

## The Local Wisdom In Marine Resource Conservation In Indonesia: A Case Study Of Newcomers In Pariaman West Sumatra

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**Abstract**—This paper examines the local wisdom of new fishing groupshave had tremendous impacts on local marine resource conservation along the coasts ofthe province of West Sumatra. Data were collected from a small number of fishing households in the village of Pariaman Tengah in Pariaman Regency, using mainly qualitative research methods. At the village, traditional fishing areas have been properly benefited by local fishermen. Together with the local government, they have conserved the area, where sea turtles, some species of finfish; mangrove/coral reefs are protected. It was found that the local wisdoms use consist of determining season of fishing and making traditional fishing gear. In former days the available marine resources were abundant, but nowadays the villagers, all of whom belong to the ethnic group of matrilineal Minangkabau, are not so happy with the contemporary maritime situations. Since 20 years ago, on the other hand, many newcomers have flowed into the fishing village of Pariaman Tengah. Being mobilized from other districts in the province of West Sumatra *uxorilocally*, they have succeeded in establishing their own identity, in forming new groups, and then in having economic powers inside the fishing community as local autonomy. Along with increasing the number of their households and with the growth in income, they are becoming leading actors there to be involved with the local resource conservation for national interest. The newcomers have the local wisdoms for resource conservation are using no harmful gears, commitment not to catch and kill the turtles and commitment not to throw rubbish into the sea.

**Keywords**— *minangkabau, fishing community, ethnic, local government, new identity*

### INTRODUCTION

Indonesia is world's largest archipelagic state, boasting 17,480 islands and 95,181-mile coastline, approximately 18.4% of world's coastline. Indonesia marine areaare known for its wealth and diversity

of natural resources, both renewable natural resources such as fisheries, mangrove forests, coral reefs and others, and unrenewable such as minerals (Dermawan, 2010; Zamzami, 2015). In principle, all elements of marine natural resources are interdependent and influence each other as a unified system of life support. Conservation efforts are important in maintaining sustainable natural resources, by establishing enclaves of natural areas that are considered representative of various types of ecosystems and managed as conservation areas.

Pariaman is a part of the management as conservation area from West Sumatra Province administrative area in accordance with Law No.

12 Year in 2002. Pariaman is a very strategic area in the future because six small islands, namely Kasiek Island, Angso Island, Tangah Island, Ujung Island, Bando Island and Gosong Sibarat Island, support it (Dermawan, 2010). This coastal area faces directly with the Indonesian Ocean or Indian Ocean, it consists of 4 sub-districts are *Pariaman Timur, Pariaman Barat, Pariaman Selatan* and *Pariaman Tengah*, with 84 709 inhabitants with a population density of 1,001 inhabitants/km (BPS Pariaman, 2016). The people are Muslim (100%), due to the homogeneous community that mainly comes from Minang tribe and the Malays (Zamzami, 2013), *see Map I.1*. The marine potential resources are quite rich in this region; there are many types of seafood such us tuna, mackerel, grouper fishes, super anchovies, seaweed, pearl shell.

Map I.1 Geografical  
Position of Pariaman  
In West Sumatra of  
Sumatra's island



Pariaman has about 12 km of coastal where artisanal fishing is an important economic activity. However, fishery resources have been coming under increasing pressure. Major increases in fish catches are unlikely in the near future. Artisanal fishermen are contributing to the degradation of marine resources because intensive fishing in certain areas can affect the ecological balance and result in a loss of fish stock (Zamzami, 2014). Many coastal inhabitants depend on marine resources for their livelihoods, with coral reefs playing a particularly important role (Versleijen and Hoorweg, 2008).

In addition to providing construction materials, ornamental objects and medicinal products, coral reef harbour many fish species. Coral reefs provide feeding, spawning and breeding grounds, as well as shelter and refuge from predators for the young fish and form the backbone of artisanal fishing along this coast. Based on the results of Bung Hatta University in 2001 (Dermawan, 2010), live coral cover in this region is 20.92% in Kasiak Island, 12.47% in Angso Island, 9.67% in Ujung Island, and 14.48% in Tangah Island. The coral consist of *Acropora* and non-*Acropora*. While there are other biotas in the Pariaman waters, among them have commercial value such as oysters, scallop, mussels, and clams.

