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TRADITIONAL KNOWLEDGE AND THE USES OF NATURAL RESOURCES BY THE RESETTLEMENT OF INDIGENOUS PEOPLE IN MALAYSIA

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Abstract

Indigenous people are generally descended from original inhabitants of the land in which they inhabit and as such have a historical relationship with their land. Nowadays, most of the *Orang Asli* have been resettled to a village provided by the government. Nevertheless, they are still carrying out their traditional lifestyle, such as hunting and gathering forest product. Over many generations, they have developed a holistic ancestral traditional knowledge of their lands, natural resources and environment, which plays an important role in their livelihood and well-being. Documentation of traditional knowledge on natural resources by the native people in Malaysia is still far from complete. Thus, the objective of this study is to document the traditional knowledge and natural resources used by the *Orang Asli* in their livelihoods. This study adopts a qualitative approach through exploratory study whereby the study was carried out at the *Orang Asli* resettlement villages in the state of Terengganu, Malaysia. Data was obtained from the tribal elders who served as informants using in-depth interviews and field observations. The results show that two plant species mainly relied on the *Orang Asli* for their economic activity, including agarwood

and rattan. Besides, there are 34 species of plants and herbs, 31 species of animals and 31 species of fishes that commonly utilised by the *Orang Asli* in Terengganu, Malaysia. Interestingly, they still using conventional methods and equipment to harvest natural resources needed. Therefore, the government have to raise the importance of traditional knowledge and preserve the natural resources by adapting them into the formal education system for the sake of the new generation of *Orang Asli*. Besides, the data collected will be useful for researchers, JAKOA and policymakers to improve the lifestyle and well-being of the *Orang Asli*.

Keywords: indigenous people, ecological knowledge, Semaq Beri, Kenyir Lake, Terengganu

Introduction and Background

The indigenous people are significant and constitute vital portions of humanity. To date, there is no clear definition of indigenous people internationally. However, the most common description is from Jose R. Martinez Cobo who defined the indigenous people as a "community, peoples and nations which are having a historical continuity with pre-invasion and pre-colonial societies now prevailing on those territories. At present they form non-dominant sectors of society. They are determined to preserve, develop and transmit to future generations their ancestral territories and their ethnic identity, as the basis of their continued existence as people are following their cultural patterns, social institutions and legal system" (Kardooni, Kari, Yahaya, & Yusup, 2014).

There are approximately more than 370 million indigenous people spread across 90 countries all over the world. Although they are just present a small portion of the world population (up to 5 percent) yet, they contribute about 15 percent of the extreme poverty and hunger. The outnumbered of indigenous people who are still practising unique social, traditions and cultural, retaining backward economic and political characteristics which are distinct from the mainstream societies (United Nations, 2012). Even though indigenous people occupy and use quarterly of the world's surface area, they also safeguard 80% of the biodiversity. They hold vital ancestral knowledge and expertise on how to adapt, mitigate and reduce climate and disaster risk (World Bank, 2019). Most of the land given to the indigenous people is under indigenous customary ownership and many governments yet recognise only a fraction of this land as formally or legally belonging to indigenous people. The government has the right to take back the property in the name of development. In other words, the indigenous never own the land permanently. Insecure land tenure has led to the

conflict, environmental degradation and weak economic and social development. This threatens the cultural survival and vital knowledge system-both of which contribute to ecological integrity, biodiversity and environmental health upon which we all depend (Nor, 1991).

The indigenous people normally live deep in the forest where it is rich in biodiversity. Their resource management system that involved the intricate knowledge that gained over generations is known as traditional knowledge or indigenous knowledge, has been essential for the preservation of the resources in the traditional territory (Rosliza & Muhamad, 2011). In fact, they are very survival as a human being who unfavourably depends only on their ability to creatively like off nature even as they help to conserve and sustain it. To ensure the community's culture survival and sustainability of their surrounding biodiversity, this kind of knowledge being passed down through generations. Traditional knowledge is unwritten and handed down orally from generation to generation. It is also transmitted and preserved in that way. Ironically, some of this indigenous or traditional knowledge is highly sacred and secret nature. Thus, some of them are extremely sensitive, penetrating, and culturally significant towards their traditional knowledge. It is because every indigenous tribal have their right to preserve their ancestral knowledge from any thread (Leake, 2007).

The maintenance and protection of indigenous traditional knowledge is crucial to preserve indigenous culture. Unfortunately, mainstream development, especially on land (logging, land degradation, urbanisation, modern agriculture and commercial plantation), have changed the indigenous social and economic background where it transforms the most of tropical forest differently (Chan, 2018). Since the indigenous people are not immune to this threat, there must be a wise step in documenting such traditional knowledge that practised by them as the basis to scientific research and to give some more understanding regarding the ecology system of the forest. As such, it is crucial to identify and document the natural resources used by the indigenous people before the knowledge has lost forever. Besides, this traditional knowledge will also help to ensure the conservation and sustainable use of these natural resources. Therefore, this study aims to document the utilisation of natural resources based on common traditional knowledge used by the indigenous people in Terengganu, Malaysia.

Traditional Knowledge

Traditional knowledge (TK) plays a vital role in daily lives not only for the indigenous community but also for the mainstream population. Although there is no clear definition at the international level, but still, it can be defined as

knowledge, know-how, skill and practices developed, sustained and transmitted verbally through generation within a community, often forming part of its cultural or spiritual identity (Anyaoku, Nwafor-Orizu, & Eneh, 2015). TK is a widely used term to define the local knowledge that is unique to a given culture or society comprehended as the conventional way of learning, especially among the marginalised people. TK refers to cumulative knowledge, know-how, practices, culture, heritage which is developed by specific community (usually marginalised group) based on historical interactions with the surrounding natural environment. These complex connotations representing complex culture embraced by language, naming, taxonomy system, natural resources usage, ritual, spiritual and worldviews and relations with the nature (Hussin, 2018, Permana, RCE, 1999). This statement is in line with United Nations claim that there are numerous definitions, terms and contexts used by academia and intergovernmental bodies referring to TK whereby it represents complex nature of societies and diversity of worldviews. Recently, the importance of TK has been recognised as a valuable advantage by biotechnology and bio-prospecting (Christen, 2015). It can be seen through the identification of plants and their by-products with the pharmacological value, which could be utilised in the production of modern medicines. In fact, traditional medicine practices have remained an accessible and affordable way in curing the poor, marginalised community.

