

BUKIT PANJANG RANTAU BAYUR

# Bujang Raba

*Supporting Life and Livelihood*



CONSERVATION  
COMMUNITY  
INDONESIA  
WARSI



Lubuk Beringin Village Forest, Bathin III Sub-district, Bunggo District

HERIYADI ASYARI / KKI WARSU

## Images of Natural Resource Management in Bujang Raba Landscape

The sun is peeking shyly from behind the hill. The rest of the dew on the grass tops add to the cool atmosphere of the morning. After worshipping at dawn, Bakian sips a cup of coffee prepared by his wife. Shortly thereafter he moves. Changing clothes, complete with hat and gambier shoes. A machete and a knife are inserted in the waist. Steaming cigarette on his lips when the middle-aged man walking down the village street, then follows the dirt road to his rubber plantation. A black bucket in his hand accompany him in the early morning. Smiles greet the morning dew still shivering in the tops of the grass, encouraging him to move faster. Gibbon, jungle birds and pheasant cuckoo shout to each welcoming the dawn of the forest edge.

Once in the garden, he deftly begins to tap rubber trees one by one. While flay rubber rod, his hands move latex deftly intercepted the previous day's results into the black bucket. So much fun to work, at ten in the morning is not flyby. Rubber trees in an acre garden are completely bugged, then he goes home in a rush. Along the way, picks ferns, banana, jengkol, chili inside rubber mix plantation for lunch menu. Occasional sound "bum". It is a sign of a ripe durian fruit has fallen and should be collected to be enjoyed and to be sold in the village market.

Day after day, month after month, and year after year, a modest life as it continues to run in a number of villages in the west of Bungo, The Province of Jambi. Mixed rubber plantation has become livelihoods cultivated since the 1900s. This kind of farming was developed, because it can combine the interests of economic, ecological, social and cultural rights. Rubber trees in mixed garden shed

that would sap the economic resources of society. In addition to being economically dependent, mixed rubber ecosystem also has the function of social, cultural and ecological. Inside, there are assortment of plants that can be used together such as: a) "beehive" tree (the tree where the honey bees nesting), usually forest kedondong tree species and jelmu, b) foods and vegetables such as "rebung" (bamboo shoots), "petai", "jengkol", Kabau, fern, c) fruits such as durian, jackfruit, Cempedak, bedaro / local longan, duku, olive, "embacang", "kulun tunjuk", d) medicinal plants like trees kasai, bedaro white / "pasak bumi", e) fencing wood materials and cottage building like Kempas, keranji, meranti, jelutung, chelates, sungkai, bamboo, pelangas, rattan, f) and wood for cooking) as livestock grazing areas (especially in the "bersawah" season).

This system has been tested by the community since hundreds of years ago based on their local knowledge and technology. The precipitate experience has become the forerunner of the emergence of rubber agro forests concept in this area. Ecologically nearing secondary or tertiary functions of forests with high canopy density. This condition would be ecologically alive and growing several kinds of animals such as squirrels, leopard, porcupine, tapir, lemur, while in the forest can be found bears, tigers, leopard, porcupines, squirrels, lemur. The types of birds found in rubber plantation among black crows, lathe, hornbills, magpie, pigeon and sparrow kind. In general, the agricultural systems developed by society to manage these rubber plantation support the existence of the forest. For the domestic demand for wood, for example,



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people do not need to take out of the forest, but it can be satisfied out of the garden itself. Even today they are planning in order to produce wood for the future with the development of rubber plantations mixed system. In the landscape mixed rubber plantation where are located at the bottom of the forest and upper the plantation community. With this position can be called that rubber mixed plantation is forest buffer.

Spatial planning is made in such a way by the society and ecologically very profitable. At the bottom are the rice fields and settlements. To protect the forest which is the water catchment area, the community make a number of areas of indigenous forest and protected villages forest. Management rules rely on the customary rules applicable to generation as well as new rules that are part of the dynamic state of tradition rules and regulations. So when opening the opportunity provided by the state to manage the forest, people started asking for village forest management rights. Firstly started by Lubuk Beringin village in the district Bathin III Ulu Bungo, who filed the Village Forest management rights in the Protected Forest Bukit Panjang Bayur Rantau. The Lubuk Beringin step was followed by other villages, namely Senamat Ulu, Sangi Letung Buat Village, Laman Panjang and Sungai Telang. All these villages acquire management rights of forest in Bukit Panjang village Rantau Bayur.