Pariaman contains some of the most biologically diverse coral reef habitats. This research has generated a significant contribution to the scientific literature, predominantly written from a conservation angle. Where these hotspots overlap with significant fishing communities, the relationship between fisheries and conservation has been reported (Cassels et al., 2005; Stanford et al, 2012; Zamzami, 2014). But outside of these research hotspots, peer-reviewed published research exploring poverty in Indonesian fisheries is limited. Much of the published research available since 2005 can be divided into a response to the Asian tsunami (Tewfik et al.,

2008; Garces et al., 2010; Stanford et al, 2012), global overviews of fisheries that touch on Indonesia (Allison et al., 2009; Stobutzki et al., 2006; Thorpe et al., 2006; Stanford et al, 2012) and lessons learned from Integrated Coastal Zone Management in Indonesia and the Philippines (White et al., 2005; Sievanen et al., 2005; Stanford et al, 2012).

Faced with reduces catches and more competition from fellow artisanal fishermen as we as newcomers, local fishermen and actually tourism, a possible livelihood alternative lies in income diversification. Many fishermen are already involved in other income-generating activities. Based on research in 2014, Zamzami (2014) report that four-five of the fishers in a household had diversified their income in some way. Dermawan (2010) mention that household in Pariaman have a mean of 2.1 occupations per household.

Income diversification is a survival strategy in rural households across Indonesia (Adhuri, 2015; Versleijen and Hoorweg, 2008 ) and is also a favored strategy for reducing risk. Diversification is expected to improve a household's income, resulting in higher income and/or a better income spread. Not only fishermen have started to diversify their livelihoods, many coastal farmers are now also seeking to diversify their sources of income. An increasing number of households are turning to fishing and in one of the companion surveys, more than 80% of Pariaman fishers were first-generation fishers with the father not being a fisherman (Zamzami, 2015).

Once a part of the Malay peasant economy (Said, 1993; Firth, 1966; Frazer, 1966), the fishing economy in Pariaman coastal has now lost its basic peasant characteristic. Their mode of production has been replaced by a new mode of production based on capitalism in the sphere of both production and exchange. The social relations of production were transformed traditional, information, family, kinship or communal-based ties were transmuted into new formal labor-capital relationship. The economic transformation of the Pariaman coast, fishing economy led to the disappearance of traditional small-scale production, which was replaced by relations of production and exchange pertinent to capitalism, especially exist of marine conservation and tourism.

Pariaman coastal is an important fishing settlement located at the West Sumatra coast and become tourism area. Coastal communities in Pariaman based on socio-cultural a cultural roots

of the Minangkabau tribe built on a blend of sea maritime culture that is restricted to the values of local wisdom. In an effort to harmonize, maintain, and preserve cultural values and local wisdom in the context of spatial planning, the government needs to do some efforts on various aspects of the levels of spatial planning (Markus, 2010; Chaliluddin et al, 2015). In addition, the relationship between culture and the potential of spatial planning, a need to accommodate local cultural values/customs into positive law. Along with the improvement of technology and cultural transformation towards modern life and the influence of globalization, the cultural heritage and local wisdom values of the indigenous peoples to face challenges to its existence (Busilacchi, 2013). Care should be taken because of the cultural heritage and local wisdom values that contain a lot of local knowledge that is still very relevant to current conditions, and should be preserved, adapted or developed even further.

In addition, studies on fisheries cultural heritage and local wisdom have been carried out by Mubyarto (1984) who studied *Nelayan dan Kemiskinan* 'Fishermen and Poverty'; Syarifuddin (2008) studied *Mantra Nelayan Bajo* 'the Magic Words of Bajo Fishermen'; Fernandez (2009) studied *Kategori dan Ekspresi Linguistik dalam Bahasa Jawa sebagai Cermin Kearifan Lokal Penuturnya* 'Category and Linguistic Expressions in the Javanese language as a reflection of the speakers' Local Wisdom': *Kajian Etnolinguistik pada Masyarakat Petani dan Nelayan* 'The Ethnolinguistic study on Farmers and Fishermen Community'.

The focus in this paper is on the access that the newcomers have local wisdom, their identity once they start fishing, the fishing gear they use and the fishing grounds they frequent. Being mobilized from other districts in the province of West Sumatra *uxorilocally*, newcomers have succeeded in establishing their own identity, in forming new groups, and then in having economic powers inside the fishing community as local autonomy. The central research question concerns the livelihood, local wisdom strategies, and income diversification of the newcomers of fishermen and what their entry in the marine resource conservation implies for the state of fishery resources.

## RESEARCH METHODOLOGY

This study used a qualitative approach with an ethnographic analysis. The aim is to describe in detail and interpret the livelihood

strategies, local wisdom, and income diversification of the newcomers of fishermen and related in the marine resource conservation. The data collection is done by observation and in-depth interviews. As in ethnographic studies, this research will produce descriptive data in the form of words, written, oral and behavioral in fishing community. Subjects were a newcomers, local fishermen and traditional leaders. Field research conducted by using the following steps: (1) the initial observation roomy introduction, (2) the collection of field data, (3) the analysis of field data (Neuman, 2006; Maleong, 2001; Fatchan, 2015). Field data analysis carried out simultaneously in line with the findings of field data and research stage.

