

Ikan Diniatkan and Ikan Larangan : Areas of Traditional Fish Cultivation in the Districts of Pasaman and Padang Pariaman, West Sumatra Province

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1. Introduction

Like several other provinces of Indonesia, West Sumatra is endowed with a number of open waters of various types. The open water area in West Sumatra amounting to 52 386 ha comprises rivers, swamps and lakes (West Sumatra Provincial Fisheries Service Office, 1995). Open water development in the Province of West Sumatra is directed at increasing fisheries production as well as developing tourist destinations. However, the existing open waters have not yet been optimally utilised. In general, open water utilisation in this province is still carried out traditionally, especially in certain areas of the river for cultivation. A certain part of the river's waters has been used for fisheries under regulations agreed to by the villagers. This practice has been in existence for a long time and such areas are known as Ikan Diniatkan and Ikan Larangan areas.

Fish cultivation in the Ikan Diniatkan and Ikan Larangan areas is carried out under certain rules such as harvesting time, prohibitions and sanctions. An area is established for Ikan Diniatkan and Ikan Larangan, usually 200 m to 1500 m away upstream and downstream of the rivers from the bench mark. The public facility usually used as the bench mark is a bridge. Fishing at the Ikan Diniatkan and Ikan Larangan area is conducted once or twice a year. Fishing is usually done on holidays, especially at the end of the fasting month and the Indonesian Independence day.

The field surveys have shown that villagers strictly obey the harvesting time that is specified. Their obedience is inspired by the charisma of village leaders as well as their own strong mystical beliefs. The villagers believe that fishing beyond schedule is a crime, and that the violator may become a victim of poisoning or suffer a digestive disorder. Actually, the Ikan Larangan area is a modification of the Ikan Diniatkan area. In general, there are no differences in the management of Ikan Diniatkan and Ikan Larangan. In the Ikan Diniatkan area, the obedience is based on a mystical belief. In the Ikan Larangan area, such obedience springs from villagers' conviction about the benefits of fish cultivation.

2. History of the Area

Written information about the activities of Ikan Diniatkan and Ikan Larangan areas is limited. This makes it difficult to find out when the two areas actually commenced. On the basis of interviews one could conclude that management of these areas started in 1769. According to the Provincial Fisheries Service Office of West Sumatra (1998), the number of Ikan Diniatkan areas has been decreasing during the past few years, while the number of Ikan Larangan areas has been increasing. The decline in numbers of Ikan Diniatkan areas may be because the number of village leaders with supernatural powers has decreased. Besides, they seem reluctant to practise their powers to open new Ikan Diniatkan areas. They worry about the safety of villagers who wish to prove the truth of their capabilities. On the other hand, Ikan Larangan areas have increased for two reasons. First, village leaders are willing to cultivate common carp (*Cyprinus carpio*) in the Ikan Larangan area. Second, managing the Ikan Larangan area is much easier since the local government provides support – it helps install signboards and notice boards and provides fish seed for stocking.

This study is based on field surveys, interviews with officers of the Provincial Fisheries Service Office of West Sumatra, the District Fisheries Service Offices of Padang Pariaman and Pasaman, and several village leaders managing the Ikan Diniatkan and Ikan Larangan areas in places such as :

Village of Pakandangan – sub-district of Perwakilan 2 x 11 Enam Lingkung - district of Padang Pariaman;

Village of Kinali – sub-district Pasaman, district Pusanan;

Village of Aur Malintang - sub-district of IV Koto Aur Malintang, district of Padang Pariaman;

Village of Lubuk Lundur – district of Padang Pariaman;

Village of Ambacang Anggang, sub-district Lubuk Sikaping – District Pasaman (see map).

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3. Organisation

The organisational structure of the Ikan Diniatkan is informal. It is usually managed by a single local religious or customary leader. The structure of the Ikan Larangan, on the other hand, is more formal. It is run by several officials: patron, founder, chairman, secretary and treasurer. The patron is a head of the sub-district, a chief of the military region, a chief of sector police. The founder is a consultative leader. A village head and a member of the social activities group in the village (LKMD) are selected as chairman and secretary respectively. The treasurers are usually a village leader and a youth organisation leader.