Ultimately, TK is a kind of life-long knowledge which passed through generation irrespective of background by integrating with the environment over time. It is also an experience based-knowledge which usually embraced by indigenous people to sustain their ancestral culture, natural resources and livelihood in ensuring the survival of the community. Like other indigenous people, the *Orang Asli* community in Malaysia also do not have any formal writing system to preserve their TK. However, it can be seen through their knowledge, skill and expertise about surrounding forest, the component of ecology, wildlife, culture, taboo and socioeconomic activity. Ironically, the value of TK inherited by the older is being diminished by various factors for instance religion, urbanisation, modernisation and also the loss of natural resources due to the rapid exploitation of forest in the name of development for commercial activities especially agricultural (Campbell, Ghazali, & Suffian Sahuri, 2016).

Natural Resources

Natural resources are the possessions that are occurring in nature which can be used for economic production or consumption. These are fundamentally categorised into mineral, energy, soil, water and biological resources which are

subjected to quantitative depletion through human use (Organisation for Economic Co-operation and Development, 2001). Natural resources also recognised as renewable and non-renewable resources. Non-renewable resources are resources that do not form naturally in the environment or have a prolonged formation rate such as fossil fuels. Meanwhile, renewable resources are replenished naturally such as sunlight, air and wind. They have a rapid reproduction rate which exceeds human consumption; thus, their quantity is not noticeably affected. However, some of them, for instance, the forest and wildlife have slower recovery rate yet, are vulnerable to depletion by over consumption. Thus, appropriate management on these kinds of natural resources is essential to ensure their sustainability.

Traditionally, indigenous people live by hunting and gatherer activities relied on natural resources for generations (Friedlander et al., 2016). Traditional culture usually encompasses the utilisation of natural resources. Besides, they play a vital role in their livelihood strategies and daily routine such as during hunting, fishing, planting, home building, handicraft making as well as in curing straightforward ailments. There were previous studies that conducted on the use of plants, animals and aquatic species by different indigenous community which shows the importance of these natural resources for them. In facts, it gives a clear picture of how close the indigenous community with the natural environment (Ter Steege et al., 2015). Therefore, any changes in the environment will affect people's livelihood strategies and vice versa. Modernisation and land development process mainly affect the symbiotic relationship between communities and nature. Thus, the *Orang Asli* community is no exception.

Mainstream development nowadays has made rapid changes toward the natural environment by boost up economics, political and cultural changes. Therefore, some of TK diminished from *Orang Asli* culture (Kalita et al., 2004). The *Orang Asli* traditional knowledge or sometimes interchangeable with traditional ecological and environmental knowledge is arguably one of the most critical aspects that distinguish *Orang Asli* management systems from the domain Western 'scientific' resource management models. The livelihoods of rural households depend on the accessibility of natural resources such as agriculture, livestock, poultry, fisheries and forest as well as the underlying environmental services that sustain these resources (Cheng et al., 2014). Several studies on the livelihood strategies of rural communities have also shown that the economic activities of the rural communities still rely heavily on natural resources. It is also observed that *Orang Asli* in Malaysia are still deprived and relying on natural resources for their core socioeconomics activities (Abdullah, Rohana, & Abdullah, 2016).

Orang Asli Community in Malaysia

As a country in Southeast Asia with the approximate population of 31 million people, 13.9% of the total population contributed by indigenous people (International Work Group for Indigenous Affairs, 2017). The indigenous people who occupy West Malaysia (known as Peninsular Malaysia) is the earliest community who live here. They are collectively known as '*Orang Asli*' which is in Malay terms referring to 'original people' or 'first people' which represent around 178,000 people or 0.6% of the population in Peninsular Malaysia (Department of Orang Asli Affairs, 2011). Malaysia is a country with multiple ethnicities; among them Malay, Chinese and India are the prime populations while *Orang Asli* (Malaysian indigenous people) comprises only 1% of the population of Malaysia (Thevakumar et al., 2016). This minority group which have unique cultural heritage, religion, socio-economic, and beliefs compared to other races. They are often associated with the native habitats whose behavioural pattern is dependent on ancient culture and subsistent socio-economic living. There are 90 different groups of indigenous tribal in Malaysia where the *Orang Asli* can only be found in peninsular, while others reside in Sabah and Sarawak on the island of Borneo. Based on their geographical distribution, language, and morphological characteristics, *Orang Asli* are divided into three major tribes and 18 sub-tribes within the Negrito (Semang), Senoi and Proto-Malay (Aboriginal Malay) (Abdullah et al., 2016). However, they live in a heterogeneous setting because each sub-tribe has its own respective followed trait (Lambin, Wahab, Choo, Mustapha, & Abdullah, 2018).

The *Orang Asli* is an aborigines minority group of people who live in a primitive environment with poor health and education services, lack of social development and is the financially disadvantaged community (Abdullah, Othman, Edo, & Jani, 2019). They are culturally distinct societies. Most of them live far away from the mainstream community, somewhere in remote areas or deep into the forest surrounded by ample biodiversity (Endicott & Dentan, 2004). Almost 60% of the *Orang Asli* people, live in the forest-fringe or rural areas, while 30% live in the forest interiors and the remote regions. Only 1% of the *Orang Asli* community lives in the settlements or areas close to the urban centres.

The land where they live and get the natural resources as food are inextricably linked to their identities, cultures, livelihoods, as well as their physical and supernatural well-being. The *Orang Asli* community have a low quality of life as a consequence of being entirely reliant on traditional socio-economic resources (Abdullah et al., 2019). These rural socio-economic activities lead them to live in isolated and countryside areas that are near their food resources. The *Orang Asli* community are entirely reliant on forest yields to live

which are their regular socio-economic activity, but this places them in a precarious position as they cannot fit into the mainstream chain of events that churn productivity (Kamaruddin & Jusoh, 2008). Ancient ancestral tradition and culture are the major factors that hamper their initiative to make changes and adapt to a more progressive and developed environment. They still believe in the forest and natural environment as a provider for their livelihood (Abdullah et al., 2019). Generally, the *Orang Asli* populations in Malaysia are very poor compared to the mainstream races even though there are various initiatives done by the Government of Malaysia (GoM) to integrate the *Orang Asli* with the mainstream races (Department of Orang Asli Affairs, 2008). According to 10th Malaysia Plan (2011-2015), the *Orang Asli* in Malaysia still lives in poor conditions and have a low quality of life. However, there are many anti-poverty programs have been implemented to uplift their socioeconomic status (Malaysia's Prime Minister's Department, 2010).

The acceleration of economic development has converted the forests into plantations, mines, residential and land development. The *Orang Asli* lands now are covered by major construction such as roads and dams that destroyed vast tracts of forest land, as well as their livelihoods. Moreover, logging activities has become an important export which bankrolling Malaysia's development besides palm oil plantation, which boosts up the land degradation. In Terengganu the Orang Asli were moved out from their original village to the new settlement which built up by the government at the suburbs areas because of the extension of palm oil plantation and Kenyir damn. Even though they were moved to resettlement villages where all of the necessary amenities and facilities are provided but still they are relying on forest yields to survive (Abdullah et al., 2016). Ironically, these are threats that extinguish both traditional knowledge of *Orang Asli* and the surrounding biodiversity, which have been their forest homelands for decades. Traditional knowledge, heritage, and culture of *Orang Asli* have deteriorated due to the rapid urbanisation and rapid loss of forest area. In addition, some other threats that have much impact are assimilation into mainstream society or their adoption of a different worldview (Lee, Chang & Noraswati, 2009).