## RESULTS AND DISCUSSION

### A. Pariaman Geography and Marine Resource Conservation Area

The research location is in Pariaman city. Administratively, Pariaman has marine protected area are *Ujung Island, Tangah Island, Angso Island* and *Kasiak Island*. See Picture 1.1. While geographically, Ujung Island, Tangah Island, Angso Island and Kasiak Island is located at the geographical position 100°05'58'- 100°06'66' South Latitude and 0°34'21'- 0°39'54' East Longitude, has a total area of approximately 2,298.35 hectares. Pariaman and the small islands surrounding it, has a tropical climate with temperatures ranging from 25°- 26°C or an averaged of 25.59°C, the average humidity is 85.59%, average air pressure of 977.18, rainfall average of more than 298 mm/year and wind speed ranges from 1.0 -1.7 knots. The temperature of coastal waters and small islands in Pariaman ranged from 30-31 °C, with an average salinity of the waters around 33-34 ppm, and brightness levels ranging from 5-8 meters (Dermawan, 2010).

Picture 1.1 Marine Resource Conservation Area in Pariaman Coast





According to BPS Pariaman (2016), on fishery, the highest number of fishermen is in the Central District of Pariaman about 646 fishermen from a population of approximately 31,582 inhabitants. The fishing fleets consist of 105 units fishing boat, 161 units of outboard motor boats, and 129 units of boat without motor. In terms of fishing gears, the most widely used is gill nets (*jarring insang*) 88 units, lift net (*bagan*) 77 units, seine (*pukat paying*) 73 units, and trolling line (*pancingtonda*) 23 units.

There are five categories of fishermen in Pariaman Coastal, such as (1) *Fishpond Businessmen* can be considered as upper medium-scale investors, they are the owners of the farm, doing fish farming for export, this class fishing are relatively advanced and produce relatively large quantities, employing 5-15 workers fishermen. (2) *Fishermen as a skipper or "toke"*, his business organization is not yet well structured and has not been legally established, (3) *Fishermen as a fish catcher*, fishermen in this class is the biggest in number, (4) *Fishermen as a collector or intermediate trader*, and (5) *Fishermen as a worker or labor*.

In marine resource conservation was determined by Pariaman is mainly the small islands for turtles nesting and coral conservation. The destruction of coral reef ecosystems and the 25% of coral coverage in the area also supports the decision. Pariaman natural beauty is designated by its white sandy beaches and clean environment, such as the Teluk Belibis Beach, North Pariaman to Sunur Beach, South Pariaman; also, Kasiak Island the nesting place for endangered turtles; and Angso Island, Tengah Island, Ujung Island as coral-reef conservation

area (<http://kkji.kp3k.kkp.go.id>). In addition, there are religious attractions such as *Tabuik* religious event and also the experience of walking down religious history in the 8 century when *Syekh Burhanuddin* brought Islam to the region, will be major tourist all year long for the local, national and international tourist.

Pariaman as Minangkabau ethnic who adhere to matrilineal system. Every child born will be a direct family member of the tribe of the mother, because in Minangkabau descent lines drawn on the basis of mother's family, there are some other characteristic inherent to the tribe of Minangkabau. In tradition, their responsibility to be there. He is a trustee of the line-protective of their offspring and lineage property that even if he had to restrain herself from enjoying the fruit of the ground by his people because he was not able to claim part of anything for herself. Nor was he given a place at the home of her parents (maternal/matrilineal) because for all booths reserved for female family members, namely to accept their husbands at night. The position of men who are that motivates shaky Minangkabau men to migration (namely: *merantau*). Migrated or 'merantau' Minangkabau society is a process of interaction with the outside world. This activity is an adventure experience and geography, by leaving home to try his fortune abroad. The family has long had tradition to go abroad, usually have relatives in almost all major cities in Indonesia and Malaysia.

#### B. The Local Wisdom In Fishermen Community

Some of the functions of the local wisdom is: the conservation and preservation of nature, as the adage, trust, ethics and moral meaning, able to control, able to integrate elements of foreign culture into the native culture. (Mimit and Sahri, 2011b; Zamzami, 2011). Local wisdom is life values inherited from one generation to generation, the form of religion, culture or customs, in general in oral form in a social system form a society. The existence of local wisdom in society is the result of the adaptation process to the next in a very long period of time, to an environment that is usually inhabited, or environments where frequent interactions therein. Ridwan (2007) states local wisdom can be understood as a human effort to use cognition to act and behave towards things, objects, or events that occur in a given space. Definition above, arranged in etymology, understand the wisdom as a person's ability to reason his mind, to act or behave as a result of an assessment of things, objects, or events. As a term, it is often



defined as wisdom / wisdom. In particular, local refers to limited interaction space with a system of limited value. Interaction space has been designed in such a way, in which involves a relationship patterns between man and man or man and his physical environment.