Then the coming of the term “Bujang Raba” which stands for Bukit Panjang (Bujang) and Rantau Bayur (Raba) as a designation for the Preserve Forest lining the mountains. This area is within the district administration and the Bathin III Ulu Pelapat Bungo. In Jambi-Malay language, “Bujang” can be interpreted as a youth and “Raba” could be interpreted narrowly as grabbing, but it can be interpreted broadly to assess. So that could mean Bujang Raba as youth who always observes the surrounding nature.

Bujang Raba occupies a strategic position. It is located

right in the heart of the life of a liaison between the National Park Kerinci Seblat (TNKS) to the west, while the bottom consists of Batang Ule Production Forests, People’s Forest and Protected Forest Area and Other Village Usage Area (APL). From the heart of Bujang Raba emerging main sub watershed, such as DAS Batang Bungo, Batang Pelepat, Batang Senamat that drains water to Batang Hari River.

***“Then the coining of the term “Bujang Raba” which stands for Bukit Panjang (Bujang) and Rantau Bayur (Raba) as a designation for the Preserve Forest mountains the Bukit Barisan.”***





# Unabated Pressure on Bujang Raba

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The presence of companies will lead to ecological disasters, conflict with wildlife and land conflict between communities

The Protected Bukit Panjang Rantau Bayur Forest, can not simply be viewed as a protected forest area only. The surrounding area consists of Kerinci Seblat National Park in the highlands, then Batang Ule Production Forests, APL in other parts, as well as Indigenous Forests and Village Preserve Forests. This area is a whole ecosystem, and was later named. From the mapping that conducted by Warsi, Bujang Raba landscapes area reaches 109 thousand hectares.

In general Bujang Raba landscape be defined as the landscape with a function of the region and complex forest type. Various functions of forests that form a single unit and are in the upper watershed Bungo-Tebo include

National Parks, Protected Forest, Production Forest and other usage areas. These types of forest include lowland to lower mountain forests.

Geographically, Bukit Panjang Rantau Bayur landscape lies between 101° 34' to 102° 04' east longitude and between 01° 40' to 01° 55' south latitude. The main function of Bujang Raba ecosystems is to maintain the existence of the remaining forests in a variety of management models that everlasting and sustainable, and gives benefit of the public welfare and to reduce the impact of natural disasters from upstream to downstream.

Bujang Raba landscape's morphology is anticlinal hilly re-



gion which extends to a narrow ridge of a hill and is part of the Bukit Barisan in western Sumatra. On the topography, the Bujang Raba region's ecosystem is the dominant Single hilly with altitudes between 200 m to 1700 m above sea level, with a slope grade class dominated steep slopes (> 40%).

Geologically, the Bujang Raba landscape is mostly composed of parent material from pre-tertiary consisted of metamorphic and sedimentary rocks. Dominant soil type is Red Yellow Podzolik (PMK) that are less fertile soil and high erosion rate. Other soil type is alluvial soil and granite sandstone.

Based on Schmidt-Ferguson Climate Classification, the Bujang Raba landscape's Climate has A type (Very Wet) and Rain Fall(CH) averages 2330 mm / year or 140 mm / month. Maximum rainfall is in January (356 mm) and minimum in August-September (83 mm). While the rainy day an average of 120 days / year or 10 days / month.

As the area such as the highlands and hills, Bujang Raba function an upstream watershed with many springs are then formed dendritic stream pattern (resembling fibrous roots). From here it then flows into the main river in the lower or downstream located in the eastern part of Su-

matra Island. This area is the headwaters of the Batang Bungo river, Batang Senamat and Batang Pelepat in Sub-watershed of Batang tebo and Batang Hari river is the main basin watershed. This ecosystem region has an important role in the hydrological system to regulate the water system and erosion control for areas of the East Coast of Sumatra.

