

# Sustainability Effort of Traditional “Lubuk Larangan” Forbidden Deep Pool Stream

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**Abstract:** This research paper sought the river fish conservation data in Sumatra Island, which applies the local wisdom. An exploration research procedure was carried out toward the traditional “Lubuk Larangan”; a forbidden deep pool stream in preserving the river’s ecology and keep fish stock. The obtained data indicates that Lubuk Larangan cultural tradition revives since 1980. Now many villages in Sumatera have Lubuk Larangan Locations. Locations are scattered in the four provinces of Sumatera, such as West Sumatra, Jambi, Riau and North Sumatra. Data analysis shows that the merged of cultural tradition of Minangkabau of West Sumatra with innovation in handling Lubuk Larangan appeared and the Mandailing community of North Sumatera makes the local concession to improve Lubuk Larangan policy. The local community establishes Lubuk Larangan to restore the destructed environment and keep the life cycles of river fish. It is a sustainability way to overcome the exceeded fishing exploitation in the rivers.

**Keywords:** sustainability; Lubuk Larangan; fish stock; living cycles; river’s ecology

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## 1 Introduction

Cultural tradition could be concerned with values and social practices that save people and environment. One of the traditional practices in dealing with the environment is to keep the stock of river fish for the future. Lubuk Larangan is a unique cultural tradition in Sumatra of Indonesia. It such as prohibited deep pool stream to sustain fish stock. Local people call it "Lubuk Larangan". As a forbidden location to catch fish for a certain period, it teaches the society to sustain the fish stock for the future and protect the stream's environment.

The revival of local knowledge to preserve the river’s ecology and fish breeding support the sustainability effort. In practice the conservation could adapt to the cultural tradition of ethnic groups. Local wisdom is often used as the knowledge of the conservation of water resources. In practice, Lubuk Larangan in Sumatra Island sustains the river's ecology's natural resource [1]. This kind of sustainability tradition is both for controlling the over exploiting the fish stock and regulate the mechanisms distribution of natural resources.

Establishment of Lubuk Larangan has the head of the village organises the

community's members positions, task and obligatory. The village council makes sure the river's physical conditions for the preservation of the Lubuk Larangan [2]. Village council also creates the Team to find the best fit area for Lubuk Larangan. A survey of location is carried out prior to community members sharing at a meeting, and it helps to members of the meeting to have a consensus. It notes that Lubuk Larangan needs the affecting factors [3] before the meeting among the community-arranged. It is known that a Lubuk Larangan construct involves the sharing information in the community which is useful for determining a banning fishing [4] location. It noted that the ecological and social considerations [5] also are needed to meet the intentions among the participants. It found that Lubuk Larangan has changed from the past to the present time [6]. It may have an innovative model and policy of Lubuk Larangan.

## 2. Problem Statement

Based on the indigenous wisdom of communities in Sumatra Island of Indonesia in sustainability of fish stock, this research has two problem statements;

1. How do the local communities use the local knowledge to protect the river's ecology and freshwater fish living cycles?

2. Does the Lubuk Larangan tradition of communities in preserving the freshwater fish contribute significantly to sustainability of rivers and the potential natural resources ?

### 3. Method

This study applied an exploration research procedure in seeking the data on fish preservation through Lubuk Larangan. The study covered the organisers whose have a great variety of handling techniques for Lubuk Larangan conservation management and the application of the local wisdom. The indigenous knowledge derive the local communities to establish of Lubuk Larangan become the target of this study. It took four provinces as samples; West Sumatera, Jambi, Riau and North Sumatera. To complete the details of data gathering, it considered the ecological aspect of fish life cycles [7] and social practices in community. The rapidly changes in the environment that driven by economic purposes [8] and the effectiveness of local wisdom in the establishment of Lubuk Larangan to protect the river's ecology and keep the life cycles of fish have been used to interpret the data analysis.

