

***III.***

***RESULTS OF WATER  
USE QUESTIONNAIRE  
SURVEY***

# THE STUDY ON COMPREHENSIVE WATER MANAGEMENT OF MUSI RIVER BASIN

## *Results of Water Use Questionnaire Survey*

**Survey Period:** *South Sumatera Province: 9 October 2002 – 22 October 2002*  
*Bengkulu Province: 2 January 2003 – 3 January 2003*

**Surveyed Regency/Municipality:**

1	OKU	<i>Sum-Sel Province</i>	<b>Surveyed Water Use:</b>
2	OKI		<b>I Livestock</b>
3	MuaraEnim		<b>II Aquaculture</b>
4	Lahat		<b>III Fish Catch</b>
5	MURA		<b>IV Irrigation</b>
6	MUBA		<b>V Industrial</b>
7	Palembang		<b>VI Mining</b>
8	Pagaralam		<b>VII PDAM</b>
9	Prabumulih		<b>VIII INPRES Water Supply System</b>
			<b>IX Other Water Supply System</b>
			<b>X Tourism</b>
			<b>XI Recreation</b>
			<b>XII Water Licensing</b>
			<b>XIII Retribution on Water Use (UPTD)</b>
10	Rejang Lebong (KEC. Curup, KEC. Padang Ulak Tanding & KEC. Kepahiang, only)	<i>Bengkulu Province</i>	

### I. Livestock

#### 1. Unit Water Consumption (l/d/h)

	1	2	3	4	5	6	7	8	9	10	
Kinds	OKU	OKI	MuaraEnim	Lahat	MURA	MUBA	PLB	Pagaralam	Prabumulih	Rejang Lebong	Rounded Median
Milk Cow	-	-	200	-	-	-	-	-	-	10-15	100
Cow	10	10	50	18-20	30	40	-	30	-	8	30
Buffalo	15	13	50	22-24	40	40	-	50	-	10	30
Horse	15	10	50	18-20	-	-	-	50	-	-	30
Goat	4	1.5	25	8-12	1.5	10	-	25	-	1	15
Sheep	4	1.5	25	8-12	1.5	10	-	25	-	1	15
Pig	5	4	50	20-24	1.5	100	-	50	-	7	50
1000Poultry	25	500	500	250-500	100	2,000	-	1,000	-	500	1,000
1000Duck	50	1,000	10,000	2,000-4,000	100	2,000	-	-	-	500	5,000

#### 2. Water Sources

1	OKU	Well, Ogan River, Komerling River
2	OKI	Groundwater, River
3	MuaraEnim	Groundwater, River
4	Lahat	River, Groundwater, Well
5	MURA	Groundwater, River
6	MUBA	Groundwater, River
7	Palembang	Groundwater, Swamp
8	Pagaralam	River
9	Prabumulih	Lematang & Kelekar Rivers, Rambang
10	Rejang L.	No answer

### 3. Future Plan (head)

#### 3.1 OKU

<i>Kinds</i>	2000	2005	2010
<i>Milk Cow</i>	0	0	0
<i>Cow</i>	132,781	95,886	97,803
<i>Buffalo</i>	13,822	11,248	11,360
<i>Horse</i>	985	916	920
<i>Goat</i>	96,397	124,539	132,011
<i>Sheep</i>	13,130	16,508	16,860
<i>Pig</i>	16,996	19,301	20,459
<i>Poultry</i>	3,774,020	3,660,027	3,678,327
<i>Duck</i>	135,895	138,329	139,158

#### 3.3 MuaraEnim

<i>Kinds</i>	2001	2005	2010
<i>Milk Cow</i>	160	218	322
<i>Cow</i>	67,825	75,764	86,982
<i>Buffalo</i>	14,550	15,688	17,236
<i>Horse</i>	237	253	273
<i>Goat</i>	59,836	67,871	79,447
<i>Sheep</i>	6,463	7,245	8,358
<i>Pig</i>	750	796	857
<i>Poultry</i>	4,092,689	6,462,955	11,440,875
<i>Duck</i>	620,000	859,233	1,291,992

#### 3.2 OKI

<i>Kinds</i>	2000	2005	2010
<i>Milk Cow</i>	0	0	0
<i>Cow</i>	97,145	106,862	114,321
<i>Buffalo</i>	19,168	21,319	21,829
<i>Horse</i>	9	36	41
<i>Goat</i>	84,225	89,055	89,854
<i>Sheep</i>	9,494	9,842	9,871
<i>Pig</i>	2,056	4,278	4,756
<i>Poultry</i>	2,480,000	2,785,000	2,839,000
<i>Duck</i>	861,000	906,000	915,000

#### 3.4 Lahat

<i>Kinds</i>	2000	2005	2010
<i>Milk Cow</i>	0	0	0
<i>Cow</i>	27,176	37,133	38,247
<i>Buffalo</i>	10,279	11,128	11,462
<i>Horse</i>	551	0	0
<i>Goat</i>	73,369	87,146	91,503
<i>Sheep</i>	7,091	8,321	8,737
<i>Pig</i>	239	325	406
<i>Poultry</i>	420,298	470,159	484,263
<i>Duck</i>	62,798	72,245	74,412

### 3.5 MURA

<i>Kinds</i>	2000	2005	2010
<i>Milk Cow</i>	0	0	0
<i>Cow</i>	30,500	35,375	40,681
<i>Buffalo</i>	21,302	26,225	30,158
<i>Horse</i>	0	0	0
<i>Goat</i>	90,682	95,603	109,943
<i>Sheep</i>	8,692	8,650	9,050
<i>Pig</i>	4,491	5,390	9,850
<i>Poultry</i>	960,000	1,399,272	1,750,000
<i>Duck</i>	100,100	107,782	111,900

### 3.7 Palembang

<i>Kinds</i>	2002	2005	2010
<i>Milk Cow</i>	0	0	-
<i>Cow</i>	5,471	6,025	-
<i>Buffalo</i>	410	708	-
<i>Horse</i>	0	0	-
<i>Goat</i>	26,760	65,839	-
<i>Sheep</i>	4,452	5,608	-
<i>Pig</i>	0	0	-
<i>Poultry</i>	12,000	0	-
<i>Duck</i>	78,253	95,862	-

### 3.6 MUBA

<i>Kinds</i>	2001	2005	2010
<i>Milk Cow</i>	0	0	0
<i>Cow</i>	31,009	37,679	45,199
<i>Buffalo</i>	1,937	2,282	2,722
<i>Horse</i>	0	0	0
<i>Goat</i>	44,021	53,501	64,201
<i>Sheep</i>	6,295	7,640	9,160
<i>Pig</i>	2,736	3,316	3,976
<i>Poultry</i>	1,533,629	1,864,129	2,236,949
<i>Duck</i>	136,764	166,224	199,464

### 3.8 Pagaralam

<i>Kinds</i>	2002	2005	2010
<i>Milk Cow</i>	0	300	10,000
<i>Cow</i>	995	1,865	4,642
<i>Buffalo</i>	177	306	760
<i>Horse</i>	38	65	165
<i>Goat</i>	5,657	9,775	24,324
<i>Sheep</i>	59	100	250
<i>Pig</i>	0	0	0
<i>Poultry</i>	59,068	90,000	125,000
<i>Duck</i>	0	3,000	10,000

### 3.9 Prabumulih

Kinds	2002	2005	2010
Milk Cow	0	0	0
Cow	763	2,250	4,000
Buffalo	12	55	100
Horse	0	0	0
Goat	1,106	2,400	4,800
Sheep	0	0	0
Pig	0	0	0
Poultry	185,617	240,000	400,000
Duck	1,359	1,500	2,500

### 3.10 Rejang Lebong

Kinds	2002	2005	2010
Milk Cow	52	177	277
Cow	2,117	3,217	3,717
Buffalo	431	556	606
Horse	0	0	0
Goat	6,495	7,295	7,595
Sheep	262	0	0
Pig	51	0	0
Poultry	34,865	35,715	35,915
Duck	25,719	27,119	27,319

### 4. Issues

1 OKU None

2 OKI

There is difficulty in watering for big cattle like cow and buffalo, such as drinking and bathing. This difficulty is also happened to duck for their swimming in dry season.

Whereas, cow, buffalo and duck are superior commodity in OKI.

3 Muara Enim

The supply of water is not suited with necessary water requirement, especially in the area of milk cow husbandary, like Datar Lebar Village, Aromantar District.

4 Lahat

1) There is an area of lacking water.

2) Grass growth is decreased in dry season.

3) There is an unsafe area for livestock breeding.

5 MURA

None

6 MUBA

It is too far from the river and groundwater sources in mountain areas:

1) Groundwater is dry,

2) Far from groundwater sources.

7 Palembang

1) Livestock yard, specially for big cattle, buffalo, cow, etc., becomes narrow because of the construction of residential areas.

2) Decreased natural grass supply

3) High production cost of chicken breeding in balance with the sale price

8 Pagaram

1) Less concentration of vitamin in livestock feeding

2) Social factor for livestock safety

3) There is no field for livestock herding.

4) Stable livestock production is less than the level of sufficient.

9 Prabumulih

1) Less of human resources in Livestock and Fishery Service

10 Rejang L. No answer

## II. Aquaculture

### 1. Fish, Area & Water Sources

#### 1.1 Fish Name

Priority	1. OKU	2. OKI	3. MuaraEnim	4. Lahat
1st	Patin, Gold Fish, Nila, Gurame	Patin	Gold fish	Mas
2nd	Bawal, Baung	Toman	Nila	Nila
3rd	Lampain, Sepat, Lele	Lele Dumbo	Patin	Mujair
4th	Betutu, Jelawat	Mas		Tambakan

Priority	5. MURA	6. MUBA	7. PLB	8. Pagaralam
1st	Nila	Patin	Patin	Nila
2nd	Gold fish	Nila	Nila	Mas
3rd	Gurami/Lele	Lele Dumbo	Lele	
4th			Gurame	

Priority	9. Prabumulih	10. Rejang Lebong
1st	Lele Dumbo/Toman	Gold fish
2nd	Nila/Ikan Mas	Nila gift
3rd	Gurame	
4th	Patin	

#### 1.2 Area

Regency	1	2	3	4	5	6	7	8	9	10
Year	OKU	OKI	MuaraEnim	Lahat	MURA	MUBA	PLB	Pagaralam	Prabumulih	Rejang L.
in 2001	in 2001	in 2001	in 2001	in 2001	in 2001	in 2001	in 2001	in 2001	in 2001	in 2001
pond (ha)	3,550	164	3,101	1,548	745	297	38	169	8	No
paddy (ha)	4,050	166	154	1,429	2,057	0	0	128	0	answer
cage (unit)	28 ha	11,111	399	0	55	1,271	150	6	0	
fence (ha)	-	0.65	-	-	-	-	-	-	-	-