Bujang Raba landscape region is also one of the tropical rain forest ecosystem remaining on the island of Sumatra. Based on the description of the land cover, the area has a high biodiversity as lowland forest to lower mountain forests. In ecological terms, as well as the upstream watershed, the area has vegetation typical of tropical rain forests. This situation has provided direct benefits to the region downstream to maintain the area morphology.

As part of the Bukit Barisan leading to the eastern island of Sumatra, the area is also a stronghold for the defense and geo-morphological conditions in low-lying areas on the East Coast of Sumatra. If there is a change in this area it will have a direct impact to the geo-morphological changes in this East Coast region .

Forest cover of Bujang Raba landscape relatively good, while in the outer part of these ecosystem, especially in the downstream, degradation and high conversion happening from forest to non-forest areas. This condition is caused by many factors. Among others: (a) the demand for land of agriculture and society plantation, (b) the demand for land of housing due to the increase of population, (c) the need for increased district land revenue mainly from the mining sector which experienced the trend since the mid-2000 's.

The Function and Bujang Raba existence strongly support the live system of society who live in and around the area. There are eight villages that directly integrate with the region, namely Lubuk Beringin, Senamat Ulu, Aur Cino, Laman Panjang, Buat and Telang River in District III Bathin Ulu, then Batu Kerbau and Baru Pelepat in the District of Pelepat, with a population of 7679 inhabitants. In addition there are three groups of Orang Rimba community numbering 168 souls who live in these ecosystems.



Satwa bisa hidup berdampingan asal ada saling penghargaan untuk habitatnya

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For the communities, the Bujang Raba area has a very important meaning. Bujang Raba ecologically functioning natural disaster mitigation for residential communities in downstream areas. Besides, this area also serves as a place to live for diverse germ plasma of high conservation value. Based on the biodiversity study conducted by Warsi, in this region there are various kinds of flora and fauna which are protected status. Recorded 22 species of mammals from 14 families (19 species in the protection, such as Tiger, Deer, Antelope, Tapir and Bear), and recorded 146 species of birds from 24 families (43 types of which are protected), several species of reptile and dozens of species of fish. Show overall among species that do have habitat in the wild. Nearly half of the species of birds that live there are species that should be conserved globally and nationally.

Sempudan Blue Bird (*Lophura ignita*) were found in this region, is listed as one of the endangered species prone

status (Vulnerable). Meanwhile, almost all species of eagles (*Accipitridae*) are listed in the Appendices of CITES as a species should be limited to trade globally. As well *Aviceda Jerdoni*, *Motacilla cinerea* and *Phylloscopus Borealis* are several species of migratory birds that come to inhabit Bukit Panjang Rantau Bayur ecosystems.

The existence of the conservation status of these species may exhibit Bujang Raba Ecosystem be called a forest remaining in the west end of Bungo. This area is important for the existence of a number of species before extinction. So a rescue action for these region needs special attention in order to make it a home for these species.

The importance conditions of Bujang Raba region also becomes more important when considered in the list of wild mammals found in the region's ecosystem. For most of an important species and an indicator of the presence of a forest. In this area there is a Sumatran tiger (*Panther-*

*aTigris sumatrae*) species populations in their natural condition is very critical (Critically Endangered). This condition is caused by the lack of an area of forest the main habitat, causing frequent conflicts with humans.

In addition, Bujang Raba forest ecosystems is built by many types of flora in it in the form of trees, climbers, herbs and multiple of species. The existence of flora can be stated that there are great forests in the form of good climax forest and non-forested in the form of secondary forest and shrubs. Approximation recorded no less than 1,000 species of flora dominated by *Dipterocarpaceae* and *Sapotaceae* (as indicators of climax forest describe a relatively very good conditions) and recorded four types of endemic and protected category, namely Kantung Semar (*Nepenthes spp.*), Cendawan Muko Rimau (*Rafflesia hasseltii*) and Bunga Bangkai flower (*Amorphophallus spp*) which is the "icon" of Bungo Regency.