### 4. Data Finding

Lubuk Larangan in Sumatera Island is the manifestation of local wisdom to protect river's ecology and keep the river fish stock. Four Provinces in Sumatera have many locations of Lubuk Larangan to stop the river's environment destruction and keep the fish stock. It is such a sustainability effort of local community in

Sumatera Island to avoid the distinguished of river natural resources for food and water supply. Lubuk Larangan is usually located in a river recessed, and it is a place for fish to spawn. The Village Council restricts the fishing activity in specific locations for 8-12 months [9]. It found that the fishing activity in the isolated location to make the breeding of fish better and it saves the natural resources for future use.

**Table 1. Lubuk Larangan in Sumatera and Rivers**

No.	Regions	Rivers
1.	Pesisir Selatan, West Sumatera	Kapalo Banda River
2.	Koto Tarusan, West Sumatera	Tarusan River
3.	Lima Puluh, West Sumatera	Talagiri, Manggilang, Kapur Rivers
4.	Dharmasyara, West Sumatera	Ngalau Angung River
5.	Lingo Sari, West Sumatera	Punggasan River
6.	Lubuk Beringin, Bungo, Jambi	Aliran River
7.	Kampar, Riau	Subayang
8.	Mandailing Julu, North Sumatera	Batang Gadis River
9.	Panyabungan, North Sumatera	Aek Pohon River

Source: Wikipedia

Village Council determines Lubuk Larangan location which makes the community and outsiders are forbidden to catch the fish for a year. Lubuk Larangan as a social practice of nature protection [10] and its fish stock which support the sustainability of nature for human life. It is a application of local knowledge to sustain the river's ecology. It the social practice of the local wisdom to support the Sustainability of Millennium Goals.

The Lubuk Larangan establishment takes a solid agreement of local community. The preserved fish stock in Lubuk Larangan in the Kampung Surau, Dharmasraya Regency of West Sumatera Province [11] community members made an agreement. Community named it Lubuk Larangan Ngalau Agung. People in Koto Kandis Village of Lengayang District in Pesisir Selatan Regency of West Sumatera [12] have practised the Lubuk

Larangan tradition for many years. The community has the rivers as the life resources and made them as Lubuk Larangan [13] for preservation. Lubuk Larangan is based on local wisdom is to the damaged restore environment [14]. Additionally, Kampung Koto Kandis of West Sumatra is understood Lubuk Larangan as a form of river protection and fish preservation. Scarce local fish [15] is protected in Lubuk Larangan. Village Council invited the communities' leaders to determine the locations must isolated from fish catching for a certain period [16 & 17].

Protect the river's ecology and sustain the water fish stock for future with Lubuk Larangan takes a local wisdom; it has a legal entity and mutually agreed upon by the leaders' regulations in the river area. In Minangkabau of West Sumatera, the mutual agreement includes Ninik Mamak (elderly and uncles), Village Government and Youth Organization. Application of new technology together with local village policy makes the effectiveness of Lubuk Larangan Model in four provinces of Sumatra, Indonesia.

#### **4. 1. River Fish Life Preservation**

Conservation of river fish life plays an important role to sustain food resource. Lubuk Larangan practices are designed for the river fish life preservation. Thus, Lubuk Larangan in Sumatera has revived since 1980. It rises local pride of community of forbidden deep pool stream model to sustain fish stock. The conservation of the freshwater fisheries as food is essential to stop the over-exploitation of the food source from fish stock.

In an ecosystem model it takes the protection and conservation [18]. It is highly recommended to apply a model of conservation for food resources. Conservation involves the social practices and new innovative tools. It found that Lubuk Larangan tradition in Sumatra also has proximity with the social practices and

community belief; as in the Islamic religion teaching to keep natural harmony and it prohibits the exploitation of natural resources that make environment damaged. Since the communities around the locations are Muslim, it found that the Islam's teaching taught them to save the environment from damages of human hands.

Lubuk Larangan for the freshwater fishes protection shows the similarity model with biodiversity protection [19]. Lacking of modern facilities to reach Lubuk Larangan made the sustainability of fish breeding to be ignored for long time. Local communities now could create the network of transactions of fish into national and international markets with information technology. Lubuk Larangan tradition may promote the locations as tourism destinations in Sumatera Island. Many studies stated that the some of local communities do not connect the transactions of fishes to outside regencies. It found that some the fish trade transactions are limited only to local in level [20]. Some experts reported that local fish contribution is great, however the transactions recorded often ignored by central government.