Methodology

This is exploratory research carried out at three *Orang Asli* resettlement villages in three different districts in the state of Terengganu, Malaysia (East Coast of Peninsular Malaysia). The focus of this study is to document the utilisation of natural resources based on *Orang Asli* knowledge who live there (Figure 1).

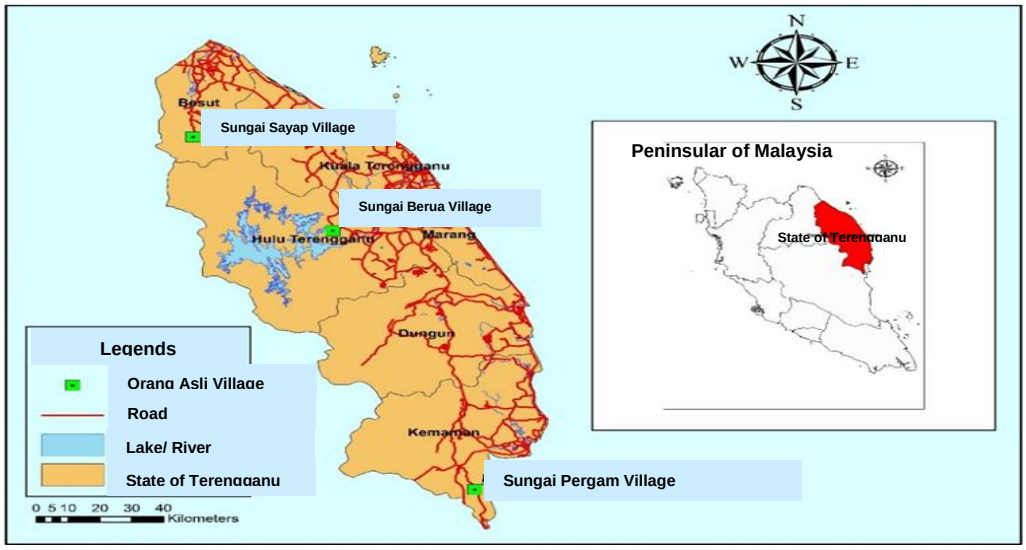

Figure 1: The location of *Orang Asli* village
(Source: Muhammad Fuad Abdullah.)

This study managed to get 11 informants from the research fieldwork. A qualitative approach was employed in this case study in which data was collected through in-depth interviews and field observations. This study was carried out among the *Semaq Beri* and *Bateq* tribes in Sungai Berua village in the district of Hulu Terengganu, Sungai Pergam village in the district of Kemaman and Sungai Sayap village in the district of Besut. Table 1 shows that the total population of three villages was 1326 including 182 head of household (Abdullah et al., 2016).

Table 1: Distribution of *Orang Asli* in Terengganu

District	Village	Orang Asli Sub-tribe	Head of Household (HoH)	Population
Kemaman	Sungai Pergam	Semaq Beri	8	683
Hulu Terengganu	Sungai Berua	Semaq Beri	95	605
Besut	Sungai Sayap	Bateq	140	38
Total			182	1326

Source: Abdullah et al. (2016).

Analysis

The interview began with a brief introduction of the researcher team. The purpose of this action is to gain trust and build a good relationship between researcher and villagers, especially the elderly. Thus, they give the information freely and openly as outlined without any barrier. Focus group discussion approach was used to gather the information about the *Orang Asli* traditional knowledge on the type of flora and fauna available in particular areas as well as their uses. The selection of the informants was made before based on the purposive sampling technique, and interview protocol was developed as the interview instrument. To gather more information from about the informants, the snowball sampling technique was used to carry out the preliminary study. The sampling technique requires informant to suggest the others who may become the informant from whom information regarding the traditional knowledge about using natural resources can be collected.

Furthermore, the informant should be the head of the household with age must be over 30 years old. They were selected to be interviewed as they are the most knowledgeable about the utilisation of natural resources. They were questioned individually by a set of semi-structured interviews with the assistance of the Department of Orang Asli Affairs' officer and the headman (*Tok Batin*). In addition, it is easier for the researcher to get precise information and verify the fact instantly with the existence of local authorities because some of the informants used the *Orang Asli* language and their accent to give the required information besides the Malay language where it is used as an intermediate language. The collected data was analysed by referring to the International Union for Conservation of Nature (IUCN) and Malaysia Biodiversity Information System (MyBIS) for the accurate list.

Findings and Discussions

The movement of *Semaq Beri* and *Bateq* to the new settlement areas seems does not give any changes to their socioeconomic activities. They still have to collect forest yields to survive. There are a few factors that contribute, including 1. the location of the resettlements, which is the location in the suburbs where it is still surrounded by forest and quite far from nearby town; 2. Most of the *Orang Asli* do not have the good qualifications that qualified the nearby industry; 3. The *Orang Asli* does not have skills that meet the market; 4. Most of them have better skills in forest works. Therefore, the forest is the best solution to feed their families. They have utilised various natural resources for their survival, cash, and traditional medicinal practices. In this study, the data revealed the *Semaq Beri* and

Bateq tribes are still relying on natural resources as their primary economic purposes of consuming, and medical practices. They usually use the old-fashioned method to gain and catch the forest yield needed. For instance, they are still using axe and cleaver for harvesting plants. For hunting activities, there were various methods used to hunt for specific wildlife, e.g. bamboo blowpipe to hunt for birds, deer and squirrel. Snare method is used to capture mousedeer, partridge and porcupine. Spear gun is used to capture medium-sized wildlife such as wild boar and trap to capture civet, mousedeer and porcupine. They also used various old techniques to capture aquatic wildlife for example, bare hand, diving, archery, fishing road and hook, nets, and bamboo trap.

Plants and Herbs

Agarwood

Agarwood or aloeswood, and else known as gaharu in the vernacular name, is one of the natural resources collected by the Orang Asli in Terengganu for their cash purpose. Agarwood is aggressively harvested in the forest for its fragrant resinous heartwood that usually derived from the timber of the genus *Aquilaria malaccensis* Lam (Thymelaeaceae). The latex obtained from this plant through inducement processes can be used to cure the injury, cutting, pest or insect disturbance, microorganism, fire, chemical, or colonisation. The strong scent of agarwood latex is highly favoured as perfumery, while the agarwood powder is used in incense and medicinal practices (Naef, 2011). The high demands from the global market mainly from the Middle East leads to lucrative prices of this plant. Therefore, the *Orang Asli* in Terengganu who live nearby forest working on agarwood as a part of their survival economic activity.