The existence of flora species that exist in the Bujang Raba ecosystem give pleasure for regional conservation both globally and nationally. Because species of flora found in the region illustrates the region in good condition. The species of this family is a species of high economic value for society and for some stakeholders, especially those who harvest forest products such as timber. But from the point of presence of species conservation, Species in general are in a state of threatened wild population. So the protection and preservation of some species is very urgent to be started.

In addition to the importance of species of high economic value, there are also species of flora that became iconic in nature conservation activities such as species of *Amorphophallus* and *Rafflesia*. Both became national icons in the world of plants conservation. The existence of two species, especially the *Rafflesia* is closely related to the condition of the forest which is still good. This is because, the *Rafflesia* has a specific place to live and dependent on the presence of host plants of the genus *Tetrastigma*. Besides that, the potential for biodiversity is well worth the socio-economic and socio-cultural of local community are used for the needs of construction materials / boards, ropes, food and traditional medicine ingredients.

Bujang Raba Ecosystems also provide economic value of the use of non-timber forest products (NTFPs). With local institu-



Potensi Hutan Desa Lubuk Beringin

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Kantong Semar (*Nepenthes sp.*)

tional mechanisms that exist in the utilization of NTFPs, communities are able to empower their ability to strengthen local knowledge that they live in the principle of mutual society cooperate and voluntary. Local institutional mechanisms existing for generations will give the public welfare and economic income. In addition, people realize that a well-maintained forest will provide support for their lives. Among the use of the river for power generation, irrigation and other use.

Socially, Bujang Raba Ecosystem contribute to the protection of indigenous peoples and forest communities, as well as conflict resolution in natural resource management. For Orang Rimba, Bujang Raba is a home and a place to live and to get living. This area became the last bastion for survival and their culture.

During this time, community with their local wisdom have implemented schemes based on sustainability and long-lasting management. It preceded by the Batu Kerbau people who ever feel the impact of floods in the 1980s. The disaster caused by the forest around them exhausted overthrown by logging companies. The incident was the inspiration for the people to protect their territory through the Peoples Forest and Preserve Village Forest. When regulations for forest management community involvement was came out, five villages around the village forest has filed management rights which are community-based of forest management schemes.

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Rafflesia Arnoldii

Google.com



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Masyarakat memanfaatkan potensi disekitar mereka untuk peningkatan ekonomi keluarga

But unfortunately, in other parts of the region are experiencing a threat changing function forests into timber estates and oil palm plantations. Even the most productive forest has been converted to forest plantations on behalf of PT.Malaka Agro Perkasa and PT. Mugitriman International, as well as large-scale oil palm plantations under the flag of PT Harum Oil Makmur. This condition is re-create the restless of society. Because it will lead to ecological disasters, conflicts with wildlife, and land conflicts between communities and companies. Not to mention the loss of biodiversity are unknown value (medicinal plants), poverty growing, human rights violations, increased deforestation and degradation are implicated in increased emissions. The condition is also contrary to the government's target of reducing emissions by 26 percent.

## Proud to Manage Bujang Raba



MS. Ka'ban (kiri) menteri kehutanan meresmikan Hutan Desa Lubuk Beringin 2009

HERYADI ASYARI / KKI WARSJI

Community shows seriousness of manage this area with Community-Based of Forest Management's schemes that promote sustainability and sustainable value. Just waiting for attitude stakeholder others in the region, may continue to support the efforts of the community. From all aspects, clearly this area is crucial to the survival of communities around and downstream. These are later inspire people to make Bujang Raba Ecosystem become a learning model for adaptation and mitigation of climate change.

As the prepared area of climate change mitigation and adaptation, the Bujang Raba Ecosystem has been ascertained to be a region that can be carbon storehouse. Forest vegetation conditions are good and mixed plantation that covered this region can directly be absorbent from air pollution overall. So with the trend of low-carbon development, both regionally and nationally with Bungo Region which has Bujang Raba Ecosystems can be one of the districts that implement low carbon development-based forest management.