4. Operation

4.1 Type of fish species cultivated

Ikan garing (*Tor douronensis*) is usually cultivated in the Ikan Diniatkan and Ikan Larangan areas. The mature fish can grow to a length of 65 cm to 100 cm. The fish is an omnivore and eats insects, leaves, molluscs, etc. The habitat of Ikan garing consists of mountainous river waters whose characteristics are clear fast current (0.04 – 0.80 m per second) and sandy and rocky substrate. In such habitat, the fish in the Ikan Diniatkan and Ikan Larangan areas are generally clearly seen. Ikan Diniatkan and Ikan Larangan areas in some villages attract many tourists, domestic and foreign, especially during harvesting time.

Fish cultivation in the Ikan Diniatkan and Ikan Larangan areas is carried out by the villagers. The participation of the local government is limited to an extension programme on fish cultivation methods. The sustainability of the Ikan Diniatkan and Ikan Larangan areas is regularly supported by the villagers.

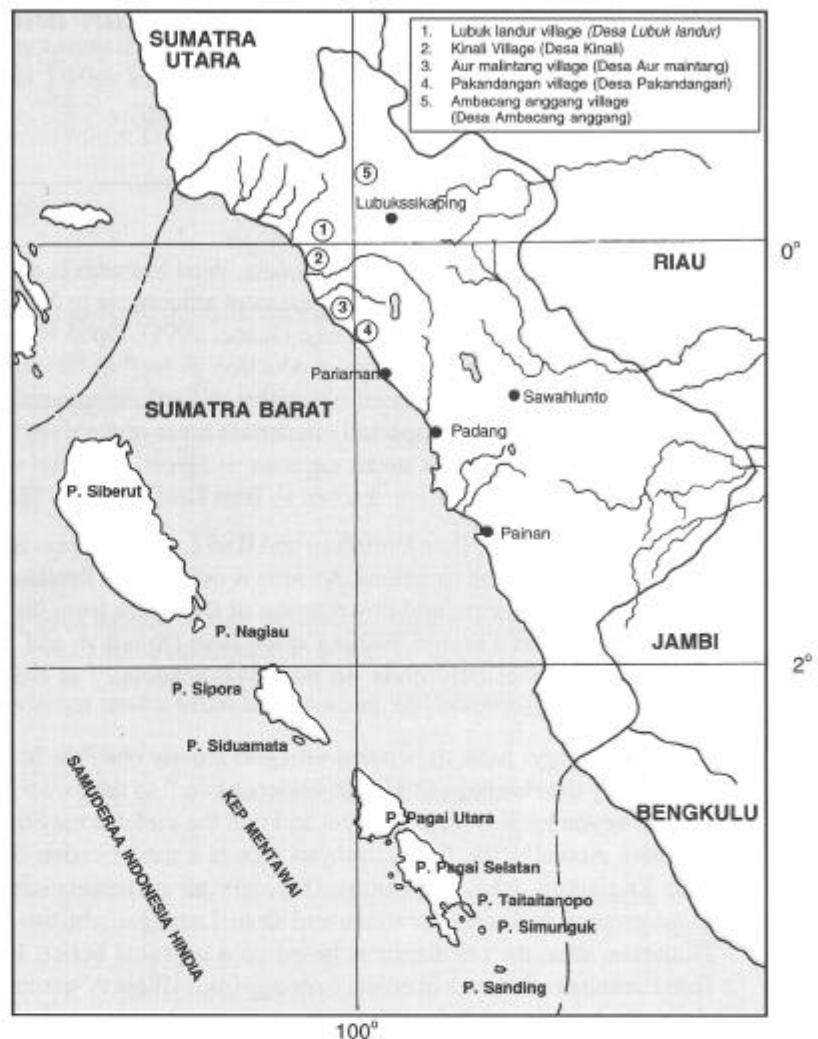
4.2 Schedule for open season

Harvesting of Ikan Diniatkan and Ikan Larangan areas is done only at certain times of the year, during national holidays and Moslem holidays. The survey shows that the Ikan Larangan area for cultivating common carp (*C. carpio*) is harvested once or twice a year while the Ikan Larangan area for cultivating native river fish species like Ikan garing is harvested only once. However, the frequency of harvesting every year depends on fish propagation and the growth rate as well as on the preferences of the villagers.

