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Dr. Nurhidayah, S.Si., M.Si.
NIP. 080 124 157

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DEPARTEMEN KELAUTAN DAN PERIKANAN
BADAN RISET KELAUTAN DAN PERIKANAN
BALAI RISET PERIKANAN PERAIRAN UMUM

Jalan Beringin No.308, Mariana, Palembang
Telp : (0711) 537194; Fax : (0711) 537205
e-mail : fpui_brppu@yahoo.com; brppu_palembang_dkp@yahoo.co.id

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Demikianlah atas partisipasinya, kami ucapkan terima kasih.

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November 2008

DOMESTICATION OF FRESHWATER PUFFER FISH OR BUNJAI (*Tetraodon lineatus*)
(Mujun Subandi and Tony Murti)

STATUS OF DEVELOPMENT OF THE FISHERY OF BAN PALMAS

International Conference on Indonesian Inland Waters

Proceeding

Palembang, November 17-18th, 2008

DISTRIBUTION AND POTENTIAL
OF BANGKONG FISH AND MUDPUP

EVALUATION OF WATER QUALITY AT BUNDIRJANDA RESERVOIR, JATILUNGGA IN TWO
DECADES (1984-2004)

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REVIEW OF LAKE LIMOU CONDITION

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- Address : Research Institute for Inland Fisheries
Jln. Beringin no. 308 Mariana-Palembang-30763
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E-Mail: brppu_palembang_dkp@yahoo.co.id; brppu@dkp.go.id
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DOMESTICATION OF FRESHWATER PUFFER FISH OR BUNTAL (<i>Tetraodon palembangensis</i>) <i>I Wayan Subamia and Nina Meilisza</i>	A-113
STAGES OF DEVELOPMENT OF THE EMBRYO OF IKAN PALMAS (<i>Polipterus senegalus senegalus</i>) <i>I Wayan Subamia, Media F.I.Nugraha, Slamet Sugito</i>	A-119
DISTRIBUTION AND POTENTION OF FAMILY COBITIDAE IN MUSI RIVER, SOUTH SUMATRA <i>Ni Komang Suryati and Masayu Rahmia Anwar Putri</i>	A-125
EVALUATION OF WATER QUALITY AT IR H DJUANDA RESERVOIR, JATILUHUR IN TWO DECADES (1984-2004) <i>Krismono, Lismining Pujiyani Astuti, and Andri Warsa</i>	A-131
REVIEW OF LAKE LINDU CONDITION <i>L u k m a n</i>	A-139
COMPOSITION AND ABUNDANCE OF MAKROZOOBENTOS IN MANGROVE AREA OF TANJUNG API-API BANYUASIN RESIDENCE <i>Riris Aryawati and Fitri Agustriani</i>	A-149
PATTERN OF FISH DISRIBUTION IN RIVER AND IT'S RELATIONSHIP WITH BIOTIC AND ABIOTIC FACTOR OF WATERS <i>Safran Makmur and Dwi Ismeywati</i>	A-153
THE BIOLOGICAL CHARACTERISTICS AND HABITAT OF THE ARCHERFISH (<i>Toxotes microlepis</i>) IN MUSI RIVER, SOUTH SUMATRA <i>Siswanta Kaban</i>	A-159
DISTRIBUTIONS OF SPATIAL SEDIMENT AND WATER QUALITY, INFLUENCE TO PREDATOR AND NON PREDATOR FISH IN DOWNSTREAM MUSI RIVER, SOUTH SUMATRA <i>Siswanta Kaban</i>	A-165
LONGITUDINAL DISTRIBUTION OF TOTAL SUSPENDED SOLIDS CONTENT IN MUSI RIVER, SOUTH SUMATERA <i>Siswanta Kaban and Husnah</i>	A-169
RESTORATION OF A RIVER HAS TO CONSIDER ITS ECOLOGY FUNCTION <i>Siti Masreah Bernas</i>	A-175 ✓
ESTUARINE FISHERIES CONDITION AND THE DEVELOPMENT OF THE MANAGEMENT AROUND KLABAT BAY, BANGKA BELITUNG PROVINCE, INDONESIA <i>Sulastri, D.I. Hartoto, Sekar Larashati and Sugiarti</i>	A-179
SPATIAL AND TEMPORAL DISTRIBUTION OF PHYTOPLANKTON AT CIRATA RESERVOIR IN RELATION TO AQUATIC PRIMARY PRODUCTIVITY <i>Zahidah Hasan</i>	A-191