The potential for carbon sequestration will also provide an opportunity for the district to get opportunities in REDD + mechanism, both fund-base or market-base. This opportunity can be done when the Raba Region is a single ecosystem because it is a forest area into a unified whole for all the functions. That unity can be done through the sustainable management and development for each of the existing functionality. With the Region Bujang Raba Ecosystem, Bungo could be one contributor to the world's global oxygen. And this certainly is one additional value for the Bungo district and the Jambi Province, especially for the people who manage this area as well. Would be an honor if people can prosper from its own resources.



Acara penyambutan menteri kehutanan pada penyerahan SK Areal Kerja Hutan Desa Lubuk Beringin

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## Bujang Raba, Community's Development that Unpretentious and Extraordinary Impact

From the experience of managing the region that has lasted for generations, it had seen how the effort and seriousness of the biodiversity preserve, minimizing conflict and prevent ecological disaster. Initiated by the community to protect the areas, according to their abilities. Though it was not easy, considering at the same time people have to deal with the target corporation's remaining forests. Batu Kerbau Society, for example, allocates five areas to be used as customary forest and protected villages forest. At that time the area has also been granted the right by the central government to manage concessions around the village. Flash floods went up to the village when the trees toppled. The community's struggle to protect their land rights before the chainsaw uproot all the trees. The struggle was appreciated by the Bungo Regents at that time with the release of the Batu Kerbau- Indigenous Forest inaugural Decree followed by the release of Bungo Regional Regulation on Indigenous People Datuak Sinaro

Nan Putiah. With the decree and regulations there are bright spots to acknowledge the rights of people in forest management.

The struggle to get the management rights of the people continues, until the government issued Government Regulation (PP) No.6 of 2007 on Forest Arrangement and formation of Planning of Forest Management and Utilization, which gives an opportunity to the community to be involved in forest management. Community of Lubuk Beringin capture this opportunity and apply Preserve forest management rights in the village of Bukit Panjang Rantau Bayur forest in 2009 ago. They were followed by other villages surrounding the Sungai Telang, Sangi Letung, Sungai Mengkuang and Senamat Ulu. This Patterns of community-based forest management, carried out by people because they were very familiar with the condition of the forest around them with all the consequences



Mengembangkan Potensi Desa

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of management. In addition to developing CBFM scheme, communities continue to perform a variety of activities to support these activities include the ecotourism development, organic rice farming, terraced crop development and community capacity-building.

### ▪ Ecotourism

In order to support community-based of forest management's schemes, in this region also performed various support activities. Among others, through the development of eco-tourism potential. Bujang Raba region has a number of places that can soothe the soul and refresh the mind. If the area is maintained and managed wisely, it will likely be one of the economic resources of society. This activity can be beneficial assessed with the tourism management system.

### ▪ Developing Multi Commodities

To improve the household economy as well as to reduce the pressure on forests by people, Warsi is currently encouraging them to perform agricultural development schemes in rise commodity surrounding villages in Bujang Raba Ecosystem. Development of farming systems was conducted on a society rubber plantation largely optimal-untapped and the most conditions shrubs. To optimize utilization of regional rejuvenation and enrichment plants made of rubber, and in between cocoa planting rubber trees. Meanwhile, as a ground cover plant also developed cardamom / gardamunggu.

Cocoa is a crop that requires protection, so it is with cardamom plants. Cardamom is an herbal plant that forms clumps, looks like a ginger plant. This plant can grow to a height of 2-3 meters. By and large cardamom grown in the forests dense. With the rise of plant patterns, cardamom will still be able to grow properly. Currently people have planted 2000 cocoa sticks and 4000 clumps kalupaga. The rise commodities is being intensively developed in Senamat Ulu, Mengkuang

Laman Panjang, Lubuk Beringin and Sengi Letung. Meanwhile, to meet the needs of seeds in this area, people then develop a breeding population of cocoa. Now there are 10 thousand seedlings are ready for planting. It takes about 50 thousand seedlings to meet the needs of the community seed in several villages. Through the development of rise commodities, is expected to increase income without having to do the extension of farmland. Because people likely to have incomes of some commodities all at once. In cycle of 2 weeks they have income from rubber, cocoa for weekly income and cardamom for monthly income. The rise plant is targeted as a pilot project to increase the income of local forest communities, without having to change the function of the forest.