Rattan

The word rattan is derived from the *Orang Asli* and *Malay 'rotan'*, the local name for climbing palm. The development of extensive Orang Asli and local community classification systems for rattans often reflects the social significance of rattan, and these taxonomies have developed to reflect rattan growth and usage in the forest. Generally, the rattan grows in moist areas and will be decreased in number when the area is experiencing a change in humidity. The *Orang Asli* mentioned that there are 13 species of rattans recorded found all over the nearby forest (Table 2). However, only a few of them are taken because of its specific usage and its market value. The most essential product of rattan palm is cane; this is a rattan stem stripped of its leaf sheaths. This stem is solid, strong, and uniform, yet is highly flexible. The range of indigenous uses of rattan canes is vast, from bridges to baskets, from fish traps to furniture, from crossbow string

to yam ties (Dransfield, 2002). This plant has multipurpose usage for the *Orang Asli,* especially to build the house, basket, hunting equipment, trap, and accessories; besides it is also economically useful. High demand of certain species from the mainstream has led the *Orang Asli* to harvest rattans more aggressively for their survival. The rattan cane is extensively used across their range by local communities and play an important role in subsistence strategies for many rural populations. In the mainstream, rattans are very useful for processing furniture and handicrafts. There are only two species of rattans that have a very high market value which are known as *Calamus manan* (*Manau*) and *Calamus Caesius (Sega)* (Forestry Department Peninsular Malaysia, 2016). Around 20% of the known rattan species are of any commercial value while the remaining species are not being utilised due to flexibility and being prone to breakage or possessing, other poor mechanical properties, or due to biological rarity (Dransfield, 2002).

Table 2: Rattan used by the Orang Asli in Terengganu

Family	Scientific Name	**Native Name	Local Name
Arecaceae	*Calamus balingensis* Furtado	Tanah	Rotan tanah
	Calamus caesius Blume	Sega	Rotan sega
	Calamus conirostris Becc.	Kerai	Rotan kerai
	Calamus insignis Griff.	Batu	Rotan batu
	Calamus laevigatus Mart.	Riau/Tunggal	Rotan tunggal
	Calamus manan Miq.	Manau	Rotan manau
	Calamus polystachys Becc.	Sabong	Rotan sabong
	Calamus scipionum Lour.	Semambu	Rotan semambu
	Calamus sedens J.Dransf.	Duduk	Rotan duduk
	Calamus angustifolius Griff.	Tawau	Rotan tawau
	*Calamus calicarpus*Griff.	Jernang	Rotan jernang
	Korthalsia laciniosa (Griff.) Mart.	Udang	Rotan dahan
	Plectocomia elongata Mart. ex Blume	Matang	Rotan mantang

**Native name among *Semaq Beri* and *Bateq* tribes

This study also found that *Semaq Beri* and *Bateq* tribe in Terengganu also relied on herbs for their traditional medicinal practices and cash. Most of these species naturally grow in the forests, and are a crucial part in the traditional medicine of the *Orang Asli*. Majority of the species reported in this paper are widely known throughout Peninsular Malaysia and used in different medical conditions (Ong,

Mat Zuki, & Milow, 2011). The binomial and family names, native names, ailment treated and parts used are shown in Table 3. These 106 species of medicinal use are related to 55 families. The plants were often used by most of the informants more or less for the same purpose and with only slight variations in methods.

Table 3: The list of herbs used by the *Orang Asli* in Terengganu

Family	Scientific Name	**Native Name	Ailment Treated	Parts Used
Acanthaceae	*Andrographis paniculata* (Burm. F.) Wall. Ex Nees	Hempedu Bumi	Hypertension, fever, diabetes	Whole plant
	Asystasia coromandeliana Nees	Rumput Israel	Constipation, swellings, cuts, wounds, muscle cramps	Leaves
	Justicia gendarussa Burm. f.	Gandarusa hitam	Flatulence, post-partum, coughs, thrush	Leaves, roots
Amaryllidaceae	*Allium cepa* L.	Bawang merah	Fever, flatulence,	Bulb
	Allium sativum L.	Bawang putih	Flatulence	Bulb
Annonaceae	*Annona muricata* L.	Durian belanda	Head lice, nightmares, sore throat, back pain, joint aches, infertility, post-partum, diabetes, hypertension, intestinal parasites	Leaves, bark, fruits, seeds
	Goniothalamus macrophyllus	Tongkat Ali	Inner energy for men	Root
	Polyalthia bullata King	Tongkat ali batu	Inner energy for men	Root
Apiaceae	*Centella asiatica* (L.) Urban	Pegaga	Ageing, cuts, sores, skin diseases, leucorrhea, post-partum, headache, hypertension, lip cracks	Whole plant
Apocynaceae	*Parameria laevigata* (Blume) K. Schum.	Akar putih	Body aches	Roots
Arecaceae	*Areca catechu* L.	Pinang	Fever	Fruit
	Iguanura sp.	Pokok kura-kura	Malaria	Leaves
Aristolochiaceae	*Thottea grandiflora* Rottb.	Perdu beruang	Asthma	Roots
	Thottea grandiflora Rottb.	Hempedu beruang	Cough	Root
Asparagaceae	*Peliosanthes lurida* Ridl.	Lemba seratus	Flatulence	Roots
	Peliosanthes violacea Wall	Rambu suntum	Veins aches	Roots
Asteraceae	*Chromolaena odorata* (L.) R.M. King & H. Rob .	Kapal terbang	Cuts, wounds	Leaves
	Gynura procumbens (Lour.) Merr.	Bayam cina	Diabetes, hypertension	Leaves