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RESTORATION OF A RIVER HAS TO CONSIDER ITS ECOLOGY FUNCTION

Siti Masreah Bernas *

ABSTRACT

One of the topics to conserve ecosystem is to restore river naturally. Restoration is the process of returning damaged river ecosystem to its condition prior to disturbance. Restoration of river should be based on its function, it means to return the river condition (physic and biology) and as a natural condition as part of watershed or flood plain areas. Some rivers were just as waterways in Japan before the year of 1900, but those conditions are changed nowadays. Itachi, Hikiji, Izumi and Matsue Hori rivers have been restored and have increased ecological condition. The restoration was based on consideration of flora and fauna life, thus rivers were constructed by laying some rocks or stone, grow wild plants, and leave some space at the edge of the river before concrete wall. Then function of the river is also for a recreation site. In Palembang City, we have not considered a river as part of an ecosystem, the river is just as a drainage system, for example: Sekanak River. Actually, this way of thinking has to be changed before it's too late. There is one river in Palembang (exactly in "Taman Purbakala Karang Anyar"), where its condition is ecologically good. It is showed by many living creatures such as fresh water shells, fishes, shrimps, crabs and flora in the river (field investigation). Thus this river may be used as a good example in order to restore the river ecologically. But further physical and biological investigations are needed to make a river not just as part of ecosystem but also as a domestic need and recreation place for our future generation.

INTRODUCTION

South Sumatra is popular with Musi as a big and long river, which has many arbutuaries from small to big rivers. Those big rivers are Lematang, Ogan, Lakitan, Keramasan, Bintlialo, Komereng, Rupit, and Kelingi. Almost all of the rivers comes from highland (mountain and hill area) which is called "Bukit Barisan" and down to Musi River.

There are also many small rivers such as Sekanak, Bendung, Sahang *etc.* in Palembang City, however those rivers function have change from river function to drainage system, and which collect all water running water, rainfall and domestic waste. That why water quality is poor and its shape is not as natural river but its just as a drain ridge or just like cannal. Actually beside water quality, a river is needed to be restored as part of ecosystem.

Restoration is the return of an ecosystem to a close approximation of its condition prior to disturbance. In restoration, ecological damage to the resource is repaired. Both the structure and the functions of the ecosystem are recreated (Cairns 1991).

Many rivers were just as drain function in Japan at 1970 but since 1997 river restoration were done and had been returned as natural condition which are safe for human, fish, flora and water fauna, for example Matsue Hori River, Izumi, dan Itachi (Maeda, 1991).

Nowadays, the river restoration is really important to consider safe environment and especially where there are many rivers in the city such as in Palembang. Those rivers should be restored not just for draining water but also for estetica and ecology.

This paper is to evaluate two rivers condition in Palembang and compare to some restored rivers in Japan.

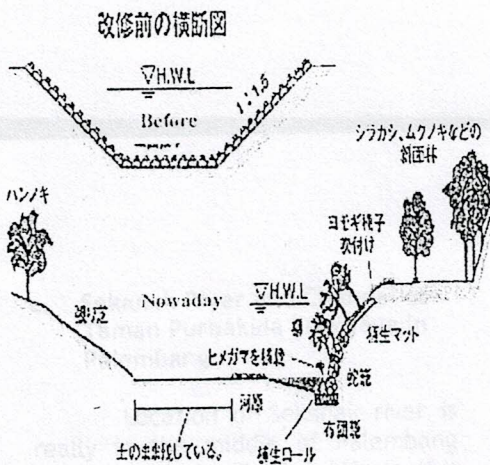
RESULTS AND DISCUSSION

a. Hikiji River Restoration In Japan

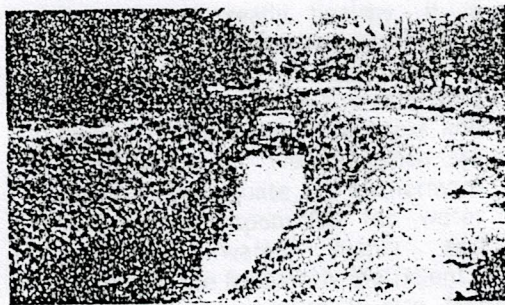
There are two rivers (Hikiji and Itachi) in Japan which can be used for consideration in river restoration. In 1900, Japan government restored rivers just for drain water and just to maintain river bank against erosion. At this time, they did not consider ecology of river, where rivers are place for many creature and plants, for laying egg, nursery, and growing. So they need rock, sand, plant in the river.