### 1.3 Water Sources

1	<i>OKU</i>	River, Reservoir, Technical Irrigation, Village Irrigation, Rainfall
2	<i>OKI</i>	River, Irrigation, Rainfed
3	<i>MuaraEnim</i>	River, Spring, Dam
4	<i>Lahat</i>	Irrigation
5	<i>MURA</i>	Kelingi DAM Irrigation, River
6	<i>MUBA</i>	River
7	<i>Palembang</i>	River
8	<i>Pagaralam</i>	River, Irrigation
9	<i>Prabumulih</i>	River, Well
10	<i>Rejang L.</i>	No answer

### 2. Water Management

#### 2.1 Pond

1	<i>OKU</i>	Water depth 0.75m kept constant; Water provided 8 hours everyday in basic
2	<i>OKI</i>	Water depth about 1m kept constant; Water is impounded once a year; It depends on rotation period.
3	<i>MuaraEnim</i>	Water depth 1–1.5m kept constant; Continuous water supply; 2 initial impounding per year
4	<i>Lahat</i>	Water depth 1.2m kept constant; Water provided 24 hours everyday; 2 initial impounding per year
5	<i>MURA</i>	Water depth 1m kept constant; Water provided 24 hours everyday; 1 initial impounding in 4 years
6	<i>MUBA</i>	Water depth 1.5m kept constant
7	<i>Palembang</i>	Water depth 1m kept constant; 1 initial impounding in 1 year
8	<i>Pagaralam</i>	Water depth 1–1.5m kept constant; Water provided 24 h everyday; 2 impounding 1 year in wet season
9	<i>Prabumulih</i>	Water d 1m kept constant; Water provided 24 hours everyday; Impounding in October, 1 time 1 year
10	<i>Rejang L.</i>	No answer



## 2.2 Paddy

1	<i>OKU</i>	Water depth 0.5 m during 3 months
2	<i>OKI</i>	Water depth about 0.5m kept constant; Water intake depends on rotation
3	<i>MuaraEnim</i>	Water depth 0.2m kept constant; Continuous water supply; Beginning of rain season impounding
4	<i>Lahat</i>	Water depth 0.25m kept constant; Water provided 24 hours everyday; 1.5 months per year
5	<i>MURA</i>	Water depth 0.5m kept constant; Water provided 24 hours everyday; 2.5 months per year
6	<i>MUBA</i>	-
7	<i>Palembang</i>	-
8	<i>Pagaralam</i>	Water depth 0.2m kept constant; Water provided 24 hours everyday; October impounding
9	<i>Prabumulih</i>	-
10	<i>Rejang L.</i>	No answer

## 2.3 Other

5	<i>MURA</i>	Floating Net Pond: 2m water depth; 24 hours intake per day; 4 times impounding per 1 year
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## 2.4 Cage (preferable water depth)

	<i>Fish</i>	<i>Min (m)</i>	<i>Max (m)</i>
1	<i>OKU</i>	Patin, Gold Fish, etc	1
2	<i>OKI</i>	All kinds	1.5
3	<i>MuaraEnim</i>	Gold, Nila, Patin	2
4	<i>Lahat</i>	-	-
5	<i>MURA</i>	Gold, Nila	1
6	<i>MUBA</i>	Patin, Nila, gurami	2
7	<i>Palembang</i>	Patin	1.5
		Lele	2
			2.5
8	<i>Pagaralam</i>	Nila	1
		Mas	1
			1.5
9	<i>Prabumulih</i>	Patin	0.75
			1
10	<i>Rejang L.</i>	Gold fish, Nila gift	1
			2

### 3. Future Plan

#### 3.1 OKU

Year	2000	2005	2010
<i>pond (ha)</i>	3,550	4,500	4,800
<i>paddy (ha)</i>	4,050	5,200	5,400
<i>cage (ha)</i>	28	50	65

#### 3.2 OKI

Year	2001	2005	2010
<i>pond (ha)</i>	164	230	300
<i>paddy (ha)</i>	166	190	200
<i>cage (unit)</i>	11,111	11,500	12,000
<i>fence (ha)</i>	1	6	15

#### 3.3 MuaraEnim

Year	2001	2005	2010
<i>pond (ha)</i>	409	531	691
<i>paddy (ha)</i>	286	400	560
<i>cage (unit)</i>	764	1,146	1,719

#### 3.4 Lahat

Year	2001	2005	2010
<i>pond (ha)</i>	1,552	2,231	2,466
<i>paddy (ha)</i>	1,429	1,986	2,428
<i>cage</i>	0	0	0

#### 3.5 MURA

Year	2000	2005	2010
<i>pond (ha)</i>	703	934	1,169
<i>paddy (ha)</i>	2,036	2,137	2,244
<i>cage (unit)</i>	0	75	100
<i>Floating Net Pond</i>	0	225	270

#### 3.6 MUBA

Year	2000	2005	2010
<i>pond (ha)</i>	275	329	369
<i>paddy (ha)</i>	0	0	0
<i>cage (unit)</i>	1,412	1,411	1,470

#### 3.7 Palembang

Year	2001	2005	2010
<i>pond (ha)</i>	29	32	32
<i>paddy (ha)</i>	0	0	0
<i>cage (unit)</i>	150	480	275

#### 3.8 Pagarlalam

Year	2002	2005	2010
<i>pond (ha)</i>	169	300	600
<i>paddy (ha)</i>	128	200	400
<i>cage (unit)</i>	6	60	160
<i>other</i>	2	30	50

### 3.9 Prabumulih

Year	2002	2005	2010
<i>pond (ha)</i>	12	19	26
<i>paddy (ha)</i>	0	0	0
<i>cage (unit)</i>	20	160	100

### 3.10 Rejang Lebong

Year	2002	2005	2010
<i>pond (ha)</i>	545	631	789
<i>paddy (ha)</i>	146	271	342
<i>cage (ha)</i>	67	80	100
<i>Fence (ha)</i>	5	6	7

## 4. Issues

### 1 OKU

- 1) Water use should be arranged by Water Use Division of PU not by farmers.
- 2) Water use policy should give equal opportunity, and be discussed among technical departments.

### 2 OKT

- 1) In dry season, river discharge decreases significantly and dried riverbed outcrops.
- 2) Irrigation canals are important for agriculture, and not for livestock/aquaculture.

### 3 MuaraEnim

- 1) We can not supply water throughout the year because there still exists infrastructure of no water use in technical irrigation system.
- 2) There is no wide area that locates in one place. Existing ones are solely of square type in irrigation blocks.
- 3) Bad quality of fish seedling. Fish seedling needs to be imported from outer Muara Enim.
- 4) The qualities of human resources, cultivator, are still low. It really needs some education, technical training and other guidance activities.
- 5) The amount of human resources in Fishery Service is still low.

### 4 Lahat

Water intake to ponds is seriously influenced by water use to paddy fields, so the discharge and quality of water that enters into pond are not stable.

### 5 MURA

Water discharge is not enough in dry season.

### 6 MUJA

Water management can not be controlled because it depends on the season.

### 7 Palembang

Fish cultivation in ponds can not be done in dry season because of the decrease of water sources, only relying on rain water. Ponds can not product in dry season, except for the ponds which are near to rivers, where water is always there.

### 8 Pagarlama

- 1) It is difficult to arrange the society about the flooding schedule.
- 2) Water dividing system is not yet good.

### 9 Prabumulih

- 1) Water source is river which is empty in dry season.

### 10 Rejang L.

- 1) The budget of Regency Government for installing sample ponds or cages, and for disseminating improved technology is not enough.

### III. Fish catch/Fishing

#### 1. Places

1	<i>OKU</i>	Buay Madang, Peninjauan, Ranau, Banding Agung, Pulau Beringin
2	<i>OKI</i>	River, Lake, Swamp
3	<i>MuaraEnim</i>	Pond, River, Lake
4	<i>Lahat</i>	River, Lake
5	<i>MURA</i>	Not detected well, for individual needs only
6	<i>MUBA</i>	No answer
7	<i>Palembang</i>	Not yet registered
8	<i>Pagaralam</i>	River, Lake, Village Pond
9	<i>Prabumulih</i>	River, Lake, Valley, Swamp
10	<i>Rejang L.</i>	No answer

#### 2. Methods

1	<i>OKU</i>	Fishing rod, net, illegal tools
2	<i>OKI</i>	Fishnet, fishing rod, fishhook, seizing
3	<i>MuaraEnim</i>	Pond drying, fishing rod/net
4	<i>Lahat</i>	Fishing rod/net
5	<i>MURA</i>	Not detected well, for individual needs only
6	<i>MUBA</i>	No answer
7	<i>Palembang</i>	Not yet registered
8	<i>Pagaralam</i>	Fishing rod/net, pot & tangkul
9	<i>Prabumulih</i>	Fishing rod/net
10	<i>Rejang L.</i>	No answer

#### 3. Fish Catch Season

1	<i>OKU</i>	-
2	<i>OKI</i>	Along the year, peak is dry season
3	<i>MuaraEnim</i>	Everyday
4	<i>Lahat</i>	Everyday
5	<i>MURA</i>	Not detected well, for individual needs only
6	<i>MUBA</i>	No answer
7	<i>Palembang</i>	Not yet registered
8	<i>Pagaralam</i>	River in dry season; lake & village pond in dry & wet seasons
9	<i>Prabumulih</i>	Beginning of dry season
10	<i>Rejang L.</i>	No answer

#### 4. Preferable Water Depth

	<i>Min (m)</i>	<i>Max (m)</i>
1 <i>OKU</i>	2-4	6-15
2 <i>OKI</i>	Following flood swamp phenomena	
3 <i>MuaraEnim</i>	5cm	10cm
<i>Pond</i>	1	5
<i>River</i>	1	2
<i>Lake</i>	1	3
4 <i>Lahat</i>	Not detected well, for individual needs only	
5 <i>MURA</i>	No answer	
6 <i>MUBA</i>	Not yet investigated	
7 <i>Palembang</i>	Not yet investigated	
8 <i>Pagaralam</i>	0.4	1
<i>River</i>	1	1.5
<i>Lake&amp;Pond</i>	1	1.5
9 <i>Prabumulih</i>	1	1.5
<i>River</i>	2	6
<i>Lake</i>	1	2.5
<i>Valley</i>	1	2
<i>Swamp</i>	1	2
10 <i>Rejang L.</i>	No answer	

#### 5. Issues

- 1 *OKU*  
1) Illegal tools, e.g., electricity, potassium & similarities
- 2 *OKI*  
1) Catchments using forbidden instrument/tool, like poisoning and electricity  
2) Using instrument which is not selective catch
- 3 *MuaraEnim* None
- 4 *Lahat*  
1) The productivity of fish catch is minimized. This is because fish habitat is damaged by mining exploitation of sand and river stone, by tree cutting, and by fish catch using bomb and forbidden materials, like poison and electrical current, etc.
- 5 *MURA* None
- 6 *MUBA* No answer
- 7 *Palembang* No answer
- 8 *Pagaralam*  
1) The use of poisoning materials, electrical current and bomb disturbs for the farmers and society to catch fish by fishnet/fish rod.
- 9 *Prabumulih* No major problem
- 10 *Rejang L.* No answer