In Ambacang Anggang village, for example, harvesting usually starts a week after the Moslem festival day or precisely on the 8th of Syawal (one of the 12 months in the Islamic calendar). The aim is to end the festival on a happy note. Harvesting is carried out subsequently for seven days. Villagers who participate in the festival are charged only for the first day. On the following days, they may harvest the fish free of charge. The amount of fee depends on the fishing gear used. A person who uses a throwing net will be charged Rp 1 500. A scoop net is charged Rp 1 500 and a trap is charged Rp 2 500 per person. In the village of Aur Malintang the harvesting fee from certain areas of the river waters might be about Rp 300 000 per area.

Fish harvesting in the Ikan Diniatkan area can be carried out only when the village leader agrees to harvest the fish. Thus, harvesting time really depends on the village leader and is difficult to predict. In the Ikan Larangan area, the harvesting time is more certain, at least once a year.

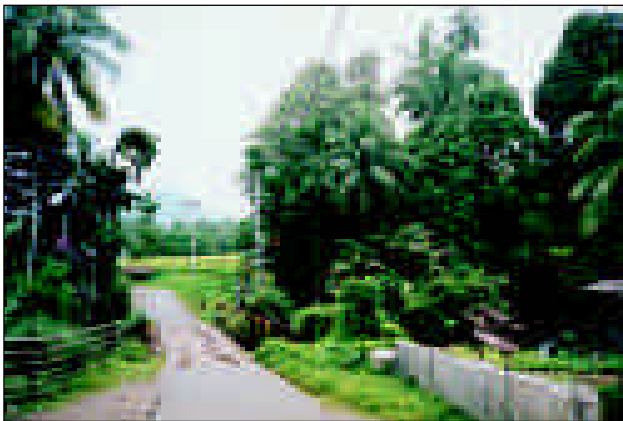
Map of field survey locations





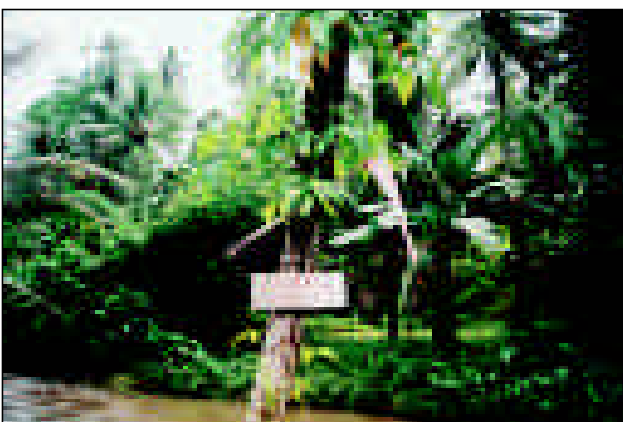
A religious leader (centre) manages Ikan Larangan - in the village of Pakandangan

A notification board of Ikan Larangan area in the village of Kinali



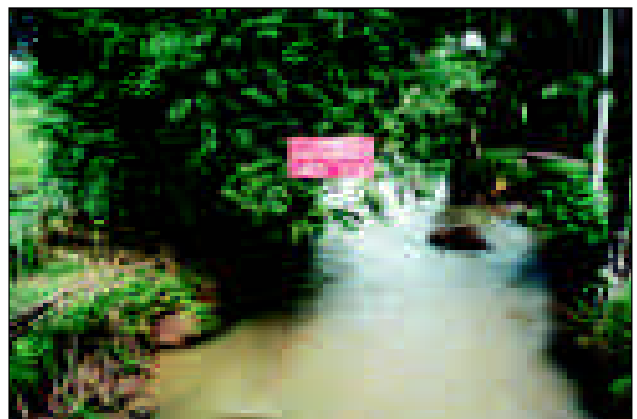
A benchmark – a public bridge – of Ikan Diniatkan in the village of Lubuk Landur

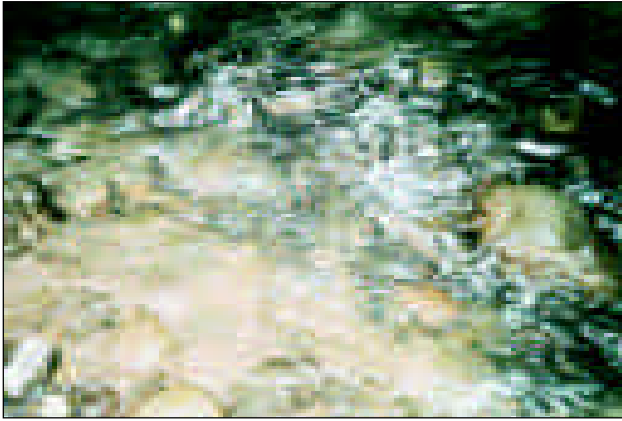
A notification board presents information on the site and the villager managing the Ikan Larangan area