Balsaminaceae	*Impatiens balsamina* L.	Keembung	Split nails, hypertension,	Leaves
Bignoniaceae	*Oroxylum indicum* (L.) Kurz.	Pokok bekah	Family planning for women	Bark
	Stenochlaena palustris (Burm.) Bedd.	Pucuk miding	Fever, shingles	Young leaves, stem
Caricaceae	*Carica papaya* L.	Betik	Amenorrhea, fever, hypertension, pimples, skin blemish, cracks, constipation	Leaves, shoot, flowers, sap of fruit, ripe fruit
Commelinaceae	*Amischotolype mollissima* (Blume) Hassk.	Tebu tikus	Hearing problem	Leaves
Connaraceae	*Cnestis palala* Griff.	Asam jawa bukit	Diabetes	Roots
Convolvulaceae	*Ipomoea aquatica* Fors.	Kangkung	Abscess	Leaves
Crassulaceae	*Bryophyllum pinnatum* (L.) Pers.	Setawar/ Sedingin	Headache, abscess, pus in ear, skin itch	Leaves, roots
Dilleniaceae	*Tetracera indica* (Hout. Ex Chris. & Panz.) Merr.	Mempelas	Skin itch, hypertension, fever	Leaves, roots
Dioscoreacea	*Dioscorea orbiculata* Hook.f.	Ubi takop	Strength and energy	Tuber
Euphorbiaceae	*Manihot esculenta* Crantz.	Ubi kayu	Cuts, bites, stings, abscess, fever, headache, influenza	Leaves, tuber
	Chrozophora oblongifolia (Delile) A.Juss. ex Spreng.	Kayu padang	Fitness	Root
Fabaceae	*Senna tora* L.	Gelenggang seni	Constipation, skin diseases, heartburn, post-partum	Shoot, leaves, plant
	Tamarindus indica L.	Asam jawa	Fever, rough palm, swellings, bites, stings, sore throat, asthma, short of breath	Fruits, bark
	Parkia speciosa Hassk.	Petai	Cough, diabetes, hypertension	Leaves, fruit, roots,
	Mimosa pudica L.	Semalu	Post-partum, athlete's foot, swelling,	Whole plant
Hypoxidaceae	*Molineria latifolia* (Dryand. ex W.T.Aiton) Herb. ex Kurz	Nyior lembe	Cuts, swellings, coughs, no appetite	Leaves, rhizome
Lamiaceae	*Plectranthus scutellarioides* (L.) R.Br	Ati-ati	Stomach ache, flatulence, cuts, sores, bites, stings, expel placenta, post-partum, stop lactation	Leaves
	Hyptis brevipes Poit.	Setulang	Swollen joints	Leaves
	Orthosiphon aristatus (Blume) Miq.	Misai kucing	Sore throat, painful urination, diabetes, headache, hypertension	Leaves, flower, roots
	Vitex longisepala King	Merian	Love potion	Root

	& Gamble			
Lauraceae	*Cananga odorata (Lamk.)* Hk. f. & Thom	Kenanga	Body odor, scalp odor, skin odor, skin itch	Bark
	Cinnamomum cuspidatum	Rempah gunung	Energy	Root
	Cinnamomum sp.	Kencing manis	Diabetes	Root
	Cinnamomum cinereum Gamble.	Tajalawang	Flatulence	Whole plant
Lecythidaceae	*Barringtonia acutangula* (L.) Gaertn.	Gajah beranak	Blood circulation	Roots
Loganiacea	*Strychnos pubescens* C.B. Clarke	Tarik gajah	Ticks problem	Leaves
Loranthaceae	*Macrosolen cochinchinensis* (Lour.) Tiegh.	Dedalu api	Diarrhoea	Stem
Lythraceae	*Lawsonia inermis (L.)*	Inai	Jaundice neonatal, dandruff, athlete's foot, weak nails, scar, post-partum, facial condition	Leaves, roots
Malvaceae	*Durio zibethinus* Murray	Durian	Influenza fever	Leaves
	Hibiscus rosa-sinensis L.	Bunga raya putih	Fever, dry hair, cuts, sores	Leaves, roots
	Urena lobata L.	Pulut-pulut	Post-partum	Roots
Melastomataceae	*Melastoma malabathricum* L.	Senduduk	Cuts, diarrhea, leucorrhea, tougue pain, travel sickness, pot-partum	Leaves, fruit, roots,
	Neodissochaeta gracilis (Jack.) Bakh.	Cetliot	Influenza fever	Leaves
Meliaceae	*Dysoxylum alliaceum* Seem	Hatap selaya	Post-partum	Roots
Menispermaceae	*Fibraurea tinctoria* Lour.	Pokok kuning	Jaundice	Roots
Moraceae	*Ficus deltoidea* Jack	Mas Cotek	Water in lungs, hypertension, post-partum	Leaves
Musaceae	*Musa sapientum* L.	Pisang kebatu	Scalds	Fruits
Myrsinaceae	*Mapania cuspidata* (Miq.) Uittien	Kacip fatimah ii	Women's fertility	Root
	Mapermia custridata	Rumput reluh	Asthma	Root
Myrtaceae	*Psidium guajava* L.	Jambu batu	Body odor, pimples, diarrhoea	Leaves, bark
Olacaceae	*Scorodocarpus borneensis* Becc.	Kulim	Haemorrhoids	Roots
Ophioglossaceae	*Helminthostachys zeylanica* (L.) & Hook.	Tunjuk langit	Post-partum	Whole plant
Oxalidaceae	*Averrhoa bilimbi* L.	Belimbing buluh	Stomach ache, skin cracks, coughs, goitre diabetes, hypertension, pimples, skin diseases,	Leaves, flowers fruits, bark
Pandanaceae	*Freycinetia javanica*	Kelawit mantai	Back pain	Roots

	Blume.			
	Pandanus amaryllifolius Roxb.	Pandan	Vaginal itch, post-partum	Leaves
Phyllanthaceae	*Phyllanthus acidus* (L.) Skeels.	Cermai	Diabetes, hypertension, pimples	Leaves
	Phyllanthus niruri L.	Dukung anak	Diabetes, hypertension, pain during menses, jaundice, cough, sores	Plant, leaves
	Sauropus androgynus (L.) Merr	Cekok manis	Hair growth, hypertension,	Leaves
Piperaceae	*Piper betle* L.	Sireh	Nosebleed, toothache, sores, abscess, fever, vaginal itch, flatulence, poor eyesight, bad breath	Leaves
	Piper sarmentosum Roxb.	Kadok	Malarial fever, diabetes, difficult urination	Leaves, roots
Poaceae	*Lophatherum gracile* Brongn	Cekrek	Hypertension	Roots
	Cymbopogon citratus (DC) Stapf	Serai	Hair loss, mosquito repellent, difficult urination, fever	Whole plant
	Cymbopogon winterianus Jowitt ex Bor.	Serai wangi	Stomachache, swellings, painful menstruation	Whole plant
	Imperata cylindrica (L.) Raeusch. & P.Beauv.	Lalang	Fever, asthma, short of breath, difficult urination, urinary stones	Rhizome
Polypodiaceae	*Pyrossia piloselloides* (L.) M.G.Price .	Duit-duit	Headache, skin itch	Leaves
Polyporaceae	*Lignosus rhinocerus* (Cooke) Ryvarden	Susu rimau	Asthma, increase energy, breast cancer, body aches	Tuber
	Talinum fruticosum (L.) Juss..	Pokok duit RM5	Abscess, sores	Leaves
Primulaceae	*Ardisia* sp.	Kayu membuluh	Ulcer	Root
Rutaceae	*Ixora* sp.	Pokok pengeras	Men mystic	Root
	Labisia pumila	Kacip fatimah i	Women's fertility	Root
	Prismatomeris sp.	Haji samad	High blood pressure	Root
	Spermacoce articularis L. f	Susu Kambing	Joint aches, muscle pain	Whole plant
	Jasminum sambac (L.) Aiton.	Melor	Food poisoning, fever, measles, pimples, skin infections, leucorrhoea, painful menstruation	Leaves, Flower bud, Roots
	Mitragyna speciosa (Korth.) Havil	Ketum	Headache	Leaves
	Morinda corneri K. M. Wong	Mengkudu hutan	Post-partum, hypertension, difficult urination	Leaves, fruit, roots
	Timonius wallichianus (Korth.) Val.	Patah bawah tangga	Low sexual energy for man	Roots