#### *IV. Irrigation*

##### **1. Major Irrigated Crops**

1	<i>OKU</i>	Paddy
2	<i>OKI</i>	Paddy
3	<i>MuaraEnim</i>	Paddy
4	<i>Lahat</i>	Paddy
5	<i>MURA</i>	Paddy
6	<i>MUBA</i>	Paddy, Maize
7	<i>Palembang</i>	No irrigated land
8	<i>Pagaralam</i>	Paddy & Palawija (No any swamp area)
9	<i>Prabumulih</i>	Paddy
10	<i>Rejang L.</i>	Paddy & Palawija

2. Cropping Pattern (Paddy)

Reg.	Crop	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
1. OKU	Gol. I												
	Gol. II												
	Gol. III												
2. OKI	Tidal Paddy												
	Valley Paddy												
3. M. E.	<b>Rainy S.</b>												
	IR64												
	Ciliwung	same to IR64											
	Ciherang	same to IR64											
	<b>Dry S.</b>												
	IR64												
4. Lahat	Ciliwung	same to IR64											
	Widas	same to IR64											
	<b>Inland Swamp (Middle)</b>												
	IR64												
	IR48	same to IR64											
	Lalan	same to IR64											
	Ciliwung	same to IR64											
	<b>Inland Swamp (Shallow)</b>												
	IR64												
	IR48	same to IR64											
4. Lahat	Lalan	same to IR64											
	Ciliwung	same to IR64											
	<b>Rainy S.</b>												
	IR64												
	Ciliwung	same to IR64											
4. Lahat	IR36	same to IR64											
	<b>Dry S.</b>												
	IR64												
	Ciliwung	same to IR64											

	IR36	same to IR64	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
Reg.	Crop	Sep											
5. MURA	Rainy S.												
	IR64												
	Suryak	same to IR64											
	Maros	same to IR64											
	Dry S.												
6. MUBA	paddy												
7. PLB	-												
8. Pagaralam													
	Rainy S.												
	IR64												
	Cisadane	same to IR64											
	IR36	same to IR64											
	Dry S.												
	IR64												
	Cisadane	same to IR64											
	IR36	same to IR64											
9. Prabumulih													
	Rainy S.												
	IR64												
	Valley												
	Sale Paddy												
	Agrikatus P.												
	PB.64												
10. Rejang L.		No answer											



### 3. Diversion/Field Requirement Standard

1	<i>OKU</i>	From Komerling Irrigation Project
2	<i>OKI</i>	-
3	<i>MuaraEnim</i>	Intake = 1.52 l/s/ha; Field = 1.2 l/s/ha
4	<i>Lahat</i>	KP standard
5	<i>MURA</i>	Don't Have
6	<i>MUBA</i>	Don't Have
7	<i>Palembang</i>	Don't Have
8	<i>Pagaralam</i>	Don't Have: for long managed paddy 1.2 l/ha/s; for new one 2.0 l/ha/s
9	<i>Prabumulih</i>	No, because there is no irrigation network.
10	<i>Rejang L.</i>	Don't Have

### 4. Operation Rule

1	<i>OKU</i>	From Komerling Irrigation Project
2	<i>OKI</i>	-
3	<i>MuaraEnim</i>	None
4	<i>Lahat</i>	No rule due to only simple irrigation
5	<i>MURA</i>	-
6	<i>MUBA</i>	Don't Have
7	<i>Palembang</i>	Don't Have
8	<i>Pagaralam</i>	Don't Have
9	<i>Prabumulih</i>	No, because there is no technical irrigation network.
10	<i>Rejang L.</i>	Don't Have

### 5. Return Flow

1	<i>OKU</i>	From Komerling Irrigation Project
2	<i>OKI</i>	-
3	<i>MuaraEnim</i>	Negligible return flow, no measured data
4	<i>Lahat</i>	Negligible return flow, no measured data
5	<i>MURA</i>	No measured data
6	<i>MUBA</i>	No measured data
7	<i>Palembang</i>	No measured data
8	<i>Pagaralam</i>	Negligible return flow, no measured data
9	<i>Prabumulih</i>	No measured data
10	<i>Rejang L.</i>	Much return flow, no measured data

### 6. Groundwater Use

	Area	Scheme	Facility	Crop	Applying
1	OKU	-	Pump & Well	Paddy	-
2	OKI	Tidal swamp	Deep Well	Paddy	7 hours in dry season
3	MuaraEnim	None			
4	Lahat	None			
5	MURA	None			
6	MUBA	None			
7	Palembang	None			
8	Pagaralam	None			
9	Prabumulih	None			
10	Rejang L.	Irrigation District	Musi Kejalo	Paddy	4 months supply

### 7. Major Infrastructure

	Dam	Intake	Pump	Wells
1	OKU	Rantau	Perjaya, 27 small intake	Handled by Agriculture Service
2	OKI	-	150 small intakes	3unit, 10 l/s, 40m,
3	MuaraEnim	-	TL. Pangeran, Med, 163 small intake	-
4	Lahat	-	Muara Ribon, Air Keruh, 60 small intake	None
5	MURA	10 small dams	-	-
6	MUBA	-	-	-
7	Palembang	None	-	-
8	Pagaralam	None	-	-
9	Prabumulih	1 concrete dam	6 small intakes	-
			Musi Kejalo intake in Kec. Curup; and Free intake of Air Musi Lubuk Kembang in Kec. Curup	
10	Rejang L.	None	None	None

## 8. Future Plan

	<i>Names of On-Going and Future Projects</i>	<i>Financial Source</i>	<i>Implementation Agency</i>	<i>Construction Year</i>	<i>Area</i>	<i>Project Contents</i>
1	<i>OKU</i>	Answer on rehabilitation and improvement of samll facilities in 2002 only.				
2	<i>OKI</i>	APBD	11 local companies	2002	5,000 ha	Water gate; Canal excavation, etc.
3	<i>MuaraEnim</i>	APBD	-	-	760 ha	Reclamation
	12 in Tg. Agung	APBD	-	-	760 ha	Reclamation
	7 in Rotan River	APBD	-	-	2,400 ha	Reclamation
4	<i>Lahat</i>	APBD	-	-	-	Rehabilitation
	Irri. Network					
5	<i>MURA</i>	Central Gov. Loan	Committee	Processing 2003	-	-
	Lakitan Irrigation Scheme					
	- Land Acquisition					
	- Construction				13,950 ha	-
6	<i>MUBA</i>	9 on-going projects; Canal construction and O/M works				
	80 future projects in 2003; rehabilitation and construction of irrigation/drainage canals, and O/M works					
7	<i>Palembang</i>	No exists				
8	<i>Pagaralam</i>	2 river management project 22 irrigation improvement/dev.	DAU DAU	- -	- 1,578 ha	- -
9	<i>Prabumulih</i>	No exists				
10	<i>Rejang L.</i>	Natural Disaster Prevention	APBN local company	2002	-	Intake repairment; Canal lining; Canal normalization

## 9. Issues

### 1 OKU

- 1) When coffee price is raised up, there is one semi technical irrigation area, Niagara Village, Banding Agung District, that changed its land use from paddy field into coffee plantation.
- 2) Water discharges of Komereng, Ogan and Selabung Rivers are hard to control. They overflow in rainy season, and drought in dry season.

### 2 OKI

- 1) There is no any technical irrigation in OKI.
- 2) There is quite a lot of sedimentation in the river.
- 3) After construction of komering upper dam, there is no diversion of water not only for irrigation but also even for household use.
- 4) When it rains, there are many flooded places.

### 3 MuaraEnim

- 1) In Muara Enim, irrigation sector still does not have any technical irrigation system. People cultivate traditional irrigation system only.
- 2) Swamp area in Muara Enim is quite large, especially in lower area (Gelumbang district, Rotan River, Musi Channel). But the development is still not improved because of fund lacking.

### 4 Lahat

- 1) There is no large field for irrigation, so technical irrigation can not be implemented.
- 2) Topography is so hilly that often causes dangerous leaking/overflow from flood channel.
- 3) Lacking the knowledge as a society, there is a tendency to use a much water.

### 5 MURA

- 1) In dry season, river discharge decreases, for example; total area of Kelingi, Tugumulyo= 10,163 ha; In rainy season, wholly irrigated; while in dry season  $\pm$  7,000 ha.

### 6 MUBA

- 1) There is no technical irrigation.
- 2) Generally, inland swamp depends on tidal swamp.

### 7 Palembang None

### 8 Pagaralam

- 1) Irrigation is still simple irrigation only.
- 2) Topography condition is hilly, so canal bank is high. This causes bank slide, and dangerous leaking.
- 3) Lacking of budget, rehabilitation/development of irrigation network can not be completed.

### 9 Prabumulih

- 1) There is no water sources. Available rivers are far.

### 10 Rejang Lebong

- 1) Water discharge often decreases in dry season.
- 2) No gate operators after becoming regional autonomy, due to uncapable fund.