### ▪ Organic Rice

Lowland rice is a food source for community around Bujang Raba. Communities develop farming pattern of local varieties of rice once a year with the planting of six months, with an organic cropping system. Fertilizer to increase rice production from rice straw are left to rot in paddy fields. Then when finished plowing, paddy fields sprinkle with the cow dung rest of biogas before rice plant seedlings. To maintain the quality of the soil, farmers do not plant rice during the year, but made the turn crops by planting young plants, and then replanted rice. The Farming pattern is proven to be able to maintain soil fertility.

### ▪ The Increase of Community Capacity

To support the activities developed around Bujang Raba, certainly the village community capacity also needs to be improved. Related to this Warsi has made a variety of activities that appeal studies to Tourism Village Cinangneng, Ciampea District, Bogor. Here people learn how to guide the tourists who visit. In addition comparative studies also stop in overtime Pancawati location to learn about the development of ecotourism concept.





Potensi Lanskap Bujang Raba

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Meanwhile, to improve the income of non-timber forest product processing, the public are invited to visit the village Weak Duwur, Cimande, Caringin District, Bogor, which is a bamboo craft centers. Bujang Raba community representatives and other Warsi assisted villages also participate in the activities of the Association of Indonesian Entrepreneurial Forestry Community Congress held in Semarang Indonesia. At this congress, people learn to increase their income from non-timber forest products. Warsi also encourage people to increase their income from rubber plantations by directly connecting the village with one of rubber factory Bridgestone, which buy rubber from society rubber mixed plantation. In this way, the selling price is much higher and people also continually strive to improve the quality of their leads and the rubber meet the standards of this world class tire manufacturer.

### ▪ Carbon Accounting

Another added value of the maintained forest is to defend the function of forests as carbon Neutralizing dioxide emissions. So the forest would be greatly appreciated and will go to carbon trading. To welcome these people should also be prepared, one of which is to provide training in the measurement of the carbon content of forests to society. With this pattern of training community will have sufficient knowledge when carbon market applied. Communities such as Ulu Senamat have been training in calculating their village forest carbon using the RaCSA method. This training is intended when the time comes and there is a carbon buyer, people are familiar with the amount of carbon in their forests. It certainly can improve their bargaining position in the carbon market.



Mengembangkan sumber energi alternatif berupa biogas di dusun Senamat Ulu



HERRYADI ASYARI / KKI WARSJI

## Bujang Raba keep betterment and Develop their Potential

These West region area in Bungo, continue to improve and develop their potential. As a relatively remote area from the center county, communities Around Bujang Raba experienced limitations in accessing various public utilities like electricity and also meeting the needs of fuel. On the other hand the public has a potential to meet their energy needs. Among them are currently being developed is biogas and waterwheel power generator.

### ▪ Biogas

It is Nearly 90 Percent of the villagers around Bujang Raba still use firewood for their energy needs. Based on the brief analysis conducted in the village of Senamat Ulu by Warsi, the village consists of 260 households using fuel wood and gas. Households that use pure wood amounted to 52 families . timber needs 17 kg / day, whereas households using gas and firewood needs there are 208 families with details needs 10 kg of wood / day and gas an average of 4 kg / month or equivalent to Rp 34 thousand per month. With this figure can be calculated annual wood demand for Senamat Ulu communities around 1097, 64 tons / year. With this figure, assuming 50% C content of wood will produce carbon emissions by 2012 tonne of CO2 per year. It Can also imagine how the wood needs this time of year in the years ahead.

These calculations just in one village, while the other villages around the Bujang Raba there are eight villages with timber demand and resulting emissions roughly equal. With this condition are very worth to look for other alternative energy sources. By looking

at the potential that exists, the energy source that may be developed is the use of cow dung. Cow manure contains chemical elements contained urine NH4 and NH24 chemical elements. Both the chemical content of a compound emitters Earth's atmosphere 23 times more virulent than carbon dioxide, if let loose into the air.