	Murraya koenigii (L.) Spreng.	Pokok kari	Hemafecia	Roots
Sapindaceae	*Guioa pubescens* (Zoll. & Mor.) Radlk.	Cemenui	Influenza fever, headache	Leaves, roots
	Nephelium lappaceum L.	Rambutan	Vomit	Leaves
Smilacaceae	*Smilax myosotiflora* A.DC.	Ubi jaga	Strength, energy	Root
	Smilax calophylla Wall. ex A.DC.	Alek tembaga	Low sexual energy for man	Roots
Solanaceae	*Solanum torvum* Sw.	Terung pipit	Cuts, toothache, Hypertension, headache, urinary stones, skin cracks	Leaves, fruits, roots
Tectariaceae	*Tectaria angulata* (Willd.) Copel.	Paku bukit	Asthma	Roots
Vitaceae	*Ampelocissus gracilis* (Wall.) Planch.	Kertas api	Large sores	Leaves
	Cissus repens Lam.	Ubi kertas	Haemorrhoids	Tuber
	Leea indica (Burm. f.) Merr.	Kerak nasi	Diabetes	Leaves
	*Alpinia galanga (*L.) Willd.	Lengkuas	Skin diseases, Flatulence, fever, post-partum	Rhizome, leaves, plant
	Cheilocostus speciosus (J. Koenig) C.D. Specht.	Tepus bukit (bunga putih)	Cuts, wounds	Stem
Xanthorrhoeceae	*Aloe vera* (L.) Burm. f.	Lidah buaya	Burns, fever, pimples, dandruff	Leaves, sap
Zingiberaceae	*Curcuma longa* L.	Panau	Tine vesicular	Leaves
	Curcuma longa L.	Kunyit	Post-partum, aging, pimples, sores, abrasions, ficial dermatitis, difficulty breathing	Rhizome
	Curcuma viridiflora Roxb.	Kunyit emas	Hemafecia, water in lungs	Rhizome
	Curcuma zanthorrhiza Roxb.	Temulawak	Ageing	Roots
	Etlingera elatior (Jack) R.M.Sm.	Kantan	Cuts, wounds, earache	Leaves, fruits
	Hedychium longicornutum Griff. ex Baker	Ramu akar cacing	Worms	Roots
	Zingiber officinale Roscoe.	Halia	Sprain, flatulence, bites, menses pain, headache, weak teeth, leucorrhoea, post-partum	Leaves, rhizome

**Native name among *Semaq Beri* and *Bateq* tribes

Animals

Animals are also utilised as a food source, as pets, as remedies for traditional medicine and folktales by the *Orang Asli* in Terengganu. . Those animals are usually captured from the nearby forest (David et al., 2019). As such, hunting animals is not a prior activity for the *Orang Asli* to get some cash or as their main economic activity. Hunting is a side activity for *Orang Asli* in Terengganu whenever they go into the forest to get herbs and some other non-timber forest products. There are 31 different species of wild animals captured by the *Semaq Beri* and *Bateq* tribes. Most of them are mammals 13 species (42%), reptiles 9 species (29%) and aves 9 species (29%) as are presented in (Table 4).

Table 4: The list of animals commonly captured by the Orang Asli in Terengganu

Family	Scientific Name	**Native Name	Local Name	English Name
Reptiles				
Emydidae	*Trachemys scripta*	Kura merah	Kura terlinga-merah	Red-eared slider
Gekkonidae	*Gekko gecko*	Che'eh	Cicak tokek	Tokay gecko
Geoemydidae	*Cuora amboinensis*	Kura Batu	Kura katap	Malayan box turtle
	Heosemys spinosa	Mong	Kura-kura duri bukit	Spiny hill turtle
	Siebenrockiella crassicollis	Yo	Kura-kura pipi-putih	Black marsh turtle
	Manouria emys	Sel	Baning perang	Asian brown turtle
Pythonidae	*Python reticulatus*	Tijo	Ular sawa batik	Reticulated python
Trionychidae	*Dogania subplana*	Pa'as	Labi-labi hutan	Malayan softshell turtle
Varanidae	*Varanus salvator*	Sereng	Biawak	Water monitor lizard
Aves				
Becerotidae	*Rhinoplax vigil*	Terang	Burung enggang	Helmeted hornbill
	Anthracoceros albirostris	Kawah kelingking	Burung kelingking	Oriented pied hornbill
Columbidae	*Chalcophaps indica*	Kawah kukur	Burung tekukur	Emerald dove
Phasianidae	*Gallus gallus*	Ayam hutan	Ayam hutan	Junglefowl
	Lophura ignite	Ayam pegar	Ayam pegar	Crested fireback
Psittaculidae	*Psittinus cyanurus*	Kawah Serindit	Burung serindit	Blue-rumped parrot
Pycnonotidae	*Pycnonotus zeylanicus*	Kawah Barau	Burung barau	Straw-headed bulbul
Rallidae	*Amaurornis phoenicurus*	Itik air	Burung ruak	Waterhen
Sturnidae	*Gracula religiosa*	Kawah Tiong	Burung tiong	Common hill myna
Mammals				

Cercopithecidae	*Macaca nemestrina*	Penrok	Beruk	Southern pig-tailed macaque
	Trachypithecus obscurus	Basing	Ungka	Dusky leaf monkey
Cervidae	*Rusa unicolor*	Rusa	Rusa	Sambar deer
	Muntiacus muntjak	Bohol	Kijang	Barking deer
Manidae	*Manis javanica*	Pantuai	Tenggiling	Sunda pangolin
Cercopithecidae	*Macaca nemestrina*	Penrok	Beruk	Southern pig-tailed macaque
	Trachypithecus obscurus	Basing	Ungka	Dusky leaf monkey
Mammals				
Cercopithecidae	*Macaca nemestrina*	Penrok	Beruk	Southern pig-tailed macaque
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	Muntiacus muntjak	Bohol	Kijang	Barking deer
Manidae	*Manis javanica*	Pantuai	Tenggiling	Sunda pangolin
Hystricidae	*Hystrix brachyura*	Landak	Landak	Malayan porcupine
Sciuridae	*Callosciurus notatus*	Lebir	Tupai plantain	Plantain squirrel
	Ratufa bicolor	Daguan	Tupai jelarang	Black giant squirrel
Spalacidae	*Rhizomys sumatrensis*	De'kan	Dekan	Indo-malayan bamboo rat
Suidae	*Sus scrofa*	Jalu	Babi hutan	Wild pig
Tragulidae	*Tragulus napu*	Pelanduk	Pelanduk	Mousedeer