*V. Industrial*

**1. Water Use**

**1.1 OKU**

<i>Code</i>	<i>Industry</i>	<i>Scale</i>	<i>Establish</i>	<i>Water Source &amp; Abstraction (m3/d)</i>
15	<i>Food &amp; Beverages</i>	L M S	- - 67	ogan 15 m3/d, ground 7 m3/d
17/18	<i>Textile/Garment</i>	L M S	- - 16	ground 2.3
20	<i>Wood, etc.</i>	L M S	- - 2	ogan 0.5
22	<i>Publishing, etc.</i>	L M S	- - 6	PDAM 2
24	<i>Chemistry, etc.</i>	L M S	3 - 192	ogan 10, ground 27 ogan 5, ground 7
27/28/29	<i>Metal</i>	L M S	- - 111	ogan 11, ground 4
35	<i>Transportation</i>	L M S	- 1 11	ogan 1.5 ogan 1.3, ground 1.1
36	<i>Furniture, etc.</i>	L M S	- 1 -	ogan 5

1.2 OKI

<i>Code</i>	<i>Industry</i>	<i>Scale</i>	<i>Establish</i>	<i>Water Source &amp; Abstraction</i>
15	Food & Beverages	L M S		0 groundwater 6,000m <sup>3</sup> /m piped 1,000m <sup>3</sup> /m, river 1,200m <sup>3</sup> /m
17/18	Textile/Garment	L M S		0 0 piped 700m <sup>3</sup> /m, river 800m <sup>3</sup> /m
20	Wood, etc.	L M S		river 21,000m <sup>3</sup> /m, groundwater 18,000m <sup>3</sup> /m river 9,000m <sup>3</sup> /m, groundwater 7,000m <sup>3</sup> /m river 1,000m <sup>3</sup> /m
24	Chemistry, etc.	L M S		0 groundwater 19,000m <sup>3</sup> /m 0
25	Latex, etc.	L M S		0 river 5,000m <sup>3</sup> /m river 2,000m <sup>3</sup> /m
26	Non Metal Quarrying	L M S		0 0 river 1,200m <sup>3</sup> /m
27/28/29	Metal	L M S		0 0 river 600m <sup>3</sup> /m

### 1.3 MuaraEnim

<i>Code</i>	<i>Industry</i>	<i>Scale</i>	<i>Establish</i>	<i>Water Source &amp; Abstraction (m<sup>3</sup>/d)</i>
15	Food & Beverages	L M S	- - 74	- - piped 860 m <sup>3</sup> /m, river 600m <sup>3</sup> /m, groundwater 600m <sup>3</sup> /m
17/18	Textile/Garment	L M S	- - 5	
20	Wood, etc.	L M S	- - 29	
22	Publishing, etc.	L M S	- - 5	
25	Latex, etc.	L M S	- 2 -	
26	Non Metal Quarrying	L M S	- - 33	
27/28/29	Metal	L M S	- - 14	
35	Transportation	L M S	- - 24	

1.4 Lahat

<i>Code</i>	<i>Industry</i>	<i>Scale</i>	<i>Establish</i>	<i>Water Source &amp; Abstraction (m<sup>3</sup>/d)</i>
15	<i>Food &amp; Beverages</i>	L	-	
		M	-	
		S	113	piped, river, groundwater
17/18	<i>Textile/Garment</i>	L	-	
		M	-	
		S	2	piped
20	<i>Wood, etc.</i>	L	-	
		M	-	
		S	20	piped, river, groundwater
22	<i>Publishing, etc.</i>	L	-	
		M	-	
		S	7	piped
24	<i>Chemistry, etc.</i>	L	-	
		M	-	
		S	2	river
26	<i>Non Metal Quarrying</i>	L	-	
		M	-	
		S	4	river
27/28/29	<i>Metal</i>	L	-	
		M	-	
		S	4	piped



1.5 MURA No data

Lubuk Linggau

Code	Industry	Scale	Establish	Water Source & Abstraction
15	Food & Beverages	L M S	80	PDAM 840 m <sup>3</sup> /m, groundwater 720 m <sup>3</sup> /m
24	Chemistry, etc.	L M S	30	PDAM 30 m <sup>3</sup> /m, groundwater 15 m <sup>3</sup> /m
36	Furniture, etc.	L M S	40	PDAM 40 m <sup>3</sup> /m, groundwater 40 m <sup>3</sup> /m

1.6 MUBA

Code	Industry	Scale	Establish	Water Source & Abstraction (m <sup>3</sup> /d)
15	Food & Beverages	L M S	3 - 6681	
17/18	Textile/Garment	L M S	- - 459	
20	Wood, etc.	L M S	10 3 566	
22	Publishing, etc.	L M S	- - 2	
24	Chemistry, etc.	L M S	- - 7	
25	Latex, etc.	L M S	1 - -	
27/28/29	Metal	L M S	- - 16	
36	Furniture, etc.	L M S	- - 170	

1.7 Palembang

<i>Code</i>	<i>Industry</i>	<i>Scale</i>	<i>Establish</i>	<i>Water Source &amp; Abstraction (m3/d)</i>
15	<i>Food &amp; Beverages</i>	L	9	PDAM, Musi
		M	12	PDAM, Musi
		S	1,704	Private Well
17/18	<i>Textile/Garment</i>	L	-	
		M	-	
		S	801	PDAM, Musi, Private Well
20	<i>Wood, etc.</i>	L	19	Musi, Girang, Ogan Rivers
		M	6	Musi, Girang, Ogan Rivers
		S	1,311	Musi, Private Well
22	<i>Publishing, etc.</i>	L	1	PDAM
		M	-	
		S	202	PDAM, Private Well
24	<i>Chemistry, etc.</i>	L	20	Musi, Private Well
		M	-	
		S	71	PDAM, Musi, Private Well
25	<i>Latex, etc.</i>	L	2	PDAM, Private Well
		M	-	
		S	-	
27/28/29	<i>Metal</i>	L	7	PDAM, Private Well
		M	10	PDAM, Private Well
		S	-	
36	<i>Furniture, etc.</i>	L	-	
		M	-	
		S	127	PDAM, Musi, Private Well

### 1.8 Pagaralam

<i>Code</i>	<i>Industry</i>	<i>Scale</i>	<i>Establish</i>	<i>Water Source &amp; Abstraction (m3/d)</i>
15	Food & Beverages	L	1	River 570 m3/m
		M	-	
		S	25	River 3,750 m3/m
20	Wood, etc.	L	-	
		M	3	River 450 m3/m
		S	-	

### 1.9 Prabumulih

<i>Code</i>	<i>Industry</i>	<i>Scale</i>	<i>Establish</i>	<i>Water Source &amp; Abstraction (m3/d)</i>
15	Food & Beverages	L	-	
		M	4	PDAM 7,500 m3/m
		S	36	PDAM 3,540 m3/m, groundwater 12,630 m3/m
17/18	Textile/Garment	L	-	
		M	-	
		S	19	PDAM 2,700 m3/m, groundwater 4,490 m3/m
20	Wood, etc.	L	-	
		M	-	
		S	15	groundwater 4,500 m3/m
22	Publishing, etc.	L	-	
		M	-	
		S	4	PDAM 4,000 m3/m
24	Chemistry, etc.	L	-	
		M	-	
		S	4	groundwater 6,000 m3/m
25	Latex, etc.	L	-	
		M	-	
		S	12	PDAM 12,000 m3/m, groundwater 60,000 m3/m
27/28/29	Metal	L	-	
		M	-	
		S	21	PDAM 30,000 m3/m, groundwater 1,500 m3/m

### 1.10 Rejang Lebong

Code	Industry	Scale	Establish	Water Source & Abstraction (m <sup>3</sup> /d)
15	Food & Beverages	L M S	- 2 75	Air Mudu Merah 120,000 m <sup>3</sup> /m PDAM 375,000 m <sup>3</sup> /m, groundwater 1,500,000 m <sup>3</sup> /m

### 2. Future Plan

#### 1 OKU

Industrial center renewing:

- 1) Brick/roof tile industry in Banumas, Perjaya, Batu Putih & Muara Dua
- 2) Resan weaving industry (grass moslem hat, etc.) in Peninjauan
- 3) Haramai industry (sack etc.) in Pulau Beringin
- 4) Silk worm industry in Banging Agung
- 5) Furniture industry in Baturaja

#### 2 OKI

- 1) Direction of industrial development is of one which is not too large, and not too much water use.

#### 3 MuaraEnin No plan

#### 4 Lahat

- 1) There exists no large industry. Government supports development of small/midium scale industry.  
Industrial area determined

#### 5 MURA

Especially, for local raw materials

#### 6 MUBA

Since 2001, detailed spatial plan has been carried out for the development of Trjung Si Api-Api Industrial Area, Talang kelapa district.

In this industry area, it is hoped that all kinds of industry will be operated.

#### 7 Palembang

Palembang city government has following reservation for industry areas:

- 1) Around Sungai Lais sub-district area 600 ha, for heavy industry (serious pollution industry).
- 2) Around Keramasan area for light industry

#### 8 Pagaram Under investigation

#### 9 Prabumulih

- 1) Facility and infrastructure
- 2) Effort on procurement of clean water as sub-material for food industry

#### 10 Rejang L. No answer

### 3. Issues

- 1 *OKU*
  - 1) Industrial locations are far from water sources. And, water distribution is not tidy.
- 2 *OKI*
  - 1) Untill now, there is no major problem.
- 3 *MuaraEnim*
  - 1) Investors do not interest to invest in Muara Enim.
- 4 *Lahat*      None
- 5 *MURA*      None  
Lubuk Linggau:      The demand of water comes from outer of Sum-Sel. Although it is partial.
- 6 *MUBA*
  - 1) Generally, MUBA consists of tidal swamp where water is blackish.
  - 2) Groundwater contains much metal.
- 7 *Palembang*
  - 1) There are many industries that can not get clean water, because water supply can not cover industrial areas.
  - 2) There is no water supply program.
- 8 *Pagaralam*      None
- 9 *Prabumulih*
  - 1) Water volume is very small in dry season.
  - 2) Distance between water source and industry area is very far.
- 10 *Rejang L.*      No answer

## VI. Mining

### 1. Water Use

#### 1.1 OKU (2001)

Name	Product	Water Sources & Abstraction
JOB- PERTAMI	Crude Oil 2,448,937 BBL Gas 5,019 mmscf	PDAM 8,200 barrel/d (1,303.8 m3/d)
NA-	Coal 0 t Tin 0 t	
TALISMA	Gold 0 kg	
N, Ltd	Silver 0 kg	

#### 1.2 OKI No data

#### 1.3 MuaraEnim

Name	Product	Water Sources & Abstraction
Tambang Batu Bara Company	Crude Oil BBL Gas mmscf Coal 9,612,479 t Tin t Gold kg Silver kg	Enim & A.Lawai Rivers 1,500 m3/month
PLTU, Bukit Asam	Crude Oil BBL Gas mmscf Coal t Tin t Gold kg Silver kg	Enim River 500-1,000m3/d

**1.4 Lahat (2002)**

<i>Name</i>	<i>Product</i>	<i>Water Sources &amp; Abstraction</i>
Tac-Pertamina -Pilona Petro Tanjung Lontar	Crude Oil 26,498 BBL Gas 0 mmscf Coal t Tin t Gold kg Silver kg	No water use

**1.5 MURA (2002)**

<i>Name</i>	<i>Product</i>	<i>Water Sources &amp; Abstraction</i>
PERTAMI NA Operation Area	Crude Oil 753,064 BBL Gas 12,251 mmscf Coal t Tin t Gold kg Silver kg	Private Well 19,908.3 m <sup>3</sup> /m
PT EXPAN NUSANT ARA	Crude Oil 521,584 BBL Gas 3,656 mmscf Coal t Tin t Gold kg Silver kg	Private Well 3,215.3 m <sup>3</sup> /m

**1.6 MUBA**

<i>Name</i>	<i>Product</i>	<i>Water Sources &amp; Abstraction</i>
	Crude Oil 7,500 BBL Gas 300,000 mmscf Coal t Tin t Gold kg Silver kg	Musi and Liin Rivers 1,500m <sup>3</sup> /month (Water is used for workers. No data for mining operation)

1.7 PLB (2001)

<i>Name</i>	<i>Product</i>	<i>Water Sources &amp; Abstraction</i>
Crude Oil	35,736,969 BBL	Kelekar River use without control
Gas	270,753 mmscf	
Coal	t	
Tin	t	
Gold	kg	
Silver	kg	
Pertamina		

1.8 Pagaralam No answer

1.9 Prabumulih No answer

1.10 Rejang L. No mining area



## 2. Future Plan

### 1 OKU

Name	Type	Phase	Water Sources	Water Needs
PT Aneka Tambang	Gold	Investigation	Sadau River, P. Beringin District#)	
Job-Pertamina-Talisman	Oil & Gas	Continue & Develop.	ABT, Peninjauan District	8,200 barrel/d

#) It can not be predicted whether it will use water or not.  
If the mining uses sprayer, it needs water. If the mining uses traditional system and dry processing system, it needs no water. But for wet system, it needs water supply. Generally, mining uses wet system (PLOTASI).

