

Natural Resources and Indigenous People's Livelihood Strategies: A Case Study of Human Communities in the Headwaters of Engkari River, Sri Aman, Sarawak, Malaysia

Spencer E. Sanggin¹, Neilson Ilan Mersat¹, Wong Swee Kiong¹, Mohamad Suhaidi Salleh¹, Mohd. Azizul Hafiz B. Jamain¹, Ahi Sarok¹, Peter Songan²

(1. Faculty of Social Sciences, Universiti Malaysia Sarawak, Malaysia;

2. Faculty of Cognitive Sciences and Human Development, Universiti Malaysia Sarawak, Malaysia)

Abstract: This paper discusses the livelihood strategies and the environment in which the Iban of Rumah Jaong of the headwaters of Engkari River survives on and the challenges faced by its residents. The livelihood of the small Iban community depends on the natural resources for survival. Rivers serve as the source of food, domestic water supply and means of transportation. Forests, on the other hand, serve as source of food, timber and building materials, and to a lesser extent, as a people's hunting ground. To many outsiders, life in the headwaters of Engkari River is easily perceived as difficult and very challenging. However, for the local residents of a community living in the interior and remote part of Sarawak, such as in headwaters of Engkari river, life is considered 'normal' where the practice of mixed farming consisting of shifting cultivation of hill rice and with small plots of rubber and/or pepper garden seems sufficient to sustain the people's livelihood, at least for now.

Key words: livelihood strategies; natural resources; Iban; indigenous

JEL code: Q20

Spencer Empading Sanggin, Dr., Professor, Department of Development Studies, Faculty of Social Sciences, Universiti Malaysia Sarawak; research areas/interests: natural resources and indigenous communities. E-mail: spencer@unimas.my.

Neilson Ilan Mersat, Ph.D. (Political Science), Associate Professor, Faculty of Social Sciences, Universiti Malaysia Sarawak; research areas/interests: election and politics, indigenous communities, natural resources utilization. E-mail: mnilan@unimas.my.

Wong Swee Kiong, Ph.D. (Natural Resource and Environmental Economics), Department of Development Studies, Faculty of Social Sciences, Universiti Malaysia Sarawak; research areas/interests: poverty studies, development studies, agricultural economics, natural resource and environmental economics. E-mail: swkwong@unimas.my.

Mohamad Suhaidi Salleh, Ph.D., Department of Anthropology and Sociology, Faculty of Social Sciences, Universiti Malaysia Sarawak; research areas/interests: social stratification, identity, indigenous communities and livelihoods. E-mail: smsuhaidi@unimas.my.

Mohd. Azizul Hafiz B. Jamain, Master of Science (GIS), Department of Development Studies, Faculty of Social Sciences, Universiti Malaysia Sarawak; research areas/interests: GIS, natural resource management. E-mail: jmahafiz@unimas.my.

Ahi Sarok, Ph.D. (Public Admin), Associate Professor, Faculty of Social Sciences, Universiti Malaysia Sarawak; research areas/interests: public sector management, Malaysian politics and public policy. E-mail: sahi@fss.unimas.my.

Peter Songan, Ph.D., Professor, Faculty of Cognitive Sciences and Human Development, Universiti Malaysia Sarawak; research areas/interests: human resource development, sustainable rural tourism development, community development, community informatics. E-mail: songan@fcs.unimas.my.

1. Introduction

This paper presents some observations and findings of a study on the uses of natural resources and the livelihood strategies of the Iban community of Rh Jaong, Ulu Engkari, Sri Aman, Sarawak. A fieldwork was carried out in early December 2014. The primary purpose of the study is to identify the uses of the natural resources by the community in the headwaters of Engkari River as well as how they manage the resources (water, forest and land) in the context of sustainable livelihood and environment.