Sulaiman (2010) defines a more detailed local wisdom as "knowledge built by the community for generations, related the relationship with nature and natural resources". Local wisdom of society includes all knowledge related to social sciences, politics and geography. According to Christy (1992) there are six things that must be met as conditions of a local wisdom for environment management, including: a) Condition of natural resources should have obvious characteristics, eg in the form of coral reef or mangrove ecosystem. b). Boundaries must be clearly owned and is predetermined, for example, the extent to which we may catch fish. c). Caching technology have determined the type of equipment and the type of catch that will be set in the local wisdom. d). Culture, local culture must be modeled in according with indigenous empowerment so it will not clash. e). Wealth distribution must protect existing institutional model. f). Government authorities and agencies. Government authority and assertiveness should also be able to make decisions that should be integrated to other agencies concerned.

Some areas of Indonesia country already has a lot of local wisdom as an example in environmental management. The examples are *PhanglimaLaot*, *Awig-awig* and *Mane'e*. Wisdom is applied almost fell down by the local community, such as *phanglimalaot* in Aceh and *awigawig* in Buleleng, Bali. Its presence greatly affects the local environment preservation. It was contrast with today, where the foreign culture started to go fast in the modern era of globalization (Stefanus, 2005; Hagi *et al*, 2012). Coastal communities at Pariaman area, the majority of the livelihoods of fishermen, on the basis of its citizens are Muslim, is possible to have local wisdom. Basic Islamic religion can be used as profile coastal indigenous native of Pariaman fishermen community, as a reference in the management of the pro-environment. In Pariaman society lives economy, religion and environmental sustainability can go hand in hand with no one left out.

Being a fisherman perceived as only a secondary livelihood, however, today it has gradually evolved to be the main livelihood for most of them. Even though, the ancestors of Pariaman fishermen community formerly began

to live as farmers who were much dependently live through the heritage of a customary land which was completely tied with the local knowledge. This is primarily explained in the local wisdom and traditions indicating that the choices of living as farmers could not be completely replaced by being a fisherman.

Beliefs in supernatural powers exclusively related to the local wisdom especially their economic life are very important among members of Pariaman fishing community, regardless of their ethnic. Nevertheless, these beliefs are relatively more deeply rooted among the Pariaman fishing community. They believe ecology system are like sea, mangrove, river have spirits or souls. This belief signifies their conviction that their economic lives are not merely determined by how well they use their skills, boats and fishing gear in exploiting the sea, but also by how well they interact with the supernatural forces which are an important part of their world.

In Pariaman coastal, an effort coastal environmental sustainability by empowering local wisdom, there are two roles: (1). The role of the government to undertake structural changes in the framework of laws and political practices of natural resource management, in this case the government favored the local community, such as the employment contract system and the results are also on the migration of fishermen (andun) stricken Exclusive Economic Zone. (2). The Role of Non-Government is the strategy of strengthening local institutions, such as the presence of investors in the tourism sea quotation, also strengthening capital and market information for small fishermen. The local fishermen very dependent on income from the arrest, if the level of income a little fishing in areas of origin, then the fishermen will find other areas, in order to better revenue, as happened in bantique, Philippines. Fishing is a strong working relationship in order to overcome difficulties in marketing the catch of fishermen and because of limited capital. On the other hand fishermen are always disadvantaged in partnership, particularly the amount of prices and services specified by the fishermen (Acheson, 1981). Employment contracts applicable to the fishing communities, there is a competition between ship owners to compete for labor or pandiga available. Symptoms begin to appear in the presence of such vessels requires more manpower, so no fishing opportunities pandiga as workers doing a job on the ship option that gives better results section.

Local wisdom, traditions and cultures in society of Pariaman coastal has a great opportunity to be managed and empowered again, so could to regulate the daily lives everyday people and the norms and rules that favor to environment, in the context of coastal and marine resource management. According to several informants and sources encountered by the author, the communities in the study had high enthusiasm when the *Tabuik* event will take place. It is also not much different from the adherence conditions to property rights concept of *onjem*, despite being in communal open access. The existence of systems that have formed a strong and entrenched in society will help incorporate the mindset how to take the best advantage of natural surroundings. Therefore, the such people should become culture and tradition wealth and the most potentially beneficial in community-based management. This can be one of the important instruments in building social forces to attempt the management and utilization of coastal and marine resources (Mickelsen, 2003).