### 2 OKI Granit stone mining in Pampangan District in 2003

- 3 *MuaraEnin* No plan
- 4 *Lahat* Collecting
- 5 *MURA* Under data collection on potential mining as base for investors' promotion
- 6 *MUBA* Not yet exists
- 7 *Palembang* 5 –10 year later, industrial complex will be constructed, in which about 8 companies will operate.
- 8 *Pagaralam* No answer
- 9 *Prabumulih* No answer
- 10 *Rejang L.* No plan

## 3. Issues

### 1 OKU

- 1) Groundwater is not easily found in every location.
- 2) Water abstraction in public location will disturb people's activities and needs.

### 2 OKI None

### 3 *MuaraEnin* No answer

### 4 *Lahat* None

### 5 *MURA* No serious problems

### 6 *MUBA* None

### 7 *Palembang* Half do not use water for process, so the process is dry process.

### 8 *Pagaralam* No answer

### 9 *Prabumulih* No answer

### 10 *Rejang L.* No answer

**VIII. INPRES Water Supply System**

**1. INPRES Piped System**

**1.1 OKU (2000)**

Town/Village	Production Capacity (Lit./sec)	Production (M3/year)	Source/Type	Status	Operating Authority	Population Served	Number of Connection	Year Commence Operation
WATES	-	-	Water Spring	Operated	Society	2,500	-	2000
Cukuh Endah	-	-	Water Spring	Operated	Society	1,099	-	2000

**1.2 OKI** No Exists.

**1.3 Muara Enim** No Exists.

**1.4 Lahat (1997)**

Town/Village	Production Capacity (Lit./sec)	Production (M3/year)	Source/Type	Status	Operating Authority	Population Served	Number of Connection	Year Commence Operation
Jarai district	10	-	Pacar river	0	PDAM	-	-	1998
North Dempo	5	Besemmi River	-	0	PDAM	-	-	1998

**1.5 MURA (2002)**

Town/Village	Production Capacity (Lit./sec)	Production (M3/year)	Source/Type	Status	Operating Authority	Population Served	Number of Connection	Year Commence Operation
Suka Karya	-	-	-	Function	Society	1,996	552	-
Trawas	-	-	-	-	-	-	10	1998

**1.6 MUBA (2002)** No Exists.

**1.7 PLB** No Exists.

1.8 Pagaralam No Exists.

1.9 Prabumulih No Exists.

1.10 Rejang L... No Exists.

## 2. INPRES Non-Piped System

### 2.1 OKU (2000)

	Shallow Well with Hand Pump	Deep Well with Hand Pump	Dug Well	Protected Spring	Rain Water Harvesting	Total Persons Served
Total No. Facilities Provided			54			2,200
Managing Authority			Villagers			
Average No. of Persons Served by One Facility			50 persons			
Town/Village			5 districts			

2.2 OKI No Exists.

2.3 Muara Enim No Exists.

### 2.4 Lahat (1996)

	Shallow Well with Hand Pump	Deep Well with Hand Pump	Dug Well	Protected Spring	Rain Water Harvesting	Total Persons Served
Total No. Facilities Provided				65		65 villages
Managing Authority				LKMD		
Average No. of Persons Served by One Facility				200		
Town/Village				Spreading in Lahat		

### 2.5 MURA

	Shallow Well with Hand Pump	Deep Well with Hand Pump	Dug Well	Protected Spring	Rain Water Harvesting	Total Persons Served
Total No. Facilities Provided			410			2,050
Managing Authority			-			
Average No. of Persons Served by One Facility			5			2,050
Town/Village			village			

### 2.6 MUBA ('1978-1998)

	Shallow Well with Hand Pump	Deep Well with Hand Pump	Dug Well	Protected Spring	Rain Water Harvesting	Total Persons Served
Total No. Facilities Provided	2.703	49	66.304	-	62.977	661.146
Managing Authority	Service, Society	Service, Society	Service, Society	-	Service, Society	
Average No. of Persons Served by One Facility	5	25	5	-	5	
Town/Village	438	438	438	-	438	

### 2.7 PLB (2001)

	Shallow Well with Hand Pump	Deep Well with Hand Pump	Dug Well	Protected Spring	Rain Water Harvesting	Total Persons Served
Total No. Facilities Provided	640	100	10	-	2	37.600
Managing Authority	Health Service	Health Service	Health Service	-	Health Service	Health Service
Average No. of Persons Served by One Facility	10 hh	10 hh	10 hh	-	10 hh	10 hh
Town/Village	Palembang	Palembang				

2.8 Pagaralam No Exists.

2.9 Prabumulih No Exists.

2.10 Rejang L.. No Exists.

### 3. Future Plan (5–10 years)

1	<i>OKU</i>	No Exists											
2	<i>OKI</i>	No Exists											
3	<i>MuaraEnin</i>	No Exists											
4	<i>Lahat</i>	No Exists											
5	<i>MURA</i>	Districts of Muara Bakti, Muara Kelingi, Muara Lakitan, Muara Rupit, Muara Rawas											
6	<i>MUBA</i>	No Exists											
7	<i>Palembang</i>	No Exists											
8	<i>Pagaralam</i>	No sure plans											
9	<i>Prabumulih</i>												
	<i>Town/Village</i>	<i>Development Type</i>	<i>Planned Facilities</i>	<i>Additional Capacity (l/s)</i>	<i>Managing Authority</i>	<i>Source/Type</i>	<i>Increase on Service Pop</i>	<i>Implementation Period</i>					
	East Prabumulih	Capacity Increase	Pipe Network	30 L/second	PDAM	Lematang river	3,825						
	West Prabumulih	Capacity Increase	Pipe Network	30 L/second	PDAM	Lematang river	4,250						
	Cambai district	New Installation	Pipe Network	30 L/second	PDAM	Lematang river	6,230						
	Rambang Kapak	New Installation	Pipe Network	30 L/second	PDAM	Lematang river	5,000						
10	<i>Rejang L...</i>	No Exists											

### 4. Issues

#### 1 *OKU*

- 1) The total supply capacity is not fulfill the total demand.
- 2) Water quality is not satisfied.
- 3) Unequal distribution of infrastructure
- 4) In selection of infrastructure type, for examole:
  - Drilled well in Trans Batu Mata did not produce water,
  - Some simple/traditional treatments have dry water sources.

#### 2 *OKI*

- 1) Pipe network is already old so it needs the rehabilitation.
- 2) Many meters are damaged or no function.
- 3) Many pumps are damaged or no function.

- 3 MuaraEni**
- 1) Water leakage is 20% up to 30%.
  - 2) Clean water tariff is still low, Rp 1,600/m<sup>3</sup>. It can be used only for operation not for development.
  - 3) In rainy season, turbidity of produced water is very high, ±1,000 Mtu. In dry season, it is rather clean.
- 4 Lahat**
- 1) Existing equipment, especially, intake/distribution pumps is already old. So, they are not operational at most.
  - 2) Distribution pipe network is already aged about 20year. So, it needs change.
  - 3) High leaking that can reach at about 40 %.
  - 4) High operational costs influenced by following aspects.
- All of costs below are not balance with company income. Water tariff is less than the costs.
- Electrical bill cost (PLN) is very high, increase of electrical basic tariff
  - Available oil, fuel and chemical material
- 5 MURA**
- 1) For people living in the river basin, water intake activity needs to be increased. Especially for clean water, piping system in each river basin is necessary.
  - 2) Needs to construct clean water facility, for example, 246 villages, 15 districts, 22 public health centers:
    - 1 village with average 3,000 persons= 246 x 3,000 x 120 liter/day,
    - So, water demand= 88,560,000 liter/day
- 6 MUBA**
- 1) Raw water is polluted.
  - 2) Decrease of raw water quantity in dry season
  - 3) Unavailable good raw water, specially for districts which are far from river
- So the area should be supplied through water treatment.
- 4) Some districts have not electricity for 24 hours, so the services are done using generators.
  - 5) Treated water still contains Fe and Mn. From health aspect, the water smells no good, is dirty and damages health.
- 7 Palembang**
- Water supply is done by Water Management Board (PDAM Tirta Musi ). Whereas, health sector only do water quality control for environment, and counseling of water quality hygienic.
- 8 Pagarala** Limited budget & data
- 9 Prabumulih**
- 1) Pipe distribution network does not reach to villages in hinterlands, so it needs the additional.
  - 2) Digged well dry in dry season.
- 10 Rejang L..** No

## VII. PDAM

### 1. PDAM System

#### 1.1 OKU (2002)

Town/Village	Production/ Capacity (Lit./sec.)	Production (M3/year)	Source/Type	Status	Population Served
Batureja	70	2,177,280	Ogan river	Operated	35,280
Martapura	20	622,080	Komerling river	Operated	10,080
Muara Dua	20	622,080	Saka river	Operated	10,080
Gumawang	10	113,760	Komerling river	Operated	2,440
Sp. Martapura	5	68,376	Tarah river	Operated	1,500
Cempaka	10	118,944	Komerling river	Operated	3,320
Rasuan	10	6,840	Komerring river	Operated	700
Banding Agung	20	Still monitoring	Ranau Lake	Not operated	Planning
Penyandingan	2.5	44,076	Tributary	Operated	750
Pulau Beringin	2.5	14,136	Tributary	Operated	582
Simpang Sender	5	99,528	Water spring of	Operated	2,500
Kota Batu	5	16,284	Ranau Lake	Operated	900
Muara Dua Kisam	2.5	20,700	Tributary	Operated	910
Tanjung Lengkvayap	5	60,480	Lengkayap river	Operated	1,445
Kurungan Nyawa	2	-	Bar river	Not Operated	-
Peninjauan	-	-	Fail, because standard water is containing of high Fe		