** Native names among *Semaq Beri* and *Bateq* tribes

Fish

The findings show that the *Orang Asli* also utilised fish as their primary food source. All of the *Orang Asli* resettlement villages in Terengganu are located nearby stream. Fortunately, Kampung Sungai Berua, Kemaman has more advantage compared than others because it is situated nearby Kenyir Lake which is recognised as one of the largest human-made lakes in Southeast Asia and also placed inside of Terengganu state park. Thus, the *Orang Asli* in Terengganu has an abundant source of fish for their survival. There are 31 different species of fishes caught by the *Orang Asli* in Terengganu (Table 5). Most of them are used as food, and a few of them are used for medicine and cash purpose. There are 13 main species of fishes commonly captured by the *Orang Asli*. The most typical

species are Cyprinidae (52%) followed by Channidae (10%) and Osphronomidae (6%).

Table 5: The List of Aquatic Resources Taken by the *Orang Asli* in Terengganu

Family	Scientific Name	**Native Name	Usage
Anabantidae	*Anabas testudineus*	Puyu	Food
Bagridae	*Hemibagrus capitulum*	Baung	Food
Channidae	*Channa Lucius*	Bujuk	Food
	Channa micropeltes	Toman	Food
	Channa striata	Haruan	Food, Medicine
Cichlidae	*Tilapia* sp.	Talapia Merah	Food
Clariidae	*Clarias microcephalus*	Keli Bunga	Food
Cyprinidae	*Barbonymus schwanafeldi*	Lampam Sungai	Food
	Ctenopharyngodon idella	Kap Rumput	Food
	Cyclocheilichthys apogon	Temperas	Food
	Epalzeorhynchos kalopterus	Selimang/ Rong Batu	Food
	Hampala macrolepidota	Sebarau	Food
	Hypsibarbus malcolmi	Kerai	Food
	Labiobarbus leptocheilus	Kawan	Food
	Mystacoleucus marginatus	Sia	Food
	Neolisocheilus soroides	Tengas	Food, Sale
	Osteocheilus spilurus	Rong	Food, Sale
	Osteochilus vittatus	Terbul	Food
	Oxygaster anomalura	Lalang/ Parang/ Aur	Food
	Probarbus jullieni	Temoleh	Food
	Propontius deauratus	Daun	Food
	Rasbora sp.	Seluang	Food
	Tor tambra	Kelah	Food, Sale
Eleotridae	*Oxyeleotris marmorata*	Ubi/ Ketutu	Food
Notopteridae	*Chitala lopis*	Belida	Food
Osphronomidae	*Osphronemus goramy*	Kalui	Food
	Trichopodus trichopterus	Sepat	Food
Osteoglossidae	*Scleropages formosus*	Kelisa	Food, sale
Pangasiidae	*Pangasius nasutus*	Patin	Food
Pristolepididae	*Pristolepis fasciatus*	Patung	Food
Siluridae	*Wallago leerii*	Tapah	Food

**Native name among *Semaq Beri* and *Bateq* tribes

Conclusion and Recommendations

This study shows that even though the government is providing a lot of incentives to enhance the socioeconomic of *Orang Asli* community but the *Semaq*

Beri and *Bateq* tribes in Terengganu are still relying on natural resources for their livelihood. They are practising their ancestral knowledge through traditional skills and methods for their survival. These methods are used in curing of diseases, farming and cultivating plants, fishing, house construction, making handicrafts and harvesting forest resources. Findings show that the *Orang Asli* in Terengganu commonly harvests two types of non-timber forest products, namely agarwood and rattan to make their cash earnings. In addition to it the *Orang Asli* often use 106 species of plants and herbs, 31 species of animals and 31 species of fishes in Terengganu.

Interestingly, this vulnerable group still applying the ancestral conventional practices and techniques to harvest the natural resources needed for their survival. However, the forest yields that they collect is not harvested in a large scale where it can put the species into the endangered or extinction level. The *Orang Asli* just utilise the forest for their survivals.

Due to rapid development and modernisation, most of the younger generations are lacking their traditional knowledge. It is of greater concern that some of the traditional knowledge is buried together with the old generation. *Orang Asli* traditional knowledge as well as the forest natural resources requires support from local government and authorities to take on preservation measures. This is possible through ethnographical, ethno-botanical, ethno-medical and zoological recordings. The preservation of these national treasures is an indispensable obligation for sustaining the traditional knowledge, natural resources and culture of the *Orang Asli*. Increasing the *Orang Asli* knowledge regarding the forest is not only favourable for their well-being and livelihood, but it can sustainably preserve their natural resources. Hence, the government and policymakers should give some attention to protect the traditional knowledge of the *Orang Asli* specifically among the younger generation, which is extremely exposed and affected to mainstream attractions lately. The education policies regarding *Orang Asli* should be following the Article 14 of the UN Declaration on the Right of Indigenous People (UNDRIP) where it promotes the recognition of the right of the *Orang Asli* to inaugurate their educational programmes by providing education in their languages in a manner appropriate to their culture of teaching and learning.

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References

Abdullah, M. F., Othman, A., Edo, J., & Jani, R. (2019). Multidimensional poverty index of marginalized Orang Asli in Terengganu, Malaysia. *Pertanika Journal of Social Sciences & Humanities*, *27*(2), 1241-1259.

Abdullah, M. F., Rohana, J., & Abdullah, M. T. (2016). The sustainability of Orang Asli community in the mainstream. In M. T. Abdullah, M. F. Abdullah, C. V. Bartholomew, & R. Jani (Eds.), *The sustainability of Orang Asli in Terengganu* (pp. 85-115). Kuala Terengganu: Universiti Malaysia Terengganu Press.

Anyaoku, E. N., Nwafor-Orizu, O. E., & Eneh, E. A. (2015). Collection and preservation of traditional medical knowledge: Roles for medical libraries in Nigeria. *Journal of Library and Information Sciences*, *3*(1), 33-43.