**Table 2. Types of Fishes in Lubuk Larangan**

No	Location	Local Label	In Latin	Ordo	Family
1.	Pesisir Selatan, West Sumatera	Garing Fish	<i>T. tambroides</i>	Cypriniformes	Ciprinidae
2.	Lubuk Beringin, Jambi	Semah Fish	<i>Tor putitora</i>	Cypriniformes	Ciprinidae
3.	Lima Puluh, West Sumatera	Dalum Fish	<i>Bagarius Yerelli</i>	Siluriformes	Bagarius
4.	Dharmasyara, West Sumatera	Belido Fish	<i>Chitala</i>	Osteoglossiformes	Notopteridae
5.	Kampar, Riau	Tilan Fish	<i>Mastacembelus Argus</i>	Synbranchiformes	Mastacembelidae
6.	Koto Tarusan, West Sumatera	Batu Fish	<i>Synanceia verrucosa</i>	Scorpaeniformes	Synanceiidae
7.	Lengayang, West Sumatera	Barau Fish	<i>Hampala macrolepidota</i>	Cypriniformes	Cyprinidae
8.	Lingo Sari Beganti, West Sumatera	Baung Fish	<i>Bagarius rutilus</i>	Siluriformes	Bagarius
9.	Mandailing Natal	Bajubang Belang Fish	<i>Chromobotia macracanthus</i> Bleeker	Cypriniformes	Cobitidae

#### 4.2. Sustainability of Fish Resources

Sustainability of the river environment and water fish plays an essential role for the people who live near the rivers. For Sustainability Development for Millennium Goals, some natural resources problems may concern fish protection and environmental conservation. A traditional Lubuk Larangan of Sumatra Island of Indonesia is technical to protect the damaged environment and keep the living cycles of water fish in the streams. This tradition keeps the sustainability of fish living for the future. Lubuk Larangan is a way of sustaining fish resources.

The pros and contrast of fish conservation have made a long debates [21, 22 23, and 24]; they have the issues of over-exploitation, ecosystem modifications, and conflicts. A long term project of fish sustainability [25] for conservation needs a careful consideration[26]. Sustainably touches economic, political and industry aspects. In addition to sustainability and other environmental concerns [27], the Lubuk Larangan is derived from the local system of having a preservation model. It has great potential for fish stock management.

Fish sustainability projects could help the balance of ecological systems of river environment. A sustainability technique deals with many procedures such as the spatial scale of commercial fishing processes[30]. Lubuk Larangan in Sumatera Island deals with the ecology that leverage the socioeconomic factor [30 and 31] of local communities. Pros and contra appear in establishing the Lubuk Larangan; it makes the organisers should negotiate the conflicts [32] among the community for reduction of exploitation and applied conservation projects.

It found that the local community has an effective model of preserving the river's ecology and fish life cycles with Lubuk Larangan. Sustain the ecosystem of fish in Lubuk Larangan and get improved ecology of rivers force the organisers of Lubuk Larangan in Sumatera to have advances the procedures of preservation. It is a predictive model that has been run in many locations. The number of fish, breeding technique, feeding system and protection procedures have been made in a minimum standard. It already adopted the ecological way and it is a local community effort to stop the over-exploited river resources. Lubuk Larangan villages could overcome the

climate change problem in Sumatera Island. Communities implement the sanctuary procedure, and also apply the ritual activity for specific conditions. It is often the organisers make the collaborative network with leaders and security forces for having better protection.

## 5. Conclusions

Data interpretation gives two conclusions:

(1). A traditional Lubuk Larangan has a significant impact on the fish stock for the

future. A Lubuk Larangan is a traditional model that protects the stock of water fish and gives a knowledge of the sustainability of ecological system surround the river areas. It is a cultural form to preserve the scarce fishes due to the less protected.

(2). This research teaches us that a traditional way of preserving the river environment and keeping the living cycles of river fish for future can be combined with innovation in growing fish and protecting the environment by using fishery tools.