## 1.2 OKI (2001)

<i>Town/ Village</i>	<i>Production/ Capacity (Lit/sec)</i>	<i>Production (M3/year)</i>	<i>Source/Type</i>	<i>Status</i>	<i>Population Served</i>
Kayu Agung	35	913,096	river	In operational	61,230
Inderalaya	20	426,902	river	In operational	5,551
Muara Kuang	2.5	29,646	river	In operational	490
Pedamaran	7.5	44,469	river	In operational	750
Pampangan	2.5	53,352	river	In operational	855
Tg..Sejaro	5	71,148	river	In operational	950
Mesuji	5	37,548	Drill well	Not function	Not function
Tg. Lubuk	5	56,328	Drill well	In operational	898
Sp.Padang	10	142,296	river	In operational	3,186
Meranjat	10	65,712	Drill well	In operational	1,049
Sritanjung	10	93,876	Drill well	In operational	1,246
Pangarayan	5	37,548	Drill well	In operational	888
Payar aman	5	43,800	Drill well	In operational	738
Betung	5	37,548	Drill well	Not function	Not function
Tl. Selapan	5	37,548	Drill well	Not function	Not function
Tugu Mulyo	10		Drill well	Haven't yet	Not function

### 1.3 MuaraEnim

<i>Town/Village</i>	<i>Capacity (l/s)</i>	<i>Operation (hr)</i>	<i>House Connection (1H.C. = 5 persons)</i>	<i>W. Source</i>
pilitasari village	20	24	-	enim river
third pasar village	60	24	-	lematang river
tanjung enim district	40	24	3,518	enim river
tanjung agung district	10	8	107	kalian river
Bedegung village	10	24	82	keli river
semendo district	10	24	275	enim river
ujan mas district	5	6	133	lematang river
gunung megang district	2.5	10	124	lengi river
Tebat agung village	10	6	181	limau river
tanah abang district	5	8	235	lematang river
babat village	10	6	208	deep well
air itam village	10	7	193	deep well
tempirai village	10	6	133	deep well
gelumbang district	10	6	118	deep well
bringin village	2.5	4	44	aur river

#) Production = capacity X duration – 20%

#### 1.4 Lahat (2001)

Village/city	Production Capacity (liter)	Production (m <sup>3</sup> /year)	Water sources	Status	Population Served	Remarks
Lahat	90	1,211,501	Lematang river	Operational	16,005	
Tebing Tinggi district	10	161,280	Seguring river	Operational	5,270	
Kota Agung	5	48,631	Water sources	Operational	980	
Bunga Mas	10	40,920	Kikim River	Operational	940	
Merapi	10	52,186	Lematang River	Operational	690	
Muara Pinang	20	-	Lintang river	Not-function	-	Not-function
Padang Tepong	19	133,920	Musi River	Operational	1,790	
Pendopo	5	-	Air Deras river	Not-function	-	Not-function
Tanjung Tepong	2.5	-	Water sources	Not-function	-	Not-function
Tanjung Sakti	7.5	50,088	K.Mana river	Operational	1,385	
Air Dingin	7	22,680	Irrigation channel	Operational	330	
Jarai/Tertap	10	64,800	Suban river	Operational	1,240	
Total	196	1,786,006			28,630	

#### 1.5 MURA (2002)

Village/city	Production Capacity/ liter	Production (m <sup>3</sup> /y)	Source/type	Status	Population Served
1 Lubuk Linggau	50	1,942,284	Water sources (Apur)	Operational	6,800
2 Lubuk Linggau	70	2,113,913	Keilingi River	Operational	

#### 1.6 MUBA (2002)

Village/city	Production Capacity/ liter	Production (m <sup>3</sup> /y)	Source/type	Status	Population Served
Sekayu	80	2,073,600	Musi River	In operational	15,000
Babat Toman	5	518,400	Musi River	In operational	2,300
Ngulak	2.5	38,880	Musi River	In operational	1,600
Bayung Lincir	5	77,760	Lalan river	In operational	1,830
Lumpatan	2.5	38,880	Musi River	In operational	1,510
Babat Toman	10	1,550,520	Musi River	Still build	4,000

### 1.7 PLB

<i>Town/Village</i>	<i>Capacity (l/s)</i>	<i>Production (m<sup>3</sup>/y)</i>	<i>Source/Type</i>	<i>Status</i>	<i>Population Served</i>
1st installation in 3 ilir	836	23,582,021	Musi River	Still Operational	total
2nd installation in Rambutan	700	24,254,291	Musi River	Still Operational	508,470
Installation in Taba	2.5	29,767	Musi River	Still Operational	
Installation in Polygon	30	934,218	Musi River	Still Operational	
Installation in Ogan	600	4,994,734	Musi River	Experiment	
Installation in Karang Anyar	60	3,110,400	Musi River	Experiment	
Installation in Borang	90	1,993,158	Musi River	Still Operational	

### 1.8 Pagaralam (2001)

<i>Town/Village</i>	<i>Capacity (l/s)</i>	<i>Production (m<sup>3</sup>/y)</i>	<i>Source/Type</i>	<i>Status</i>	<i>Population Served</i>
Simpang Petani	20	289,080	Suban River	In Operational	7,800
Gunung Dempo	20	630,720	Kali Gede river	In Operational	7,800
Pagerden	20	630,720	Garaman River	Still in built	3,500

### 1.9 Prabumulih

<i>Town/Village</i>	<i>Capacity (l/s)</i>	<i>Production (m<sup>3</sup>/y)</i>	<i>Source/Type</i>	<i>Status</i>	<i>Population Served</i>
Prabumulih	30 L/Second	831,605	Lematang River	Already operational	14,410 (2,882 hh x 5 p)

### 1.10 Rejang L..

Town/Village	Production/ Capacity (Lit./sec)	Production (M3/year)	Source/Type	Status	Population Served
<i>Curup District</i>					
Delima Village	5		Air Duku	Operational	
Curup	60		Air Bulak	Operational	
Curup	60		Air Subar	Operational	
Kesambe Baru	2.5		Air Duku	Operational	
Curup	40		Air Meles Bawah	Operational	
Simpang Nangka	5		Air Meles Atas II	Operational	
Air Bang	5		Air Meles Atas I	Operational	
<i>Kepahiang District</i>					
Kebawetan	20		Air Umbul	Operational	
Air Tapak Gedung	20		Air Lembut	Operational	
Pekalongan	2.5		Air Susuk	Operational	
<i>Kebau Agung District</i>					
Embung Ijo	2.5		Air Paung	Operational	

### 2. Future Plan

#### 2.1 OKU

Town/Village	Development Type	Additional Capacity (Lit./sec)	Source/Type	Increase on Service Population	Year Completion
Baturaja	New Installation	30	Ogan River	3.000	Proposed of 2003
Martapura	New Installation	30	Komerling river	3.000	Proposed of 2003
Muara Dua	New Installation	30	Sarangan River	3.000	Proposed of 2003
Baturaja	New Installation	30	Ogan River	3.000	In 2003

#### 2.2 OKI

Town/Village	Development Type	Additional Capacity (Lit./sec)	Source/Type	Increase on Service Population	Year Completion
1. Tanjung Raja	New Instalation	20 L./second	Ogan river	4.200	2004
2. Muara Kuang	Rehabilitation	2.5 L./second	Kelekar river	-	2004
3. Sp.Padang	Rehabilitation	10 L./second	Komerling river	-	2004

### 1.10 Rejang L...

Town/Village	Production/ Capacity (Lit./sec)	Production (M3/year)	Source/Type	Status	Population Served
<i>Curup District</i>					
Delima Village	5		Air Duku	Operational	
Curup	60		Air Bulak	Operational	
Curup	60		Air Subar	Operational	
Kesambe Baru	2.5		Air Duku	Operational	
Curup	40		Air Meles Bawah	Operational	
Simpang Nangka	5		Air Meles Atas II	Operational	
Air Bang	5		Air Meles Atas I	Operational	
<i>Kepahiang District</i>					
Kebawetan	20		Air Umbul	Operational	
Air Tapak Gedung	20		Air Lembut	Operational	
Pekalongan	2.5		Air Susuk	Operational	
<i>Kebau Agung District</i>					
Embung Ijo	2.5		Air Paung	Operational	

### 2. Future Plan

#### 2.1 OKU

Town/Village	Development Type	Additional Capacity (Lit./sec)	Source/Type	Increase on Service Population	Year Completion
Baturaja	New Installation	30	Ogan River	3.000	Proposed of 2003
Martapura	New Installation	30	Komering river	3.000	Proposed of 2003
Muara Dua	New Installation	30	Sarangan River	3.000	Proposed of 2003
Baturaja	New Installation	30	Ogan River	3.000	In 2003

#### 2.2 OKI

Town/Village	Development Type	Additional Capacity (Lit./sec)	Source/Type	Increase on Service Population	Year Completion
1. Tanjung Raja	New Instalation	20 L./second	Ogan river	4.200	2004
2. Muara Kuang	Rehabilitation	2.5 L./second	Kelekar river	-	2004
3. Sp.Padang	Rehabilitation	10 L./second	Komering river	-	2004

## 2.7 PLB

<i>Town./Village</i>	<i>Development Type</i>	<i>Additional Capacity (Lit./sec)</i>	<i>Source./Type</i>	<i>Increase on Service Population</i>	<i>Year Completion</i>
Palembang	Increasing Capacity	720	Musi River	50,000	

## 2.8 Pagaralam

<i>Town./Village</i>	<i>Development Type</i>	<i>Additional Capacity (Lit./sec)</i>	<i>Source./Type</i>	<i>Increase on Service Population</i>	<i>Year Completion</i>
Tl. Barat	New	20	Kali Satu river	3,500	2005

## 2.9 Prabumulih

<i>Town./Village</i>	<i>Development Type</i>	<i>Additional Capacity (Lit./sec)</i>	<i>Source./Type</i>	<i>Increase on Service Population</i>	<i>Year Completion</i>
Sukaraja district, T. Raman Majasari	New	40 L/second	Lematang river	15,000	2003
Patai Gulong district	New	10 L/second	Lematang river	2,000	2003
G. Ibul Barat and G. Ibul Timur districts	New	20 L/second	Lematang river	4,000	2003
Rambang Kapak district	New	10 L/second	Lematang river	2,000	2003

## 2.10 Rejang L..

<i>Town./Village</i>	<i>Development Type</i>	<i>Additional Capacity (Lit./sec)</i>	<i>Source./Type</i>	<i>Increase on Service Population</i>	<i>Year Completion</i>
Delima Village	Capacity Increase	15	Air Duku	-	Depening Fund

### 3. Issues

- 1 OKU**  
There is development necessity of water treatment plant and distribution network for increasing consumers.
- 2 OKI**  
There is enough raw water. But, production capacity of water treatments lacks. It causes small and insufficient water distribution.
- 3 MuaraEnim** No answer
- 4 Lahat**
  - 1) The additional capacity in the table above is still in process, with piping construction is already finish. For the next, it will be handed to PDAM Lahat.
  - 2) To rehabilitate installation , PDAM Lahat faces the problem about development fund. It is because it is still waiting from government of Lahat Regency. As the target in 2004, it will be operational again.
- 5 MURA**
  - 1) Unavailable extension of distribution pipe network to potential area because of no fund
- 6 MUBA**
  - 1) Distance from raw water is too far in some districts.
  - 2) Some districts have not electricity for 24 hours.
- 7 Palembang**
  - 1) Unavailable investment budget
  - 2) Operational costs increase higher than water tariff which is under control of Council Agreement.
- 8 Pagaralam**
  - 1) Just changed from administrative city to municipally, for this time, it is under data collection. For next, we will arrange data for the future development planning.
  - 2) Lack of fund as major one
  - 3) Society consider that PDAM's water intake makes water for agriculture less.
- 9 Prabumulih**
  - 1) Distance from raw water is very far, about 13 km to Lematang River.
  - 2) For developing, it needs much fund.
  - 3) Not yet satisfactory infrastructure
- 10 Rejang L..**
  - 1) Water discharge decreases in dry season.