Campbell, Y. M., Ghazali, K., & Suffian Sahuri, S. S. (2016). Preserving indigenous knowledge through folk narratives: *Podi and Ngoyu. JATI-Journal of Southeast Asian Studies, 21*, 203-219.

Chan, C. S. C. (2018). Hegemony and agency in staged Mah Meri indigenous music and dance performances for tourist in Malaysia. *JATI-Journal of Southeast Asian Studies, 23*(1), 132-155.

Cheng, Y. X., Chong, C. P., Kiew, C. F., & Bahari, M. B. (2014). An assessment of health and social-economic status among Lanoh ethnic sub-group of Orang Asli (Indigenous peoples) in Air Bah I Village, State of Perak, Malaysia. *Journal of Applied Pharmaceutical Sciences*, *4*(10), 32-37.

Christen, K. (2015). Tribal archives, traditional knowledge, and local contexts: Why the "s" matters. *Journal of Western Archives, 6*(1), 1-19.

David, G., Roslan, A., Pesiu, E., & Abdullah, M. T. (2019). A brief survey on the birds in Belukar Bukit, Kenyir, Terengganu Malaysia. In M. T. Abdullah, A. Mohammad, M. N. Zalipah, & M. Lola (Eds.), *Greater Kenyir landscapes: Social development and environmental sustainability: From ridge to reef* (pp. 143-157). Cham: Springer Nature Switzerland.

Department of Orang Asli Affairs. (2008). *The basis data of Department of Orang Asli Affairs*. Kuala Lumpur: Nasional Printing of Malaysia Berhad.

Department of Orang Asli Affairs. (2011). *The stategic planning of Orang Asli Development*. Kuala Lumpur: Department of Orang Asli Affairs.

Dransfield, J. (2002). General introduction to rattan: The biological background to exploitation and the history of rattan research. In J. Dransfield, F. O. Tesoro, & N. Manokaran (Eds.), *Rattan: Current research issues and prospects for conservation and sustainable development* (pp. 23-34). Rome: Food and Agriculture Organization of the United Nations

Endicott, K., & Dentan, R. K. (2004). Into the mainstream or into the backwater? In C. R. Duncan (Ed.), *Civilising the margins: Southeast Asian government policies for the development of minorities* (pp. 24-55). Ithaca: Cornell University Press.

Forestry Department Peninsular Malaysia. (2016). *Rattan and bamboo*. Retrieved from https://www.forestry.gov.my/index.php/my/buluh-dan-rotan

Friedlander, A. M., Wagner, D., Gaymer, C. F., Wilhelm, T. A., Lewis, N. A., Brooke, S., Kikiloi, K., & Varmer, O. (2016). Co-operation between large-scale MPAs: Successful experiences from the Pacific Ocean. *Aquatic Conservation: Marine and Freshwater Ecosystems, 26*(2), 126-141.

Hussin, H. (2018). Branding Malaysia and re-positioning cultural heritage in tourism development. *JATI-Journal of Southeast Asian Studies,* Special Issue, 74-91.

International Work Group for Indigenous Affairs (IWGIA). (2017). *The Indigenous world 2017*. Retrieved from https://www.iwgia.org/images/documents/indigenous-world/indigenous-world-2017.pdf

Kalita, B., Choudhury, M., & Ojha, S. N. (2004). Indigenous technical knowledge on pond construction and maintenance, fish seed transportation, and fish health management in Assam hills. *Indian Journal of Traditional Knowledge, 3*(2), 192-197.

Kamaruddin, K., & Jusoh, O. (2008). Educational policy and opportunities of Orang Asli: A study on Indigenous people in Malaysia. *Journal of Human Resource Adult Learn*, *4*(1), 86-97.

Kardooni, R., Kari, F. B., Yahaya, S. R. B., & Yusup, S. H. (2014). Traditional knowledge of Orang Asli on forests in peninsular Malaysia. *Indian Journal of Traditional Knowledge, 13*(2), 238-291.

Lambin, R., Wahab, N. A., Choo, G. S., Mustapha, R., & Abdullah, R. (2018). A case study of Orang Asli indigenous knowledge in traditional medicine. *International Journal of Academic Research in Business and Social Sciences, 8*(4), 998-1010.

Leake, H. (2007). *Bridging the gap: Policies and practices on indigenous people' natural resources management in Asia*. Chiang Mai: Unites Nations Development

Programme-Regional Indigenous Peoples' Programme (UNDP-RIPP), AIPP Foundation.

Malaysia's Prime Minister's Department. (2010). *10th Malaysian plan 2011-2015*. Retrieved from http://www.epu.gov.my/en/tenth-malaysia-plan-9th-mp-

Naef, R. (2011). The volatile and semi-volatile constituents of agarwood, the infected heartwood of Aquuilaria species: A review. *Journal of Flavour and Fragrance, 26*, 73-87.

Nor, H. M. (1991). Orang Asli and land ordinance: Preliminary study in Tapah, Perak. *Akademika, 38*(1), 105-120.

Ong, H. C., Mat Zuki, R., & Milow, P. (2011). Traditional knowledge of medicinal plants among the Malay villagers in Kampung Mak Kemas, Terengganu, Malaysia. *Journal of Ethno-med, 5*(3), 175-185.

Organisation for Economic Co-operation and Development. (2001). *The well-being of nations: The role of human and social capital*. Paris: OECD Publications.

Permana, RCE. (1999). Konsep Kesejajaran Pria dan Wanita pada Masyarakat Baduy. *Wacana*, 1(1), Oktober 1999. 249-260.

Rosliza, A. M., & Muhamad, J. J. (2011). Knowledge, attitude and practice on antenatal care among Orang Asli women in Jempol, Negeri Sembilan. *Malaysian Journal of Public Health Medicine, 11*(2), 13-21.

Ter Steege, H., Pitman, N. C., Killeen, T. J., Laurance, W. F., Peres, C. A., Guevara, J. E., ... & De Souza, C. L. (2015). Estimating the global conservation status of more than 15,000 Amazonian tree, Species. *Science Advances, 1*(10), 1-10. doi:org/10.1126/sciadv.1500936.

Thevakumar, K., Chandren, J. R., Perez-Perez, G. I., Chua, E. G., The, L. K., Salleh, M. Z., ... & Marshall, B. J. (2016). Assessment of risk and Sero-Prevalence of Helicobacter pylori scolonisation among remote Orang Asli Tribes in Peninsula Malaysia. *PloS one, 11*(7), 1-15. doi.org/10.1371/journal.pone.0159830

United Nations. (2012). Urban Indigenous peoples and migration: Challenges and opportunities. Retrieved from http://www.un.org/esa/socdev/unpfii/documents/6_session_factsheet2.pdf

World Bank. (2019). Indigenous people. Retrieved from https://www.worldbank.org/en/topic/indigenouspeoples

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