Engkari River is one of the 2 tributaries of Batang Lupar, the largest river in Sarawak. The other main tributary is known as the Batang Ai. Along Engkari River there are a number of Iban settlements or longhouses. Some of the people who used to live in the lower part of Engkari river had moved or resettled in areas below the Batang Ai dam, particularly those whose settlements were located in the main lake (inundated area). Currently there are still a number of settlements located in the upper regions of both Engkari and Batang Ai river system, beyond the inundated part of the rivers.

2. The Background of the Iban in Lubok Pantu, Ulu Engkari — The Study Area

The Iban longhouse of Rh Jaong, Lubok Pantu, of Ulu Engkari is situated about 24 km from the nearest town, i.e., Lubok Antu. It is the second furthest Iban settlement on the Engkari River. There are a total 17 Iban longhouses in Ulu Engkari. The journey to Rh. Jaong in Ulu Engkari took 4 to 5 hours by outboard-motorized longboat from the jetty (Pangkalan) at Batang Ai dam. This journey included 1 hour crossing the lake of Batang Ai dam and another 3 to 4 hours upstream along a fast flowing and sometimes shallow river. Going upstream from Pangkalan Batang Ai to this Iban settlement on the Engkari River is indeed a great challenge as well as an adventure. It needs an experienced boatman to be able to navigate the river as some parts of which are shallow and very narrow. During dry season, we were informed, the water level can be extremely low and journey by boat to and from the long house could take 3 to 4 times longer, where rocks and small rapids are a constant hindrance.

The longhouse has 15 families (*bilek-family*) with 85 active residents. According to Freeman (1970), “bilek is the word which the Iban use to describe the separate enclosed rooms of a longhouse, but it is also a term used, by the Iban themselves, to refer to the family group which owns and occupies one apartment of a longhouse” (p. 9).

3. Importance of Natural Resources to the Community

3.1 River and Water Resources

The Iban populations in the headwaters of Engkari River are dependent on the natural resources for their livelihood, besides shifting cultivation of hill rice as food crop. That includes the forests and the rivers. Rivers are their source of water and food, besides being the means of transportation—there is no road leading to the longhouses in the upper Engkari, except for a new logging road used for extracting timber for the nearby forests.

3.1.1 River for Transportation

Rivers serve as the main mode of transportation for the Iban living in the upper Engkari river system. Travelling to and from the longhouse is normally done by a small and usually motorized longboat. The trip from the longhouse to Pangkalan Batang Ai (communal landing-place at the Batang Ai dam), mainly for provisions, could take between 4 to 6 hours depending on the water level. With prolonged draught, as told by one of the longhouse residents, some parts of the river were extremely difficult to navigate even using a small boat due to

very low water level. Thus, the longhouse residents would face a lot of difficulties getting to the nearby town of Lubok Antu, and they would less likely to travel by boat unless they have completely run out of food supplies and other necessities.

Longer travelling time by outboard-engine longboat would mean more petrol consumption, thus increasing the cost of transportation which is a burden for most longhouse folks. A round trip from the longhouse to Pangkalan Batang Ai could easily cost them RM400. Boats are not only used to go to the town or to travel to other longhouses, but are also used to go to the farms. Almost every family would have at least a boat, which are usually equipped with an outboard engine. Therefore, boat is a necessity for the Iban community living in the upper Engkari River, as much as a car is needed in the cities.

3.1.2 River as Source of Food

Rivers are crucial not only as a means for transportation but they also serve as source of food for the rural community. The Ibans living along the Engkari River depends on the river for freshwater fish and sometimes shrimps or prawns. Also commonly found are *tekoyong* (or *siput* in Malay), the freshwater snails found in the riverbed, which are normally eaten, even considered delicacies, by the natives of Sarawak. Fortunately the river water is still considered very clean possibly due to the lack or “absence” of logging activities in the upper section of the river system. However, over and indiscriminate fishing activities could result in the depletion (and probably extinction) of fish population in the river as evidenced from many rivers in Sarawak, including the Batang Ai and Ulu Engkari.