### PROSPECTS OF NEWCOMERS

The newcomers have had tremendous impacts on local marine resource conservation along the coasts of the province of West Sumatra. The number of newcomers increased to other coastal place all the time, effect by a migration. Kato (1982) said, migration is the movement of a collection of people from one region to another region to improve people's lives and their economy. Migration is the process of moving from one place to go to live or work in another (Bungo, 2011; Kahn, 1976; Maher, 1994). It also can be defined as the movement from city to another city or town. Definition of migration is very different from the flight that brought a set of human intention to move from one place to another place that is moving to a more safe for them to continue to live after suffering a miserable life due to the outbreak of war habit or natural disaster.

The number of newcomers has continued to grow rapidly over the past twenty years reaching 30-50 fishermen in 2015. Newcomers come to the Pariaman coast from a variety of district. People from the West Sumatra also emigrate to other province around the Indonesia (Zamzami, 2010). Immigration is not new and Pariaman coast has been a multicultural society for twenty of years. Many people in the Pariaman are descended from previous settlers and invaders such as the Pesisir Selatan fishermen, Padang fishermen, Agam fishermen

and Pasaman fishermen. Pariaman coast population distribution describes how people are spread out across the coastal zones. The human population is not spread evenly. Few people live in locations that are sparsely populated and densely populated places have many.

Most newcomers were aware of the degradation of marine resources and mentioned declining fish catches in this respect. The fishermen themselves stated different reasons for declining catches but the primary cause, according to them, was the increased number of fishermen. Other reasons mentioned were the gazetted of the Marine Ecotourism Area, unpredictable weather patterns and the annual visits of migrating fishers from other region. The increased number of newcomers put more pressure on already limited marine resources, particularly in the case of Pariaman coastal. The choice of gear was influenced by the fishermen's knowledge and experience as well as economic and environmental considerations. Fishermen were flexible in their use of gear, although they usually had strong preferences based on experience, their expected catches and use the local wisdom. The newcomers of fishermen, due to their involvement in other income-generating activities, were often non-migrant fishermen or seasonal migrants. Exceptions did occur if, for example, someone's son started fishing because he would have more freedom and fewer responsibilities at home. Most of the fishermen in Pariaman coastal reported that they used to fish at other landing sites when they were young and had, in effect, been migrant fishermen.

A newcomers is one who leaves his natural community and moves from one habitation to another in fulfillment of his occupation. He moves in search of fish as dictated by the type of fish required, the movement of the tide and season of the year (Tawari, 2002:2). Rajan (2002) identifies two dimensions of mobility being time and direction. Forms of fishermen spatial mobility are as follows: commutation is "the expansion of workspace", in terms of fishermen moving out of their community of origin and landing their catch in another. Circulation is "the expansion of work space for a longer period and the residence of mover, may also be shifted for a longer period in connection with the occupation" and migration entails permanent settlement in which the mover settles in the destination village with family i.e. both place of work and place of residence are shifted.

Newcomers fishermen did not limit themselves to one fishing ground or even one landing site. Many fishermen on West Sumatra coast were migrants and operated from different landing sites at different times of the year. Once a newcomers had gained experience and if he was still young, he was free to become a migrant fisherman. When older and having started his own family, he would give up moving along the coast but could still turn to seasonal migration, usually during the high season. The newcomers claimed that fishing elsewhere was not worth the effort in the low season as catches at other landing sites in this season were only slightly different. The newcomers, due to their involvement in other income-generating activities at household.

The newcomers of fishermen move from other district (20 Km) apart or 1-2 hours by engine-powered canoes to fish schools of fish species like as tuna, mackerel, grouper fishes, super anchovies, seaweed, pearl shell. They also fish out to sea as far as 120 nautical miles. When they get to a community, they spend at least one week and as much as three months till the season for the fish species is over. In the community of destination, there are usually given temporary accommodation or given land to put up temporary huts if they intend to stay as long as two years. Fishermen wives will not be equipped at the community of destination if they accompany them due to the lack of processing units.

Newcomers are at an advantage in the destination new place, despite the fact they settled for more than a 20 years. These communities already have a good infrastructures. If their communities are to benefit from development programmes, there is a need for them to integrate into the day-to-day running of the community and Local Government of destination by forming social groups whereby they can present their needs to the central government. Due to lack of skills other than fishing and appropriate fishing inputs, inland fishermen have continued to migrate to various water bodies which have been over exploited, while industrial development and trawlers have destroyed the marine fishing grounds of artisanal fishermen. It is also unfortunate that in this period of the 21 century some fishermen do not see the need to educate their children, but prefer to use them as cheap sources of labour, while others lack the financial means to train their children.