## References

- Management in Lima Puluh Kota Reg, 115–125. 2014.
- [1]. Dwi S., & Rachmad, K. *Sosiologi Lingkungan*. Jakarta: Rajawali Press. 2012.
- [2]. Hendrik. Ikan larangan sebagai bentuk kearifan lokal dalam pemanfaatan sumber daya perairan umum: Studi kasus pada beberapa Nagari di Sumatera Barat. *Berkala Perikanan Terubuk*, 35(1), 27–36. 2007.
- [3]. Oktaviani, D., Dharmadi & Puspasari, R. Upaya konservasi keanekaragaman hayati ikan perairan umum daratan di Jawa. *J.Kebijak.Perikan.Ind.* 3(1), 27–36. 2011.
- [4]. Oktaviani, D. Eko P. & Reny P. Strengthening Of Local Wisdom As The Basis Of Inland Fisheries Management In Sumatra. *Jurnal kebijakan perikanan indonesia*, 8(1), 1–12. 2016.
- [5]. NHS. *Our Dorset Sustainability and Transformation Plan for local health and care*. National Health Service Dorset Clinical Commissioning Group: Dorchester. 2015.
- [6]. Yuliaty, C., & Priyatna, N. Local Community Knowledge Dynamics of Inland Fisheries Resources
- Management in Lima Puluh Kota Reg, 115–125. 2014.
- [7]. Lynch, A. J., Cooke, S. J., Deines, A. M., Bower, S. D., Bunnell, D. B., Cowx, I. G., Beard, T. D. *The social, economic, and environmental importance of inland fish and fisheries*. Environmental. 2016.
- [8]. Andrew, N. L., Béné, C., Hall, S. J., Allison, E. H., Heck, S., & Ratner, B. D. Diagnosis and management of small-scale fisheries in developing countries. *Fish and Fisheries*, 8, 227–240.  
<https://doi.org/10.1111/j.1467-2679.2007.00252.x>. 2007.
- [9]. Kurniasari, N., Yulisti, M & Yuliaty, C. Lubuk larangan: Bentuk perilaku ekologis masyarakat lokal dalam pengelolaan sumber daya perikanan periaran umum daratan (tipologi sungai). *J.Sosek. KP.* 8(2), 241 – 249. 2013.
- [10]. Kosmaryandi, N. Kajian Penggunaan Lahan Tradisional Minangkabau Berdasarkan Kondisi Tanahnya (Study of Minangkabau Traditional Land use Based on Its Soil Condition). *Media Konservasi*. 10(2), 77– 81. 2005.
- [11]. Pawarti, A. Purnaweni, H. & Anggoro, D.D. *Nilai Pelestarian Lingkungan dalam Kearifan Lokal*