In recognition of the danger of indiscriminate and over fishing (which resulted in decreasing fish populations) and the dependence of the Iban community on rivers for food (protein), the State Government, through its agency, The Sarawak Forestry Department had launched a conservation strategy known as the Tagang System (*Sistem Tagang*). According to the Director of the Sarawak Forestry Corporation, Ali Yusuf, “Tagang System” is actually a system of sustainable management of fisheries resources and is in line with the objectives of the Sarawak Forestry Corporation in forest management and biodiversity resources sustainability,” The Tagang System originates from Sabah and is known as the Tagal System (Borneo Post Online, 2012).

In Sabah, where the Tagal System originates, the system is referred to as a Smart-Partnership between the local community and the Sabah State Government. The term “Tagal” is a Kadazandusun term which is used for sustainable and traditional fisheries management (Nasiri, 2010). The aim of the system is to protect, revive and then harvest the fish in a sustainable manner. The traditional percept of tagal in Sabah started with riverine territorial demarcation to exploit riverine resources for a villager living within the vicinity of a river (Er, et al.) . It is one of the methods they use in advocating for the rights of indigenous peoples in the management of resources, known as the “tagal” system. According to Wong et al. (2009), Tagal system was originally used in Sabah for forest conservation by local communities before it was adapted for river management and conservation.

Along the Engkari river system, beyond the inundated part of the river, one could see several notices or signs put along the river bank which indicate the different zones of the river where fishing is totally forbidden (red zones), parts which were allowed with some limited restriction (orange zones), and other areas where fishing is without restriction (green zones). One could observe, especially in the red zone region, some *Ikan semah*, a popular riverine fish which is now becoming very rare. Semah (as it is known in Iban), from the *Tor Labeobarbus* species, is indigenous to Borneo's higher reaches of freshwater rivers. In the *Tagang* system of Engkari river, Semah, if well conserved, is not only a source of food/protein for the community but it is also a good source of income for them as the fish is well-known for its demand with a price of up to RM200 per kilogram when sold in

the market. Besides conservation of fish for local needs, the Tagang system could become a tourism attraction. Having tourism activities in the area will provide alternative sources of cash income for the longhouse community. A similar system, Tagal, in Sabah has been proven to be a successful tourist attraction or product (Jurry, 2011). The system has been found to be beneficial to environmental management, economic and social development of the local community in Ranau, Sabah.

3.1.3 River Water for Household Needs

Fresh water is not a problem for Rh. Jaong's residents. Besides providing means for transportation, Sungai Engkari itself, especially in the headwaters, are considered "very clean" and provide source of water for the people's daily needs, such as for bathing and washing as well as for cooking. At the same time, the longhouse is also equipped with gravity-fed water from nearby stream. This gravity-fed water is channeled to every household (*bilek*) in the longhouse and available throughout the year except during prolonged draught. So water is not an issue even though it's not treated water. The fact that the river water is fresh and clear can be attributed to the lack of or absence of logging or other land development activities in the upper part of the river.

3.1.4 Power Supply

For longhouse community, the source of power (for lighting) comes from a diesel generator, which operates for about 2 to 3 hours a day. However, the cost of running the generator is relatively expensive as the price of diesel as well as the cost of bringing the fuel to the longhouse can be very high. Alternatively they get their power supply from a micro-HEP located about 200 meters from the longhouse. The water that runs the turbine is channeled from a small stream located on higher elevation. The micro-HEP will be mostly operational during raining season as it depends on the volume of water coming from the stream.

3.2 Uses of Forest Resources

3.2.1 Timber

Besides rivers and water, forest is another essential resource for the rural community. The community still has plenty of secondary forests although some lands have been cleared for swidden farming (hill rice cultivation) as well as for planting market-oriented cash crops such as rubber and pepper. Forest serves as source of livelihood for the community. For example, the people in Rh. Jaong obtained timber in nearby forests to build their houses. Timber from certain tree species are also used for building longboats. On average a boat can last for about 2 years depending on the degree of usage as well as the level of maintenance. So, every 2-3 years they have to build a new boat to replace the old and dilapidated ones. Some species of trees are cut down for firewood (for cooking) as an alternative to or in addition to using gas in recent years.