A flag and a warning board – clear signs – mark the territorial limits of the Ikan Larangan in the village of Pekandangan

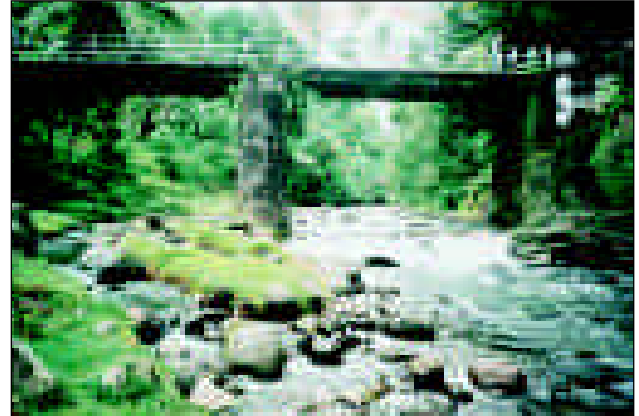
A notification board hung on a length of wire across the river, village of Kinali





A school of fish in Ikan Larangan area in the village of Aur Malintang

A bridge – the public facility usually used as the bench mark in the village of Aur Malintang



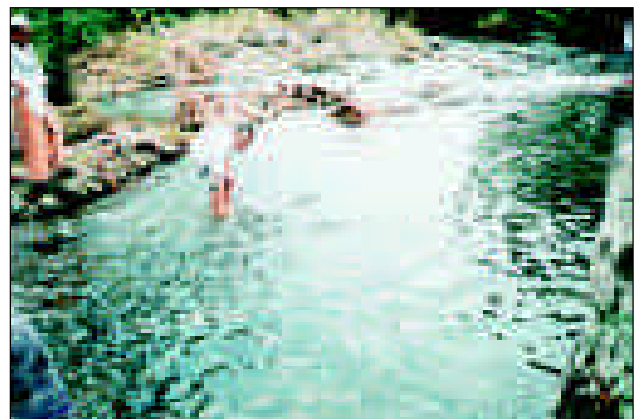
Hand feeding in Ikan Larangan area.

Ikan diniatkan area in the village of Lubuk Landur, managed by a religious leader



Ikan Larangan area in the villlage of Aur Malintang

Hand feeding. A school of fish comes and feeds on vegetables or fruits given by the visitors



The type of fish cultivated determines the quantity of fish that can be harvested from the Ikan Larangan area. Example: in the Ikan Larangan area of the village of Pekandangan, and in the village of Ambacang, common carp can be completely harvested. Some of the money earned from the harvesting is allocated to buy fish seed for restocking. In the Ikan Larangan area in the village of Aur Malintang, Ikan garing can be harvested only in a certain quantity.

The types of fishing gear permitted to be used during harvesting, either in the Ikan Diniatkan or Ikan Larangan areas, are those that do not harm the environment – such as fishing rod and throwing net. The yields from each area vary, and are usually around 1-5 tons.

4.3 Schedule for closing season

The closing season is determined through a consultative meeting among religious leaders, customary leaders and village government officials. The announcement about the closing season is conveyed to the villagers at the mosque.

4.4 Yield and revenue

The fishing fee proceeds are used for community improvement projects such as repair, maintenance and construction of bridges, mosques, schools, community halls, etc. The money is kept in the local treasury. Any unsold fish is usually distributed to the villagers for consumption.

4.5 Prohibitions and sanctions

Prohibitions and sanctions in the Ikan Diniatkan and Ikan Larangan areas are as follows:

- No fishing beyond the schedule

- No fishing with fishing gear and fishing methods that are toxic, contain explosive materials, use electrical power, etc.

- Material and moral punishment for breaking the rules

In the Ikan Diniatkan area, there is no specific type of sanction on villagers for harvesting beyond schedule. Their obedience is dictated by belief in the mystical powers of the village leaders.