Many newcomers have flowed into the fishing village of Pariaman coastal. Being mobilized from other districts in the province of West Sumatra *uxorilocally*, they have succeeded in establishing their own identity, in forming new groups, and then in having economic powers inside the fishing community as local autonomy. Along with increasing the number of their households and with the growth in income, they are becoming leading actors there to be involved with the local resource conservation for national interest. The newcomers have the local wisdoms for resource conservation are using no harmful gears, commitment not to catch and kill the turtles and commitment not to throw rubbish into the sea.

### CONCLUSION

Existence the local wisdom tradition as a form of marine resource conservation includes control gear, using no harmful gears, commitment not to catch and kill the turtles and commitment not to throw rubbish into the sea and seeding and planting mangrove. Furthermore, conservation measures coastal and marine environment carried out by newcomers in Pariaman can be roughly divided into two: (1) In the sector of marine resources includes control gear, using no harmful gears, commitment not to catch and kill the turtles and commitment not to throw rubbish into the sea; (2) In the resources sector includes planting mangrove coast and make the cultivation of seaweed. Various forms of marine and coastal conservation is carried out by newcomers in Pariaman seen in the behavior: Not only catch fish but also maintaining and developing the fish seedlings. Mangrove reforestation and cultivation of seaweed around the coast. Various activities are based on the values and culture of local wisdom in newcomers behaviour.

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## REFERENCE

- Acheson, J.M. (1981). *Anthropology of Fishing. Annual Review of Anthropology*. 10: 275-316.
- Adhuri, Dedi Supriadi. 2015. Coastal Livelihood Vulnerability to Marine Resource Degradation: A Review of the Indonesian National Coastal and Marine Policy Framework. *Marine Policy* 52, 163-171
- Allison, E. and F. Ellis. 2001. "The livelihoods approach and management of small-scale fisheries." *Marine Policy* 25(5): 377-388. 10(2): 173-196
- BPS Kota Pariaman. 2016. Pariaman dalam Angka, Pariaman.
- Bungo, Nelmawarni dan Nordin Hussin. 2011. Merantau ke Kuala Lumpur: Tradisi Merantau Dan Berdagang Masyarakat Minang. *GEOGRAFIA Online Malaysian Journal of Society and Space* 7 Special Issue: *Social and Spatial Challenges of Malaysian Development* (116 - 131).
- Busilacchi, G. R. Russ, J. A. Williams, S. G. Sutton, G. A. Begg, "The role of subsistence fishing in the hybrid economy of an indigenous community." *Journal of Marine Policy*, 2013, pp. 37: 183-191.
- Cassels, S., Curran, S. R. and Kramer, R. 2005. Do Migrants Degrade Coastal Environments? Migration, Natural Resource Extraction and Poverty in North Sulawesi, Indonesia. *Human Ecology* 33 (3): 329-363
- Chaliluddin, Ari Purbayanto, Daniel R. Monintja, Mohammad Imron, Joko Santoso. 2015. Role of Local Wisdom in Utilization of Resource of Fish in The Aceh Jaya District, Indonesia. In *International Journal of Engineering, Management & Sciences (IJEMS)* ISSN-2348 -3733, Volume-2, Issue-3, March 2015
- Christy, Jr, Francis T. 1982. "Territorial use rights in marine fisheries: definitions and conditions. Fishery Development Planning Service", FAO Fishery Policy and Planning Division.
- Dermawan, Agus. 2010. 42 Indonesian Marine Conservation Areas. Directorate of Aquatic and Marine Resources Conservation. Directorate General of Marine, Coasts and Small Islands. Ministry of Marine Affairs and Fisheries. ISBN 978-979-3556-84-0
- Fatchan, 2015 *Qualitative Methods: Ethnography and Ethnomethodology Approach*. Jogjakarta. Published of Ombak.
- Fernandez, Inyo Yos. 2008. Kategori Dan Ekspresi Linguistik Dalam Bahasa Jawa Sebagai Cermin Kearifan Lokal Penuturnya: Kajian Etnolinguistik Pada Masyarakat Petani Dan Nelayan. *Kajian Linguistik dan Sastra*, Vol. 20, No. 2, Desember 2008: 166-177 Fakultas Ilmu Budaya, UGM
- Firth, Raymond. 1966. *Malay Fishermen: Their Peasant Economy*. London: Routledge and Keagan Paul.
- Frazer, Thomas W. 1960. *Rusembilan: A Malay Fishing Village in Southern Thailand*. Ithaca: Cornell University Press.
- Garces, L. R., Pido, M. D., Pomeroy, R. S., Koeshendrajana, S., Iskandar Prisantoso, B., Fatan, N, A., Adhuri, D., Raiful, T, Rizal, S., Tewfik, A. and Dey, M. 2010. Rapid assessment of community needs and fisheries status in tsunami-affected communities in Aceh Province, Indonesia. *Ocean & Coastal Management* 53 (2): 69-79.
- Hagi P. S. Edi and P. Mimit, 2012. "Kajian Profil Kearifan Masyarakat Pesisir Pulau Gili Kecamatan Sumberasih Kabupaten Probolinggo", FPIK UB. Malang.
- [Http://kkji.kp3k.kkp.go.id/index.php/en/marine-protected-area-data/details/7/52](http://kkji.kp3k.kkp.go.id/index.php/en/marine-protected-area-data/details/7/52)
- Kahn, J. S. 1976 'Tradition', matriliney and change among the Minangkabau of Indonesia. *Bijdragen tot de Taal-, Land- en Volkenkunde* 132: 64-95.
- Kato, T. 1982. *Matriliney and migration : Evolving Minangkabau traditions in Indonesia*. Itacha, NY: Cornell University Press.
- Maher, Nicola, 1994. Minangkabau Migration: Developing an Ethnic Identity in a Multicultural Society, *Australian Geographical Studies* April 1994 32(1):58-68
- Markus, T. 2010. "Towards sustainable fisheries subsidies: Entering a new round of reform under the Common Fisheries Policy." *Journal of Marine Policy*, 2010, pp. 1117 - 1124.
- Mickelsen, 2003. "Methods for development Work and Research : A Guide for Practicioners", Nolleo, M (Terjemahan Metode Penelitian Partisipatoris dan Upaya-upaya Pemberdayaan), Sebuah Buku Pegangan.
- Mimit P, dan M .Sahri , 2011b. "Kearifan Lokal