They realized river condition deteriorated in quality and quantity. Thus they repaired the rivers by considering ecology function in 1990's (Maeda, 1991). Then river was restored by growing plant, putting some rocks on the river base and at the edge of river, widening the corridor of river (see Picture 1, 2 and 3).

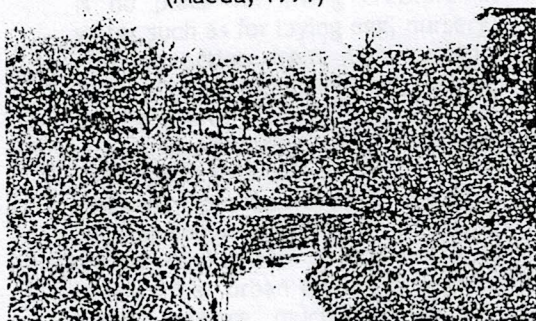
* Soil Science Program Study and Land Management Field of Study, Pasca Sarjana, Agricultural Faculty, University of Sriwijaya



Picture 1. Revetment protected verbank and riverbed of Hikiji Maeda, 1991).



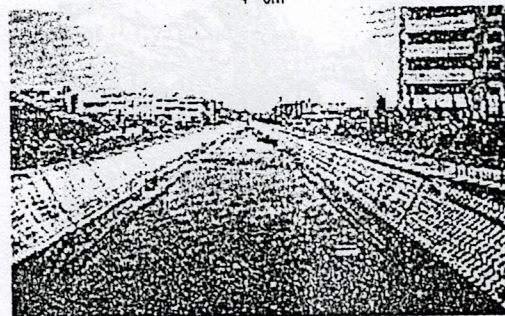
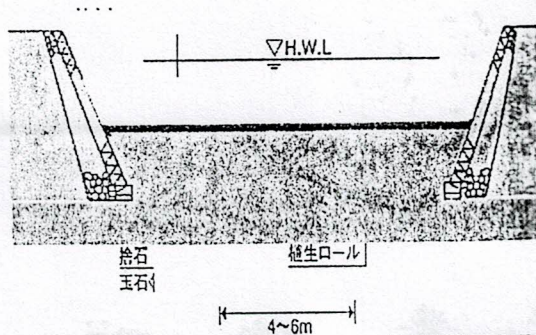
Picture 2. Hikiji River condition in 1970 (Maeda, 1991)



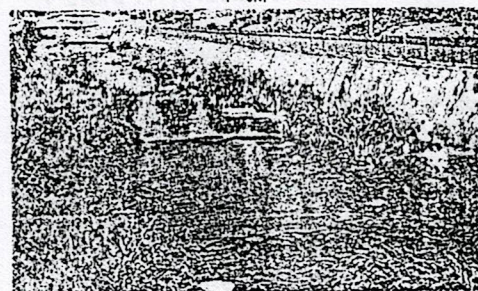
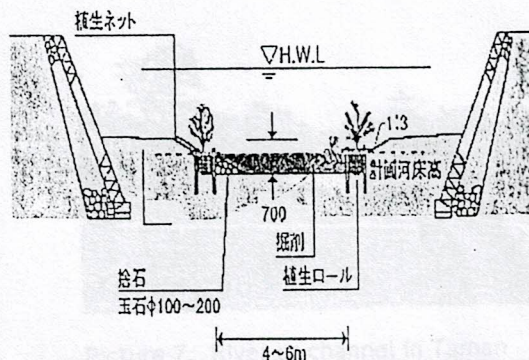
Picture 3. Hikiji River condition after restoration in 1990 (Maeda, 1991).

b. Itachi River

Similar consideration was also done on Itachi river because of its bad condition in 1972, where river structure was just built for drainage system. At that time, there was no shelter for fish or other water creature and water quality was really low.



