasi*" in the Moluccas. During the *sasi* period people are not allowed to harvest anything from the forest and sea until the head man or respected leader opens the hunting season. Purwanto (2004) explained that the same practice is commonly found throughout Tanimbar regions. Kwapena (1984) mentioned that in Papua New Guinea seasonal banned on hunting is implemented every three to four years, and seasonal harvesting of crabs is still widely put into practice.

Forest in Papua belongs to the traditional right of land tenure by the native, therefore the tribe/clan who owns the land are free to hunt in the territory, but others who are not belong to the tribe/clan should ask permission to enter and hunt within the area. Hunting in the forest is most influenced by ownership of the land, where hunting is usually restricted to areas that belong to other clans. In this case, outsiders have to ask permission from landowners and share the results with landowners.

The natives believe forests as sacred places for the departed spirit of the ancestors, thus should be protected. This believes can be regarded as indirectly support the wild conservation. Purwanto (1997) record the same practice in Baliem Valley, Jayawijaya, Papua.

Protection of particular birds species such as birds of paradise and victoria crown pigeon are imposed because people acquire them as symbol, emblem or totem to particular tribes. This practice immediately conserves these species. The native of the uplands of the Bird Head Region in Kebar believe pregnant women would miss-carriage if they consume animals hunted by dog (using dog in hunting). Furthermore, in Teminabuan people are prohibited to kill and catch cockatoo, other wise they will loose their skill in war.

Robinson and Bodmer (1999) indicate that although species may have been extirpated by traditional hunters or their populations become depleted because they have been ceased as significant resources for people, wildlife species have continued to be an important resource for local peoples in many areas. Some studies in Papua reveal that an effort to raise wild animal in captivity was commonly practiced by the natives. Pattiselanno *et al.* (1999) cited that raising Cassowary in captivity was commonly found among the Napan tribe in the Cenderawasih Bay . The also sell the juvenile Cassowaries for the source of income of the rural households. Duwila (2002) mentioned that raising deer as backyard farming was currently became a trend in Manokwari, Oransbari and Ransiki. Deer and Mambruk (*Goura* sp.) are found as backyard farming by local people in Aranday District of Bintuni. Rumpaidus (2005) in his study pointed out that raising Cuscus (*Phalangeridae*) is common among native of Ratewi Island in Nabire District.

Raising wildlife is important to decrease the frequency of hunting of particular wild species and at the same time support the law enforcement to ban hunting on protected species.

Integrated program to support food security

A study published by FAO in 1988 regarding the legislation on wildlife and protected areas in Africa already proposed further consideration of wildlife management and utilization, as a counter to strict interest for hunting and individual species' protection (FAO, 1988). The establishment of protected areas for wildlife conservation purpose, in which human activities are regulated or controlled with a view to safeguarding particular species or species' habitat is now important. Recently the creation of protected areas has been conceived as part of a "national system" or in the framework of an international network.

Forest foods including wild animals contribute to the diet diversity providing nutrients or proteins. They are important in supporting food security. Therefore, this challenging program in forestry is relevant and supporting physical and economic access to food by all people at all times.

In order to obtain better understanding on forestry and food security, FAO held a meeting in India attended by 27 countries. The meeting raised various issues on forestry and food security and gave guidelines for policy approaches, institutional arrangements, and project design as well as implementation which should result in more effective food security through forestry (FAO, 1988).

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