But the source of these emissions can be processed into biogas, thus providing multiple benefits to the community, the first stools do not cause emissions, the second to reduce the consumption of firewood. In addition, to prevent the breeding of various diseases, as cow dung sprawled just may very well be breeding grounds for a variety of media disease types.

From the experiments performed by Warsi in building a biogas plant with an initial capital of Rp. 1.3 million, with one cow per family able to meet domestic energy needs throughout the day, with the calculation of a cow that produces 7-10 kg of dung per day. If this method successfully encouraged and applied, it can be calculated how much carbon emissions could be prevented from wood burning. And more importantly, the local community is certainly saving family expenses. A gas cylinder contains 3 kg, in the village of Ulu Senamat traded at Rp. 25 thousand, plus the cost of procurement of firewood. With this biogas development there is multi benefits that will be felt by the community. Moreover, the construction models of biogas is made with simple technology that can be done directly by the villagers with materials available around them.

## ▪ Electric Power of PLTKA

With a distance of more than 50 km from the district administrative center, causing the majority of villages around the Bujang Raba do not get the energy supply of the country. For that community organizations harness the energy source that is around them, whether it be waterwheel power generator or Micro Hydro Power Plant depends on the presence of water in the rivers surrounding Bujang Raba villages.

For example, In Senamat Ulu there are four units waterwheel power generator (PLTKA) with a capacity of 5 thousand kw per wheel. One waterwheel can illuminate 8-14 houses there are dues per month with approximately Rp.20,000 – Rp.50,000, - per family depending on the capacity of the electricity community received. In Lubuk Beringin village there are 3 units PLTKA with capacity of 5 thousand watt with additional fees of Rp 15 thousand per household per month.

When compared with using diesel engines for electricity demand, the price of electricity from water is very cheap. Currently the price of diesel fuel in the village is more than Rp 10 thousand per liter, while the diesel engine needs six liters of fuel for lighting per night for six hours, it can be assumed that the needs Rp 60 thousand per night when electricity is connected to five houses around the each house to pay around Rp 12 thousand per night or Rp. 360 thousand a month. It is very different from when using a waterwheel whose contributions tens of thousands of rupiah. You can imagine the savings that can be made by utilizing river water electrical of energy sources, in addition to efficient and environmentally friendly as well is believed to improve the welfare of the surrounding community. The most important addition is the source of the pollution caused by the burning of fossil fuels is eliminated. However this only can be continued , as long as the forest around the community as a water catchment area well maintained. So the river water supply is also evenly distributed throughout the year. Seeing this potential, it is not impossible that someday the electricity generated can be sold to the state electricity company (PLN), and this is one of the prospects for improving the local economy.



Listrik Murah dari PLTKA/MH di wilayah Kecamatan Bathin III Ulu yang airnya bersumber dari kawasan Ekosistem Bujang Raba.



Orang Rimba butuh hutan untuk kelangsungan hidup mereka.

ALAIN COMPOST / KKI WARSI

▪ **Saving biodiversity, Germ plasma and Food Sources**

With its potential, Bujang Raba is a source of germ plasma with high wealth. Traditionally people already take advantage of the region's biodiversity for various types of drugs, based on local wisdom that has been handed down. If the ecosystem is saved to the sustainable and long lasting management, will also provide a guarantee for the survival of local knowledge and tradition with natural ingredients to cure various diseases. There is a possibility this could be developed with the support of the laboratory analysis and experts that Indonesia's forests are known as a producer of various types of drugs can be maintained. With this scheme, it can be guaranteed that the treatment will be much cheaper, when compared to native medicinal ingredients from abroad.

At the Bujang Raba areas also found different types of fruit trees that became a source of food communities. Especially in areas that have enriched the community agro forest with various fruit trees, is an added value for the community surrounding region.

Not only the villagers, the Bujang Raba Ecosystem also a source of Orang Rimba livelihood who inhabit this region. Orang Rimba obtain food sources from the hunting, tubers and fruits that exist in the Bujang Raba ecosystem. By keeping the ecosystem, source of life and safeguard and traditional resources of Orang Rimba.