- Lubuk Larangan Ngalau Agung di Kampuang Surau Kabupaten Dharmasraya Provinsi Sumatera Barat*. Prosiding Seminar Nasional Pengelolaan Sumberdaya Alam dan Lingkungan Semarang, 11 September 2012.
- [12]. Lestari, F.S. Paus I., & Yudi A. *Lubuk Ikan Larangan Sebagai Bentuk Kearifan Lokal Di Kampung Koto Kandis Kecamatan Lengayang Kabupaten Pesisir Selatan*. Jurnal Unpublished. Geografi Fakultas Ilmu Sosial Universitas Negeri Padang. 2017.
- [13]. Sari, D. I. J. Pengelolaan Lubuk Larangan sebagai Upaya Konservasi Perairan di Desa Rantau Pandan Kabupaten Bungo Jambi. *Dinamika Lingkungan Indonesia*, 9-15. 2016.
- [14]. Firdaus, M. Pengelolaan Sumberdaya Ikan Sungai. *Marina*, 35-45. 2015.
- [15]. Veraliza, Z., Saam & Thamrin. Manajemen Kearifan Lokal Lubuk Larangan Desa Pangkalan Indarung Kabupaten Kuantan Singingi Provinsi Riau. *Jurnal Ilmu Lingkungan*. 8(2), 180 – 196. 2014.
- [16]. Yuliaty, C., N. Kurniasari & M.Yulisti. *Lubuk Larangan Anak Nagari: Studi Bentuk Kearifan Lokal di Kabupaten Lima Puluh Kota*. Prosiding Konferensi Nasional (KONAS) VIII Pengelolaan Sumber daya Pesisir, Laut, dan Pulau-Pulau Kecil, Mataram, 22-24 Oktober 2012, ISBN : 978-979-3556-91-8. 2012.
- [17]. Kawarazuka, N., & Béné, C. The potential role of small fish species in improving micronutrient deficiencies in developing countries: Building evidence. *Public Health Nutrition*, 14, 1927–1938. 2011.
- <https://doi.org/10.1017/S1368980011000814>
- [18]. Phang, S.C. Cooperman, M. Lynch, A.J. Steel, E.A. Elliott, V. Murchie, K.J. Cooke, S.J. Dowd, S. & Cowx, IG. Fishing for the conservation of tropical freshwater fishes in the Anthropocene. *Aquatic Conserv: Mar Freshw Ecosyst*. 2019; 29:1039–1051. 2019.
- [19]. Cinner, JE, Marnane, MJ & McClanahan, TR. Conservation and community benefit from traditional coral reef management at Ahus Island, Papua New Guinea. *Conservation Biology* 19: 1714–1723. 2005. DOI: <https://doi.org/10.1111/j.1523-1739.2005.00209.x-i1>
- [20]. Pauly, D. Christensen, S. Guenette, T.J. & Pitcher, U.R. Toward Sustainability in World Fisheries. *Nature* 418: 689-695. 2002.
- [21]. Ariadno, M.K. Sustainable Fisheries In Southeast Asia. *Indonesia Law Review*, 1(3), September - December 2011
- [22]. Costello, C, Gaines, SD & Lynham, J. Can catch shares prevent fisheries collapse? *Science* 321: 1678–1681. 2008. DOI: <https://doi.org/10.1126/science.1159478>
- [23]. Pauly, D. Major trends in small-scale fisheries, with emphasis on developing countries, and some implications for the social sciences. *Maritime Studies (MAST)* 4: 7–22. 2006.
- [24]. McCormack, F. *Private Oceans: The enclosure and marketisation of the seas*. Pluto Press: London. 2016.
- [25]. Adam, T.C., Schmitt, R.J., Holbrook, S.J., Brooks, A.J., Edmunds, P.J., Carpenter, RC & Bernardi, G. Herbivory, connectivity,

- and ecosystem resilience: Response of a coral reef to a large-scale perturbation. *PloS One* 6: e23717. 2011. DOI: <https://doi.org/10.1371/journal.pone.0023717>
- [26]. Bell, E, Lawler, A, Masefield, R, McIntyre, R. & Vanstaen, K.R. *Initial assessment of Scallop stock status for selected waters within the Channel 2016/2017*. Centre for Environment, Fisheries & Aquaculture Science: Lowestoft, UK. 2018.
- [27]. Beckerman, W. ‘Sustainable development’: Is it a useful concept? *Environmental Values* 3: 191–209. 1994. DOI: <https://doi.org/10.3197/096327194776679700>
- [28]. FAO. *The State of World Fisheries and Aquaculture 2018 – Meeting the sustainable development goals*. Food and Agriculture Organisation: Rome. 2018.
- [29]. Du Pisani, J.A. Sustainable development – historical roots of the concept. *Environmental Sciences* 3: 83–96. 2006. DOI: <https://doi.org/10.1080/15693430600688831>
- [30]. Beaugrand, G & Kirby, RR. Climate, plankton and cod. *Global Change Biology* 16: 1268–1280. 2010. DOI: <https://doi.org/10.1111/j.1365-2486.2009.02063.x>
- [31]. Poore, J. & Nemecek, T. Reducing food’s environmental impacts through producers and consumers. *Science* 360: 987–992. 2018. DOI: <https://doi.org/10.1126/science.aag0216>
- [32]. Stafford, R. Sustainability: A flawed concept for fisheries management? *Elem Sci Anth*, 7: 8. 2019. DOI: <https://doi.org/10.1525/elementa.346>

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