3.2.2 Wild Vegetables and Meat

Besides as source of timber, the people of Rh. Jaong are also dependent on the forests for indigenous foods such as vegetables and wild meat. The nearby forests provide avenues for the local people to hunt wild animals and collect wild vegetables which are mostly for their own consumption. It is interesting to note that the local people only resort to hunting when there really is a need for food rather than for commercial or for sale purposes. This practice helps to conserve the animal's populations in the nearby forest. The animals they caught or killed include mouse deer, wild boar (*babi/jani babas* in Iban), barking deer (*kijang* in Iban), and bearcat (*Arctictis binturong*) (*enturun* in Iban or *binturong* in Malay). Sometimes other small animals are also caught including porcupine (*Hystrix brachyura*) (*landak* in Iban) and pangolin (*tenggiling* in Iban). Some of these animals are understood to be listed under protection by the Sarawak Forestry Department because of the decline in the animals' populations, and to prevent the extinction of such animals throughout Sarawak.

Among the jungle and indigenous vegetables commonly collected from the forest include bamboo shoots (tubu in Iban), wild ferns (paku ikan and paku miding in Iban), daun sabong (*Gnetum gnemon*) (see Figure 1), a species of rattan (*Plectocomiopsis geminiflora*) shoots (upa lalis in Iban, Malay), and many others. Fortunately (or unfortunately), these jungle products are normally not for sale, albeit plenty, but rather for the family's own consumption. The main reason is the difficulty to send the forest products to nearest market, i.e., Lubok Antu town, due to the distance, lack of accessibility, and high cost of bringing/transporting those products. The cost of transportation (fuel and labor) outweighs the economic benefits derived had the products been brought to the market. In other areas of Sarawak, according to Horowitz (1998), improved transportation has allowed rural populations greater access to markets for sale of forest products.



Figure 1 Daun Sabong (*Gnetum gnemon*)

4. Land and Rice Cultivation in Ulu Engkari

Land is perhaps the most important asset for the Iban community in Sarawak in general, and specifically for the Iban population of Ulu Engkari. Freeman (1970) described the cultivation of rice as the center of Iban culture (Winzeler, 2010). Likewise, the main economic activity of the people in the upper Engkari's Iban longhouse community is farming. The practices of hill padi/rice cultivation in Lubok Pantu, Ulu Engkari are very similar to those other Bornean shifting cultivation systems (Freeman, 1955; Dove, 1985; Mertz & Christensen, 1997). The preference for the cultivation of hill rice rather than wet rice is very obvious. There are hardly any sites where wet paddy could be cultivated due to the mountainous terrain in the upper reach of the Engkari River. Padoch (1982) once described the area of Ulu Engkari as "highly dissected topographically, includes virtually no flat land, and is drained by many clear, rushing streams" (p. 5).

In addition to planting hill rice through shifting cultivation, most families also planted pepper and rubber as their main cash crops. Freeman (1970), in reference to the Iban of Balleh, stated that rubber is an important cash crop as it provides incomes to families faced with padi (rice) shortage. Income earned from sales of rubber sheets are used to buy imported rice. The same goes for pepper. Sales of pepper (and rubber) also provide cash income for the families which they could use to buy their other daily needs. Thus, at this point in time, land is crucial and important resource for the survival of the Iban community in the upper Engkari River.

5. Conclusion

Much of Sarawak's population still remains rural. People who live in the rural areas do not get to enjoy the kind of life and facilities that the urban people are having. For a person who comes from the urban areas, the livelihood that the people faced in the rural areas is difficult to imagine and comprehend. In some rural areas of Sarawak there is still no road. The only feasible mode of transportation in the upstream of Sarawak river system is mainly through waterways, travelling by boat or longboat. The situation in Ulu Engkari is no different. The people who live there had experienced the 'difficulty' for the past many years and perhaps for many more years to come.

