JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

DIRECTORATE GENERAL OF WATER RESOURCES, MINISTRY OF SETTLEMENT AND REGIONAL INFRASTRUCTURE, THE REPUBLIC OF INDONESIA

THE STUDY ON COMPREHENSIVE WATER MANAGEMENT OF MUSI RIVER BASIN

BOOKLET OF MASTER PLAN



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What is Comprehensive Water Management?



Musi River Basin is the fourth largest river basin in Indonesia. Population in the Basin is 1.4 million, 3% of the nation.

Musi River Basin has a large potential of development.

Natural forest is decreasing rapidly (area in 2000 is 1/3 of 1980) Erosion is increasing causing sedimentation in the downstream. Water environment is becoming worse.

Now we have to start Water Management



Musi River Basin Comprehensive Water Management Master Plan

Proposed Master Plan consists of six components. Each component consists of concrete programs.



WATER USE MANAGEMENT (Part 1)

Why we have to do Water Use Management?

- Musi River Basin is the fourth largest river basin in the country.
- Musi River Basin has a large potential of land and water resources.
- Musi River Basin is in the national strategic zone of rice self-sufficiency and food security. Water use for the development of the Province will increase in the future.
- Uncontrolled water use, however, will cause negative effects in the downstream areas.

Potential Irrigation and Swamp				
Development Area in the Basin				
Development Type	Potential			
	Development Area			
	(ha: in equivalent			
	Double Cropping)			
Technical	86,200			
Semi Technical	28,600			
Simple	4,540			
Communal	87,200			
Non-tidal	158,000			
Tidal	219,000			

So, we should know how much and where we can use water.



Now, what we do with priority?

- South Sumatra Province shall decide development target for rice production.
- Almost 80% of water use in the Musi River Basin is used for irrigation and swamp development. I rrigation and swamp development give large effect to the

basin's water balance. We decide where we do irrigation and swamp development (take water from which river; and develop in which Kabupaten and Kecamatan; etc.)

Computer Model for Water Use Management shall be developed.

Who conduct the program?

- Dinas PU Pengairan, South Sumatra Province shall be the agency coordinating for the whole component of water use management.
- DGWR of Kimpraswil shall be responsible for national projects
- Kabupatens and Kotamadyas shall be involved in the program execution in their areas.

What are the activities?

We conduct sustainable irrigation and swamp development program.

- We establish target for irrigation and swamp development of the South Sumatra Province. Public consultation shall be held for the determination of the target.
- We conduct Pre Feasibility Study, Feasibility Study and Detailed Design for the development. In each stage, public consultation shall be held.

We develop Computer Model for Water Use Management.

- When the computer model is established, it answers how much and where we can use water.
- The computer model also answers what is the environmental impact. We can promote sustainable development paying attention to the environmental conservation.

What are the benefits?

• We can expect rice production increase and social benefits (creating job opportunities,

etc.) through sustainable irrigation and swamp development.

• Computer modeling shall contribute to decision-making, transparent and flexible management, and scenario management, etc.

What the community should do?

• Participating in establishing development target and decision making for the irrigation and swamp development.

• To help identifying options for the information and knowledge base



development and the modeling developments

- To help making logics to evaluate development scenarios
- Educating themselves on irrigation water conservation



WATER USE MANAGEMENT (Part 2)

What is needed more?

We also have to solve serious problem of lack of daily water in tidal swamp areas. Rainwater Utilization in Tidal Swamp Areas has been proposed.



What is the purpose?

I mportant in the Comprehensive Water Management in the Musi River Basin is to solve regional serious problems. Daily water is basic human needs, and in the tidal swamp areas, alternative water source are very limited.

What are the activities?

Rainwater Utilization in Tidal Swamp Areas shall include the following activities:

- We firstly survey number of target farmers, their present facilities of water supply and sanitation.
- Then, provide rainwater storing and sanitation facilities (1 polyethylene water tank of 3 m³, and 1 septic tank placing on the ground) to the residents in tidal swamp areas.



Domestic Water Tank (provided by SSSIP)

Who conduct the program?

DI NAS PU Pengairan of South Sumatra Province and OKI, MUBA and Banyuasin Regency Governments shall conduct the program.

What are the benefits?

We have social benefits, covering 370,000 residents: improving health of the people; assisting economic activities; and supporting social stabilization, etc.

Roles of Community

- Providing community's intension
- To help identifying program options
- To help designing facilities and conduct setting works by themselves.

What is needed more?

We also have to solve conflicting for water use between paddy field and aquaculture. Important in the Comprehensive Water Management in the Musi River Basin is to solve conflicting between different water users, because such problems need higher-level coordination. The following table shows present aquaculture areas:

Present Aquaculture Area of Fishpond (ha)				
OKU	OKI	Muaraenim	Lahat	MURA
3,550	164	409	1,552	703
MUBA	PLB	Pagaralam	Prabumulih	Rejang L.
275	29	169	12	545



What is the objectives?

- To develop solving methods of conflicts between paddy and aquaculture water uses
- To realize equitable and sustainable regional development

Who conduct the program?

DI NAS PU Pengairan will be the leading agency, and Agriculture Service and Fishery Service of South Sumatra Province and Bengkulu Provincial Government will support. Kabupaten and Kotamadya in the Basin will also support.

What are the activities?

The main activities are:

- Researching Solution Methods: holding public consultation; investigation of situation, etc.
- Dissemination of the Methods



What are the benefits?

In the Basin, aquaculture and irrigation are significant economic sectors, being large consumptive water users. Therefore, solving conflicts between both sectors will benefit equitable and sustainable regional development in the Basin.

What the community should do?

- Providing community's intension
- To help identifying solution options

FLOODPLAIN MANAGEMENT

Why we need this program?

- Swamps in the Musi River Basin are natural reservoirs. We call these areas as floodplains.
- Water during the rainy season floods in the floodplains, and gradually return to the river during the dry season.
- Floodplains are very important to preserve natural condition and to maintain regional ecological system.





What is the purpose?

- The program is to maintain the present river flowing condition.
- The program is to maintain water-retarding function in floodplains for water use, for flood mitigation in the lower areas, and for environmental conservation, etc.
- As a result, swamp and tidal swamp rice fields will be conserved.

Who conduct the program?

- Dinas PU Pengairan, South Sumatra Province shall be the leading agency for the implementation of the program.
- Musi Balai PSDA, Dinas Forest, BAPPEDA shall support.
- Kabupaten and Kotamadya governments of Palembang, Muba, Muaraenim, Lahat, Mura, and Oki shall implement the zoning.

What is the activity?

- Confirmation of the land use control area (swamp and tidal swamp rice field) by satellite photo analysis
- Zoning of the area for land use control by spatial plan of related Kabupatens and Kotamadyas
- Patrol of zoning area

Confirmation of the land use control area (swamp and tidal swamp rice field) by using map (scale: 1/50,000, made by remote sensing)

Zoning of the area (swamp and tidal swamp rice field) and legalization of the land use regulation Enforcement of the regulation including patrol of zoning area

Step 1

Step 2

Step 3

What is the benefit?

- Flood condition in the downstream areas will not worsen by preventing uncontrolled developments in the floodplain.
- Current agricultural practice in midstream, swamp, and tidal swamp areas can be maintained by conserving the current water conditions



- Various kind of pollution can be mitigated by separating land use by zoning
- Natural environment and landscape may be conserved and people can enjoy the natural environment

What the community should do?

Community members should contribute to the successful implementation of the Program by participating the following activities:

- To give ideas to improve river environment
- To monitor land use in order to prevent wanton development