## Bujang Raba, Warm Home for All

Bujang Raba with the diversity and the various models of adopted governance in the region, ranging from the principle of local wisdom (indigenous forests, village protected forests and village forest), conservation (national parks) and rubber plantations in the APL mixed up corporate presence PT Sawit Harum Makmur (palm) which is conducting land clearing, PT Malaka Agro Perkasa and PT Mugi Triman (HTI) in these production forest. Of course it is expected the appear of understanding to manage these areas in a fair, sustainable and not destroying resources that future generations be relied thousand communities

around and downstream of Ecosystem.

Conversion and degradation in Bujang Raba, should already be stopped, and turned to sustainable management. It was predictable, if continued forest conversion and degradation of ecological disasters can certainly be soon approached. Floods, landslides, droughts is a real part that looks straight out of the destruction of forests. In another part, the impact of forest removal also continues to haunt, seasonal changes due to the influence of climate change begin to be felt by community. For that we need to see that Bujang Raba Ecosystem is one unit. Thus, in managing also must consider many factors that ecosystem unity are not torn and then actually bring ecological disaster to the surrounding community.

Sustainable management of the area is a choice, so that the region can directly become an important area of disaster mitigation for residential areas that are located in downstream areas. Judging from the topography, soil type and rainfall levels in the region, it needs to be agreed by the parties involved to contribute to this region and its role to prevent ecological danger to the community around and downstream. To that end, each stakeholder in the region should carry out its role by referring to the ongoing sustainable management of the region. Society as actors and recipients impact was clear in their role, as evidenced by the allocation of areas including management of indigenous forest, village protected forest, village

forest, agro forest and others. So the question is what role would be run by private parties who get permits in the region. Warsi clearly encouraged the company to establish a system of governance that embraces the sustainable and long lasting principles. The hope of course their right of managing area in the Bujang Raba will be released, but if it does not meet at least the company maintain areas of high conservation value (high conservation Value forests / HCVF), then left wildlife corridor and do not do land clearing in the boundary area of Bujang Raba Ecosystem minimal within a radius of 100 meters. With this pattern, Bujang Raba stay warm for all, welfare community, Orang Rimba live comfortably and companies can work well.

## Saving Bujang Raba,

is the most important part for Indonesia's Future and Saving the World

Bujang Raba become the last support foundation for life of Orang Rimba community and the surrounding communities, as well as a section for mitigation and adaptation to climate change. Maintain and manage the region in a sustainable and ongoing ways, is one of the concrete steps to support the president's policy as stated in Presidential Decree No. 61/2011 on the national action plan of greenhouse gas reductions. The Government has committed to reduce GHG emissions by 26% by 2020 with its own capabilities, and 41% through international support. This target can be met if development were expanded is system to adopt low-carbon development which is not to transfer the functions of forest area and maintain and enrich tree stands. With this step will certainly further increase the ability of forests to absorb carbon dioxide while keeping carbon reserves. Put simply be measured by the potential of carbon

in Bujang Raba ecosystems, if the average Indonesian forest carbon stocks estimated at 250 tons per hectare, then the Bujang Raba Ecosystem contained approximately 27.25 million tons of carbon. When the prevailing of carbon market mechanisms, can be calculated the economic value of Bujang Raba ecosystems and aimed at improving the welfare of the surrounding community. With this ability, Bujang Raba Ecosystem be credited to the local communities and the global community. This will only apply if the parties involved in this region supports a developed pattern that based on fairness and sustainability of resources. It is not only the public about the benefits but also the global community, save the future of Indonesian people and the world, if this pattern adopted and developed in many places.



## Bujang Raba For Natural Sustainabilities

To keep Bujang Raba certainly needed the support of all parties. Lots of options for participation in maintaining Bujang Raba. Running the concept of sustainable management for stakeholders who are directly involved in the region and outside parties can take to support sustainability and the tree in its area, either in the form of tree care, became a member community of Bujang Raba save or donate directly to management. Participation of all parties will be highly anticipated. Save our forests now or our grandchildren will curse us because we do not save their life support.

To know Bujang Raba closer or if you want to get involved participate to support the sustainability of Bujang Raba please contact

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