Picture 4. Itachi River restoration was not ecologically safe in 1972 (Maeda, 1991).



Picture 5. Itachi River restoration was ecologically safe in 1990 (Maeda, 1991).

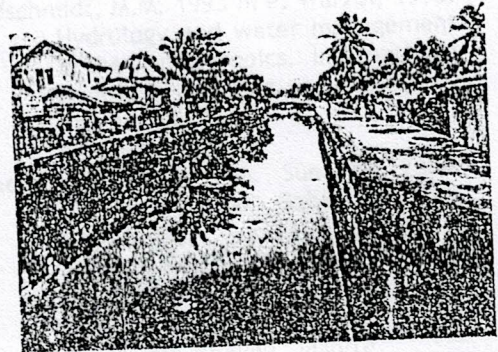
c. Sekanak River and Channel at Taman Purbakala Sriwijaya in Palembang

Location of Sekanak river is really in the middle of Palembang city, so almost all of public in this town can see this river when they do daily activities, go to the school, office or market.

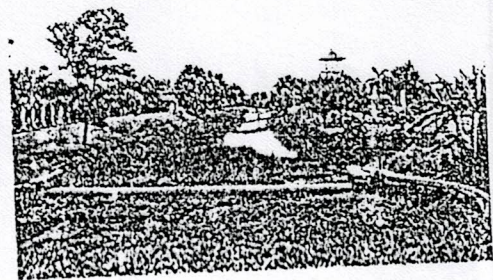
However, condition of this river is not really healthy, it is showed by black color and bad smell of the water. This condition is a main problem in rural area and according Danida (1988) public awareness and participation on river condition are often inadequate, furthermore institutions responsible for water resources, water supply and sanitation are frequently inefficient.

River structure is also just like drain ridge or channel, and there is no place for living creature in water such as for laying egg, nursery, and protection from high current. Thus it won't be many fish, shrimp, shell etc in this river.

Ecologically, the Sekanak river is not safe due to its function is changed from natural river to collect all the domestic waste from houses, office, market etc. This is similar to those other urban city in the humid tropic, where much of domestic sewage is uncollected and flows directly into water bodies (Hufschmidt, 1993). Actually this behavior has to be changed by letting river to original shape and function. Thus people have to make special ridge or tunnel for domestic waste and the river is just collecting rain water or other unpolluted water. But it will be very expensive because Palembang lays on swamp land, thus a long term program such as economically, culturally and socially are needed to be considered by government. It has to be realized that river is not just for draining water but also for recreation and ecology protection for water fauna and flora.



Picture 6. Sekanak river in 2008.



Picture 7. River or channel in Taman Purbakala Sriwijaya Karang Anyar, Palembang in 2008.

Actually it is not a river (Picture 7), it is a channel which was built because this area was swamp. In order to drain the land, channel was dug around The Taman Purbakala Sriwijaya, where it was believed that the Sriwijaya Monarchy Center was in this area at the year of 700.

Even its just a channel, it can be seen that part of the channel function is like a river now but the other part is full of water weeds, where it is not good enough for fish, shrimp, and other water creature. This weed is needed to be cleaned annually and government can make a voluntary social group to do cleaning or can urge student to get involve in cleaning.

Qualitatively, the investigation was done in this channel on August 2008, it was found that there are many kind of fish, shrimps, crabs, and shells in this channel. The fresh water shells are abundant in the water, and people can catch them manually when water is shallow enough. However, quality of water is rather bad (yellow color), it is due to a lot of silt suspension in water. There are not many domestic waste entering the channel, thus the water is still can used by people who live around the "Taman Purbakala Sriwijaya".

It may be suggested that Sekanak river is needed to be restored and domestic waste is not allowed to enter the river. Also, this river should be repaired for ecologically safe and for recreation place. On the other hand, channel in Taman Purbakala Sriwijaya is still ecologically safe and convenient for recreation, but weeds are needed to be cleaned. Making a group of environment care is necessary to overcome water weed problem.

CONCLUSION AND SUGGESTION

1. Sekanak river is not ecologically safe for living creatures in the water and can not be used by people, this river is needed to be restored structurally and ecologically.
2. Channel in Taman Purbakala Sriwijaya is still good for living creatures in the water, and water can be used by people, but this river is needed to be cleaned from water weeds to maintain its function.

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