- Untuk Pengelolaan Sumberdaya Ikan Lebih Tangkap", Buku ISBN : 978-602-8624-95-4. PPS UB. Malang.
- Mimit Primyastanto, Sahri Muhammad, Soemarno, Anthon Efani. 2013. Fisheries Resources Management by Empowering the Local Wisdom in Madura Straits. Research on Humanities and Social Sciences ISSN 2222-1719 (Paper) ISSN 2222-2863 (Online) Vol.3, No.6, 2013.
- Moleong, Lexy, 2001, *Metode Penelitian Kualitatif*, Bandung: PT.Remaja Rosda Karya.
- Mubyarto, Loekman Soetrisno, Michael Dove, 1984. *Nelayan Dan Kemiskinan: Studi Ekonomi Antropologi Di Dua Desa Pantai*. Rajawali: Jakarta
- Neuman, W. Lawrence, 2006, *Social Research Methods: Qualitative and Quantitative Approaches 6<sup>th</sup> Edition*, US: Pearson International Edition
- Pilling, G. M., Reynolds, J. D., Andrew, N. L., and Dulvy, N. K. 2009. Vulnerability of national economies to the impacts of climate change on fisheries. *Fish and Fisheries*: 10(2): 173-196
- Rajan, J. B. 2002 *Labour Mobility in the Small-Scale Fisheries Sector of Kerala*, Discussion Paper, No. 44, Kerala Research Programme on Local Level Development, Centre for Development Studies, Thiruvananthapuram
- Sustainable Fisheries Livelihoods Programme (2002) *Contribution of Fisheries Research to the Improvement of Livelihoods in West African Communities, Case Study: Nigeria*, SFPL/DFID-FAO 59p
- Ridwan. N. A. 2007. "Landasan Keilmuan Kearifan Lokal. Jurnal STAIN" , Purwokerto.
- Said, Kamaruddin M., 1993. The Despairing and The Hopeful: A Malay Fishing Community in Kuala Kedah. Malaysia: Penerbit Universiti Kebangsaan Malaysia.
- Sievanen, L., Crawford, B., Pollnac, R. and Lowe, C. 2005. Weeding through assumptions of livelihood approaches in ICM: Seaweed farming in the Philippines and Indonesia, *Ocean & Coastal Management* 48: 297-313.
- Stanford, Budy Wiryawan, Dietrich G. Bengen, Rudi Febriamansyah and John Haluan. 2012. "Identification Of Poor Fishing-Dependent Communities In Mainland West Sumatra". In Buletin PSP ISSN: 0251-286X Volume 20 No. 1 Edisi Maret 2012. Hal. 15-34.
- Stefanus, S., 2005. "Pengelolaan Sumberdaya Pesisir dan Laut Melalui Pemberdayaan Kearifan Lokal di Kabupaten Lembata, Propinsi Nusa Tenggara Timur", Thesis, PPS-UNDIP. Semarang.
- Stobutzki, I. C., Silvestre, G. T., and Garces, L. R. 2006. Key issues in coastal fisheries in South and Southeast Asia, outcomes of a regional initiative. *Fisheries Research* 78, (2-3): 109-118.
- Sulaiman, 2010. "Model Alternatif Pengelolaan Perikanan Berbasis Hukum Adat Laot di Kabupaten Aceh Jaya, Menuju Keberlanjutan Lingkungan yang Berorientasi Kesejahteraan Masyarakat", UNDIP. Semarang.
- Syarifuddin. 2008. Mantra nelayan Bajo; Cermin pikiran kolektif orang Bajo di Sumbawa. PhD thesis, Universitas Gadjah Mada.
- Tawari, Felicia (2002) *Dissemination of Research Findings on Nomadic Education in Nigeria (The Migrant Fishermen Education Experience): Issues and Directions*; at the International Conference organised by International Extension College (IEC) Cambridge And Sponsored by The Department For International Development (DFID) at Rock View Hotel Abuja-Nigeria 16th – 19th January 2002
- Tewfik, A., Andrew, N.L., Bene, C. and Garces, L. 2008. Reconciling poverty alleviation with reduction in fisheries capacity: boat aid in post-tsunami Aceh, Indonesia. *Fisheries Management and Ecology* 15 (2): 147-158.
- Thorpe, A., Reid, C., van Anrooy, R., Brugere, C. and Becker, D. 2006. Asian development and poverty reduction strategies: Integrating fisheries into the development discourse, *Food Policy* 31 (5): 385-400.
- Versleijen, Nicole and Jan Hoorweg. 2008. "From Farming to Fishing: Marine Resource Conservation and a New Generation of Fishermen". In *Western Indian Ocean J. Mar. Sci.* Vol. 7, No. 1, pp. 1–14, 2008
- White, A. T., Christie, P., D'Agnes, H., Lowry, K. and Milne, N. 2005. Designing ICM projects for sustainability: Lessons from the Philippines and Indonesia, *Ocean & Coastal Management* 48 (3-6): 271-296.
- Zamzami, Lucky. 2010. Socio-Economic Change and Impact to Pattern of Migration in Fishing Community", in ICONSEA 2009