In the Ikan Larangan area, sanctions for breaking the rules are formulated by the religious leader, customary leader and the villagers. Although in some places the sanctions are not set out in writing, the villagers are aware about them. The sanctions can be divided into material and moral punishment. Material punishment or fine is in the form of livestock, building materials, etc. Example: use of fish rods may be fined with three bags of cement. Fishing with a throwing net may attract a fine of 10 to 30 bags of cement. Moral punishment is in the form of banishment. The villagers consider it more severe than material punishment.

Field surveys show that infringement of rules is rare. Sometimes there is no infringement at all. This is because the villagers are scared of losing face if they break the rules. Besides, the villagers have a feeling of “ownership” about the Ikan Larangan and Ikan Diniatkan and want to keep the areas clean.

4.6 Signs to mark territorial limits

Clear signs mark the territorial limits of the Ikan Diniatkan and Ikan Larangan areas. In the Ikan Diniatkan area, the territory has natural boundaries understood only by the local villagers. These territorial boundaries include bridges, big trees, boulders and waterfalls without any warning signs. In the Ikan Larangan, the areas are marked with natural boundaries and also with artificial territorial boundaries such as flags, announcements and warning signs.

Flags used as markers in the Ikan Larangan area are usually made from red-coloured cloth of size 670 x 40 cm². The red flag serves as a marker and also as a warning to the villagers and visitors that the area is being guarded. The flag is normally tied up in a piece of wood and secured to a big tree so that it can be easily seen. The notification board usually presents information about the village where the Ikan Larangan area is located, and gives the name of the villager who manages the area. A notification board of size 80 x 50 cm² is hung on a length of wire across the river. The warning sign is usually placed on the edge of the river. It details the rules and the sanctions consequent to breaking of rules in the Ikan Diniatkan area.

The survey shows that Ikan Diniatkan and Ikan Larangan areas are generally located near places that are always visited by villagers – such as a traditional Moslem school, a big mosque and the village head office.

Fish cultivation is usually concentrated in the river water near a bridge. The site is selected for easy control, harvest and post-harvest activities. In the Ikan Diniatkan and Ikan Larangan areas, fishing activities cannot be carried out until the harvesting time is determined.

4.7 Impact of the Areas on the Villagers

Field observation shows that the management of the Ikan Diniatkan and Ikan Larangan areas has a positive impact on the villagers. Some of the benefits from the system are:

Fisheries resources in the open waters are kept sustainable. Natural resources can be protected from over-exploitative methods such as use of explosive materials, toxic substances and nets of small mesh-size.

Increasing fisheries resources utilisation through increase in fish production and fish protein consumption.

Facilitating brotherhood among the villagers. They believe that they should be able to live in harmony like the fish schools in the water.

Serving as a tourist attraction for domestic and foreign tourists.

Generating income for villagers who manage the Ikan Diniatkan and Ikan Larangan area. Visitors create opportunities for the villagers to sell various items of merchandise including fish meal made from boiled ground peanuts.

Promoting the idea of fisheries regulation for the public benefit. The benefits obtained by villagers make this area a good one for promoting fisheries laws and regulations.

It seems that the villagers support continuity of management of the Ikan Diniatkan and Ikan Larangan areas because of the benefits they provide to the villagers. Nickersen et. al (1996) and Hotta (1998) said the users of the resources must see a benefit from the resources before they are motivated to comply with the rules.

5. Local Government Support for Development Areas

Interviews reveal that the local government has not yet provided technical guidance in writing about managing the Ikan Diniatkan and Ikan Larangan areas. However, many activities geared towards managing these two areas have been implemented. These activities include:

Providing fish seed free of charge

Installing markers for territorial boundaries

Installing notification boards

Developing the Ikan Diniatkan and Ikan Larangan areas as tourist attractions

6. Conclusions

The role of customary institutions, informal leaders, villagers and village institutions is dominant while enforcing laws and regulations in the Ikan Diniatkan and Ikan Larangan areas. The sustainability of the Ikan Diniatkan and Ikan Larangan areas is determined by the villages through the institution of customary leaders. Observations show that Ikan Diniatkan and Ikan Larangan areas form clear territorial boundaries which are recognised by the villagers. The management of the Ikan Diniatkan and Ikan Larangan areas is supported by the community because of its positive impact on villagers' prosperity.

Generally, the management systems in these two areas have been in force for a long time and have passed from one generation to another. The system is efficient and effective – and still exists. The local government has also provided same technical assistance to improve management in the two areas.

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