The population in the headwaters of Engkari River, as seen at Rh Jaong longhouse, is still very much dependent on the natural resources for their livelihood – river, forests and the land. The dependence on these natural resources is crucial for their livelihood and survival. As such, it is critical that the resources are managed sustainably, with or without assistance from outside, especially the relevant government agencies. The local Iban community in Lubok Pantu, Ulu Engkari is aware of the danger of overexploitation of the resources and the need to manage those resources. Some of the current farming and non-farming practices are based on their indigenous knowledge as well as knowledge disseminated by government agencies.

Acknowledgement

The authors would like to thank Universiti Malaysia Sarawak (UNIMAS) for its support and the financial assistance through the National Research Grant Scheme, (NRGS/1090/2013(04), for funding the research project.

References:

- Anonymous (2012). "Replenishing riverine fish stocks via tagang system", accessed 28/01/2015, available online at: <http://www.theborneopost.com/2012/09/25/tagang-system-sures-riverine-fisheries-protected-conserved>
- Anonymous (2015). "Laman Web Rasmi Pejabat Daerah Lubok Antu", accessed 28/01/2015, available online at: <http://www.lubokantudo.sarawak.gov.my/modules/web/pages>.
- Cramb R. A. (1989). "Explaining the variations in Bornean land tenure: The Iban case", *Ethnology*, Vol. 28, No. 8, pp. 277-300.
- Dove M. R. (1983). "Theories of Sweden agriculture, and political economy of ignorance", *Agroforestry Systems*, Vol. 1, No. 2, pp 85-99.
- Er A. C., Selvadurai S., Lyndon, N., Chong S. T., Adam J. H., Mohd. Fuad M. J., Habibah A. and Hamzah, J. (2012). "The involvement of tagal on ecotourism and environmental conservation: A case study in kampong Luanti Baru, Sabah", *Advances in Natural and Applied Sciences*, Vol. 6, No. 1, pp. 61-64.
- Freeman J. D. (1955). "Iban agriculture: A report of the shifting cultivation of hill rice by the Iban of Sarawak", Colonial Office, *Colonial Research Studies*, No. 18, London.
- Freeman J. D. (1970). *Report on the Iban*, London School of Economics, University of London, London: Athlone Press.
- Horowitz L. S. (1998). "Integrating indigenous resource management with wildlife conservation: A case study of Batang Ai National Park, Sarawak, Malaysia", *Human Ecology*, Vol. 26, No. 3.
- Jurry Bt. F. Michael (2011). "Sistem Tagang dalam industri pelancongan: Manfat kepada komuniti", *Malaysian Journal of Society and Space*, Vol. 7, No. 1, pp. 14-25.
- Mertz O. and Christensen H. (1997). "Land use and crop diversity in two Iban communities, Sarawak, Malaysia", *Danish Journal of Geography*, Vol. 97, pp. 98-110.
- Nasirin Sabiah (2010). "Malaysia: community management of resources", accessed 29/1/2015, available online at: <https://ecological-equity.wordpress.com/themes/community-solutions-sustainable-livelihoods>.
- Padoch C. (1982). "Land use in new and old areas of Iban settlement", *Borneo Research Bulletin*, Vol. 14, pp. 3-14.
- Wong Jephthrin Zefrinus, Seiichi Etoh and Arthur B. Sujang (2009). "Toward sustainable community based fishery resources management: The tagal System of Sabah, Malaysia", in: Siri Ekmaharaj et al. (Eds.), *Uplifting of the Socioeconomic Condition of the Fisher via Sustainable Fisheries Management: Fish for the People*, Vol. 7, No. 2, South East Asian Fisheries

Development center.

Windle J. and Cramb R. A. (1997). "Remoteness and rural development: Economic impacts of rural roads on upland farmers in Sarawak, Malaysia", *Asia Pacific Viewpoint*, Vol. 38, No. 1, April 1997.