Conference, Universiti of Malaya, Kuala Lumpur, Malaysia, December, 8-9, 2009.

- \_\_\_\_\_.2011. "Local Culture Wisdom in Maritime Society for Disaster Mitigation Efforts in West Sumatra", in Seminar Silaturahmi Ilmiah Alumni UKM DIY-Jateng-Jatim ke-1 (29 Oktober 2011) di UPN Veteran, Yogyakarta.
- \_\_\_\_\_.2012. Peranan Lembaga Pengembangan Pesisir Mikro "Mitra Mina" dalam Upaya Pemberdayaan Ekonomi Masyarakat Pesisir di Sumatera Barat, in Jurnal Inovasi dan Kewirausahaan Kajian di Negara-Negara Berkembang, ISSN 2089-3086 Volume 1, Nomor 2 Mei 2012.
- \_\_\_\_\_.2013. Sikerei Mentawai: Keseharian dan Tradisi Pengetahuan Lokal yang telah Tergerus oleh Zaman, Jurnal Antropologi Indonesia Universitas Indonesia (Akreditasi Dikti B) Volume 34 No. 1 (Juni) 2013.
- \_\_\_\_\_.2014. Kearifan Budaya Lokal Masyarakat Maritim untuk Upaya Mitigasi Bencana di Sumatera Barat, in Jurnal Antropologi Isu-Isu Sosial dan Budaya, ISSN 1410-8356, Volume 15 No. 1 (Juni 2014) 35-46
- \_\_\_\_\_.2014. Keseharian Isteri Nelayan: Studi Antropologi tentang Pola Nafkah Pada Komunitas Nelayan in Jurnal Antropologi Isu-Isu Sosial dan Budaya, ISSN 1410- 8356, Volume 16 No. 2 (Desember 2014) 116-132.
- \_\_\_\_\_. 2014. Studi Pengembangan Kelembagaan Berdasarkan Kultur Masyarakat Lokal Pada Kelompok Nelayan. Dalam Jurnal Antropologi: Isu-Isu Sosial Budaya, Volume 16, No. 2 (Desember 2014), 107-123
- \_\_\_\_\_.2015. "Marine Resource Concervation in West Sumatra, Indonesia" in International Indonesian Forum For Asian Studies, 29th September, 2015, FISIP Andalas University, Padang, West Sumatra, Indonesia