**IX. Other Water Supply System**

**1. Present Other Water Supply System**

**1.1 OKU (1994–2000)**

Facility	No.	Person/Facility	Population Served	Authority
Protected Well	2	20	40	
Dug Well	451	20	9,020	
Protected Spring	2	300	600	
Rainwater Harvesting	2	5	10	
Piped	39	2500	97,500	
Total			107,170	

**1.2 KOI No data**

**1.3 Muara Enim**

Facility	No.	Person/Facility	Population Served	Authority
Piped	5	5		PGAM Muara Enim

**1.4 Lahat No Exists**

	Shallow Well with Hand Pump	Deep Well with Hand Pump	Piped Water Supply System	Dug Well	Protected Spring	Rain Water Harvesting	Total Persons Served
Total No. Facilities Provided			10,500m				30,000
Managing Authority			PDAM				
Average No. of Persons Served by One Facility			900 HH				
Town/Village			Lahat				

**1.5 MURA**

	Shallow Well with Hand Pump	Deep Well with Hand Pump	Piped Water Supply System	Dug Well	Protected Spring	Rain Water Harvesting	Total Persons Served
Total No. Facilities Provided			20	12,300	30		143,750 persons
Managing Authority			Health Service Society		Society		
Average No. of Persons Served by One Facility			1,000	10	25		
Town/Village			20 villages	246 villages	30 villages		

**1.6 MUBA (2002)**

	Shallow Well with Hand Pump	Deep Well with Hand Pump	Piped Water Supply System	Dug Well	Protected Spring	Rain Water Harvesting	Total Persons Served
Total No. Facilities Provided	1,250	1,250	-	1,250	10	30,000	194,750
Managing Authority	Health Service, Society	Health Service, Society	-	Health Service, Society	Health Service, Society	Health Service, Society	
Average No. of Persons Served by One Facility	25	5	-	5	100	5	
Town/Village	25	25	-	50	10	100	

**1.7 PLB** No exists

**1.8 Pagaralam** No exists

### 1.9 Prabumulih

	Shallow Well with Hand Pump	Deep Well with Hand Pump	Piped Water Supply System	Dug Well	Protected Spring	Rain Water Harvesting	Total Persons Served
Total No. Facilities Provided			4 units				19,305
Managing Authority			PDAM				
Average No. of Persons Served by One Facility							4,827
Town/Village			spreading				

1.10 Rejang L.. No exists.

### 2. Future Plan (5-10 years)

- 1 OKU No Exists
- 2 OKI No Exists
- 3 MuaraEnim No Exists
- 4 Lahat

Town/Village	Development Type	Planned Facilities	Additional Capacity (l/s)	Source of Fund	Managing Authority	Source/Type	Increase on Service Population	Implementation Period
Spreading	New Instalation	Pipe	840	APBD	DPU	River		0-5
Spreading	New Instalation	Pipe	240	APBD	DPU	River		0-5
Spreading	New Instalation	Pipe	360	APBD	DPU	River		0-5

5 MURA Not yet

**6 MUBA**

Town/Village	Development Type	Planned Facilities	Additional Capacity (l/s)	Source of Fund	Managing Authority	Source/Type	Increase on Service Population	Implementation Period
50 villages	new	Boor	5 lt/second	APBN/Loan	Health	Deep well	31,250	2003-2008
50 villages	new	Digging well	2 lt/second	APBN/Loan	Health	Deep well	6,250	2003-2008
100 villages	new	PA H	Vol:5 m3	APBN/Loan	Health	etc	12,500	2003-2008
10 villages	new		10 lt/second	APBN/Loan	Health	Water sorces	2,500	2003-2008

- 7 *PLB* No Exists
- 8 *Pagaralam* Under data collection
- 9 *Prabumulih* No Exists
- 10 *Rejang L..* No Exists

**3. Issues**

**1 OKU**

1) At this moment, DINAS PU CIPTA KARYA manages physical services, and HEALTH SERVICE only controls water qu

**2 OKI**

None

**3 MuaraEnim Leakage**

**4 Lahat**

- 1) Fluctuation of raw water sources and damages on natural conditions
- 2) Raw water sources are damaged by human activities, etc.

**5 MURA As mentioned in INPRES**

**6 MUBA**

Groundwater, dug wells, shallow wells and deep wells, contains Fe and Mn. In tidal swamp area, water is low pH.

**7 Palembang**

- 1) Low head for household water supply, 57.36 %
- 2) Pollution risk of water supply facilities, 29.18 % based on 53,954 facility survey
- 3) 86 % fulfill water quality requirement based on 218 sample facilities
- 4) Un-accounted for is still high, approximately up to 42 %, 634,370 persons.
- 5) Low water quality, non-PDAM facility

**8 Pagaralam Limited budget**

**9 Prabumulih No answer**

**10 Rejang L.. No answer**

## X. Tourism

### 1. Tourists (person)

#### 1.1 OKU (2000)

Tourism Objects	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Rantau Lake	1,307	1,124	1,109	1,122	1,130	1,009	1,127	1,287	1,005	1,104	1,126	1,249
Putri Cave	1,587	1,363	972	931	1,013	1,027	997	1,149	1,110	1,007	965	1,236
Bdl Rantau K	196	109	97	86	73	65	94	137	95	63	50	92
Total	3,090	2,596	2,178	2,139	2,216	2,101	2,218	2,573	2,210	2,174	2,141	2,577

#### 1.2 OKI (2000)

8 tourism object names only.

#### 1.3 Muara Enim

Tourism Objects	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Mountain in Semendo	20	20	20	20	20	20	20	20	20	20	20	20
Warm/Hot Water Source in Gemuhak	15	15	15	15	15	15	15	15	15	15	15	15
Curup Tenang Waterfall in Tanjung Agung	800	800	800	800	800	800	800	800	800	800	800	800
Curup Ayun-Ambatan Pulau in Lubuk Nipis	15	15	15	15	15	15	15	15	15	15	15	15
Mining Coal in Bukit Asam	50	50	50	50	50	50	50	50	50	50	50	50
Burniayu temple	100	100	100	100	100	100	100	100	100	100	100	100
Sriwijaya zoo in Talang Taling	200	200	200	200	200	200	200	200	200	200	200	200
Segayam Lake	50	50	50	50	50	50	50	50	50	50	50	50

#### 1.4 Lahat (2000)

Tourism Objects	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Ribang Kemambang	1,200	500	650	550	450	700	615	550	635	575	475	1,315
Tepian Lematang	1,050	957	895	920	1,000	1,100	1,015	5,000	2,000	1,975	999	3,555
Bukit Serelo	150	135	140	150	149	125	170	133	160	153	141	192
Ribang Cayau	2,100	1,525	1,950	1,750	1,800	1,600	700	950	895	357	895	2,200
Air Terjun K.D	1,015	957	765	675	866	767	815	575	765	815	920	1,000
Air Terjun Lawang	195	115	120	105	121	100	102	150	130	120	95	197
Kolam Pemancangan	490	321	295	300	311	299	215	313	290	375	390	435
Kolam Panas Ting Sakti	155	102	135	120	145	147	140	111	100	112	136	159
Megalit T99 hari	65	52	51	49	39	40	47	51	60	61	43	63

#### 1.5 MURA (2000)

Tourism Objects	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Napalicin Cave	511	660	638	679	613	393	579	531	609	742	708	715
Rayo Lake	304	147	156	163	174	271	154	232	241	263	276	263
Karya Sakti Hot	106	124	136	147	158	172	196	256	274	251	290	243

#### 1.6 MUBA (2001)

26 tourism object names only.

#### 1.7 PLB (2002)

20 tourism object names, and total tourist number 250,470 persons (history & cultural 243,382; natural resource 7,088)

#### 1.8 Pagaralam

Tourism Objects	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Dempo Mountain	The average in every month is 500 person											
Lematang	The average in every month is 2,000 person											
Tebat Gheban	The average in every month is 2,000 person											
Megait	The average in every month is 100 person											

#### 1.9 Prabumulih

No answer.

### 1.10 Rejang L.

#### 1. Curup District:

Suban Hot Spring

Talang Kering Lake

#### 2. Kepahiang District:

Kebawetan Tea Garden

Multistoried Water Fall (Air Sempiang)

Air Sempiang Hot Water

Karang Endah Water Fall

Natural Preservation of Rafflesia Flower and Corpse Flower (Pagar Gunung)

### 2.3 Muara Enim

<i>Tourism Objects</i>	<i>Stay (days)</i>	<i>Accommodation</i>
Mountain in Semendo	1	[Own House], [Relatives]
Warm/Hot Water Source in Genuhak	1	Other [ ]
Curup Tenang Waterfall in Tanjung Agung	1	[Hotel], [Own House], [Relatives]
Curup Ayun-Ambatan Pulau in Lubuk Npais		[Hotel], [Own House], [Relatives], Other [ ]
Mining Coal in Bukit Asam	1	[Hotel], Other [ ]
Bumiayu temple	1	[Hotel], [Own House], [Relatives], Other [ ]
Sriwijaya zoo in Talang Taling		[Relatives], Other [ ]
Segayam Lake		[Hotel], [Own House], [Relatives], Other [ ]

### 2. Stay Period & Accommodation

#### 2.1 OKU

<i>Tourism Objects</i>	<i>Stay (days)</i>	<i>Accommodation</i>
Rantau Lake	2	[Hotel]
Putri cave	1	[Own House], [Relatives]
Bendali Rantau K	1	[Own House], [Relatives]
Perjaya Irrigation	1	[Own House], [Relatives]

**2.2 OKI** 1 day at own houses.

#### 2.4 Lahat

<i>Tourism Objects</i>	<i>Stay (days)</i>	<i>Accommodation</i>
Ribang Kemambang	1 day	Own House, Relatives
Tepian Lematang	1 day	Hotel, Own House, Relatives
Bukit Serelo	3 days	Tend
Air Terjun Kr. Dalam	1 day	Hotel, Own House, Relatives
Megalith T99 Hari	About 10 days	Hotel, Own House, Relatives
Kolam Pemancingan	1 day	Own House
Air Panas	1 day	Own House

## 2.5 MURA

## 2.6 MUBA

No data

<i>Tourism Objects</i>	<i>Stay (days)</i>	<i>Accommodation</i>
Napallicin cave	1 until 3 days	Hotel, Relatives
Rayo lake	1 until 3 days	Hotel, Relatives
Karya Sakti Hot Water	1 until 3 days	Hotel, Relatives

## 2.7 PLB

## 2.8 Pagaralam

<i>Tourism Objects</i>	<i>Stay (days)</i>	<i>Accommodation</i>
1. Natural Resources Object	2-4 days	Hotel
2. History and culture object	2-4 days	Hotel
3. Studytour object	1-2 days	Hotel

<i>Tourism Objects</i>	<i>Stay (days)</i>	<i>Accommodation</i>
Dempo mountain	3	Hotel
Lematang	1	Hotel, Own House, Relatives
Tebat Gheban	1	Hotel, Own House, Relatives
Megalit	3	Hotel

## 2.9 Prabumulih

No answer.

## 2.10 Rejang L..

3 days

## 3. Water Related Tourism

1	OKU	None
2	OKI	None
3	MuaraEnim	Rafting in Muara Enim River, paddling in Enim-Lematang River, hot water in Gemuhak, Segayam Lake
4	Lahat	None
5	MURA	None
6	MUBA	10 tourism sites
7	Palembang	Musi River
8	Pagaralam	6 ha pond
9	Prabumulih	No answer
10	Rejang L..	No answer



#### 4. Preferable Water Conditions

##### 4.1 OKU

<i>Tourism Objects</i>	<i>Specification relating Water</i>	<i>Minimum (m)</i>	<i>Maximum (m)</i>	<i>Present Problems</i>
Ranau Lake	Cadik boat/canoe	2	10	The wave is unstable
Bendali Rantau K	Fishing	1	5	
Perjaya Irrigation	Paddling and	4	10	
Gemuhak Waterfall	Bathing	–	–	

##### 4.2 OKI None

##### 4.3 Muara Enim

<i>Tourism Objects</i>	<i>Specification relating Water</i>	<i>Minimum (m)</i>	<i>Maximum (m)</i>	<i>Present Problems</i>
Warm/Hot Water Source in Gemuhak	Bathing	0.5	0.8	Dry monsoon
Curup Tenang Waterfall in Tanjung Agung	Bathing	0.5	2	In rain season (dirty) and dry season (small water)
Segayam Lake	Water recreation	0.5	2	In dry season (dry water)

#### 4.4 Lahat

<i>Tourism Objects</i>	<i>Specification relating Water</i>	<i>Minimum (m)</i>	<i>Maximum (m)</i>	<i>Present Problems</i>
Ribang Kemambang	Pond	5	7	Lot of grass and muddy
Teipan Lematang	River	3	5	Un-available of parking
Ribang Gayau	River	5	7	Down road is sharp
Air Panas	River	1	2	Far from the city ( $\pm 30$ km)
Kolam Pemancangan	Artificial pond	1	2	-
Air terjun Lawang Agung	Water Fall	-	$\pm 6$	Difficult to crossed by transportation
Air terjun Karang dalam	Water Fall	-	$\pm 15$	Difficult to crossed by transportation

#### 4.5 MURA

<i>Tourism Objects</i>	<i>Specification relating Water</i>	<i>Minimum (m)</i>	<i>Maximum (m)</i>	<i>Present Problems</i>
Napalicin cave	Rawas river	2	8	
Rayo lake	lake	8	10	
Karya Sakti Hot Water		1	2	

#### 4.6 MUBA

<i>Tourism Objects</i>	<i>Specification relating Water</i>	<i>Minimum (m)</i>	<i>Maximum (m)</i>	<i>Present Problems</i>
Danau Ujak Lia	Scull	10	15	The area is swamp

#### 4.7 PLB

<i>Tourism Objects</i>	<i>Specification relating Water</i>	<i>Minimum (m)</i>	<i>Maximum (m)</i>	<i>Present Problems</i>
Musi River	Bidar games	It is depend on natural water tidal swamp		Very depend on the natural
	Musi Tour			

#### 4.8 Pagaralam

<i>Tourism Objects</i>	<i>Specification relating Water</i>	<i>Minimum (m)</i>	<i>Maximum (m)</i>	<i>Present Problems</i>
Thebat Gheban	Water pond	1	8	Nothing
Lematang	Water fall	-	-	In dry season, the water is small

4.9 Prabumulih No answer.

4.10 Rejang L.. No answer.

#### 5. Future Plan (person)

	2000	2005	2010
1 OKU	28,213	41,000	60,000
2 OKI	-	local 1,600 foreign 850	-
3 MuaraEnim		10% increase up to 2010	
4 Lahat	15,000	45,000	50,000
5 MURA	12,578	13,150	13,500
6 MUBA	20 (2001)	250	400
7 Palembang	-	-	-
8 Pagaralam	96,600 (2001)	160,000	320,000
9 Prabumulih	No answer		
10 Rejang L..	No answer		

## 6. Issues

- 1 *OKU*  
In Perjaya, tourism service can not control water supply, when water is decreasing.  
Perjaya then can not be used for skiing and paddling.
- 2 *OKI*  
None
- 3 *MuaraEnim*  
In rainy season, water discharge is too large, high speed and dirty. In dry season, it is too little.
- 4 *Lahat*  
None
- 5 *MURA*  
None
- 6 *MUBA*  
Area is swamp.
- 7 *Palembang*  
None
- 8 *Pagaralam*  
Water does not exist throughout the year. Whereas, in dry season water is little, and in wet season water is very large.
- 9 *Prabumulih*  
No answer
- 10 *Rejang L..*  
No answer

## XI. Recreation

### 1. Place, activities & Preferable Water Condition

#### 1.1 OKU

Places for Water Recreation	Recreation Activities	Minimum (m)	Maximum (m)	Present Problems
Rantau Lake	Cadik boat/canoe	2	10	Wave is unstable
Bendali K	Fishing	1	5	
Irrigation Peraya	Ski and paddling	4	10	

No data

#### 1.2 OKI

#### 1.3 Muara Enim

Places for Water Recreation	Recreation Activities	Minimum (M)	Maximum (M)	Present Problems
Enim River	Rafting and Paddling	2	3	In rain season, water debit is speed/quick
Segayam Lake	Water recreation, fishing and bathing	0.5	3	In ddry season, there are no water/consisting of dry water

#### 1.4 Lahat

Places for Water Recreation	Recreation Activities	Minimum (m)	Maximum (m)	Present Problems
Tepian Lematang	Rfating games	3	5	Limited of fund
Ribang Kemambang	Machine duck/water cycle	5	7	Heaven 't yet done the muddy

#### 1.5 MURA

Places for Water Recreation	Recreation Activities	Minimum (M)	Maximum (M)	Present Problems
Rayo Lake	Recreation	8	10	
Rawas Ulu Building (swimming pool)	Swim and take bath	0.5	2	
Karya Sakti Hot water	Take bath	1	2	

#### 1.6 MUBA

Places for Water Recreation	Recreation Activities	Minimum (m)	Maximum (m)	Present Problems
Ullat lia lake	Fishing,scull	10	15	Society' s land
Swimming pool in Sekayu	Swimming	1	6	Land Compensation

### 1.7 PLB

<i>Places for Water Recreation</i>	<i>Recreation Activities</i>	<i>Minimum (m)</i>	<i>Maximum (m)</i>	<i>Present Problems</i>
Musi River	- - Water	No exist		Nothing

### 1.8 Pagaralam

<i>Places for Water Recreation</i>	<i>Recreation Activities</i>	<i>Minimum (m)</i>	<i>Maximum (m)</i>	<i>Present Problems</i>
Thebat Gheban	Swimming. Take a Bath and recreation	1	8	Nothing
Lematang	Recreation and take a bath			Water debit is not stable

### 1.9 Prabumulih No answer

### 1.10 Rejang L..

<i>Places for Water Recreation</i>	<i>Recreation Activities</i>	<i>Minimum (m)</i>	<i>Maximum (m)</i>	<i>Present Problems</i>
Talang Kering Lake	Paddle, Swimming, Bathing			

## 2. Issues

- 1 *OKU* None
- 2 *OKI* None
- 3 *MuaraEnim* As mentioned in Tourism
- 4 *Lahat* If long dry season occurs, Lematang River becomes shallow.
- 5 *MURA* None
- 6 *MUBA* Area is swamp.
- 7 *Palembang*
  - 1) Water levels depend on tidal swamp conditions, and sedimentation is formed at the bottom of river. This can influence ship transportation in and around Palembang city.
  - 2) Drainage master plan is necessary, in which river is used for small boat transportation. So, function as city drainage and water transportation can support water object tourism.
- 8 *Pagaralam*
  - 1) Water discharge is not stable.
  - 2) Budget for tourism facility development is very limited.
- 9 *Prabumulih* No answer.
- 10 *Rejang L..* No answer.

## *XII. Water Licensing*

### 1. Inventory

1	<i>OKU</i>	No Answer
2	<i>OKI</i>	Not yet exists
3	<i>MuaraEnim</i>	No Answer
4	<i>Lahat</i>	No Answer
5	<i>MURA</i>	Names of pond owners who are vested water rights
6	<i>MUBA</i>	Not yet exists
7	<i>Palembang</i>	No Answer
8	<i>Pagaralam</i>	Not have sure inventory
9	<i>Prabumulih</i>	No Answer
10	<i>Rejang L..</i>	Not yet exists

### 2. Issues

- 1 *OKU* No Answer
- 2 *OKI* On process
- 3 *MuaraEnim* No Answer
- 4 *Lahat* No Answer
- 5 *MURA* No Answer
- 6 *MUBA* No Answer
- 7 *Palembang* No Answer
- 8 *Pagaralam*  
Society are not doing license. So, society make their activities, relating to surface and groundwater abstracts, without attention to licensing institution.
- 9 *Prabumulih* No Answer
- 10 *Rejang L..* No Answer



**XIII. Retribution on Water Use (UPTD)**

**1. Industrial Water Use**

1	<i>OKU</i>	± 40,000 – 45,000 m <sup>3</sup> /month, 1 company, using Musi River, as of June 2002
2	<i>OKI</i>	1,988,976 m <sup>3</sup> /year, 19 companies, including groundwater and surface water, in 2001
3	<i>MuaraEnim</i>	6,364,283 m <sup>3</sup> /2year, 7 companies, including groundwater and surface water, 2000–2001
4	<i>Lahat</i>	including groundwater and surface water, as of Oct 2001
	Ke Lahat	139,388.66 m <sup>3</sup> /year 32 company
	Ke Merapi	1,250.00 m <sup>3</sup> /year 1 company
	Ke Teb. Tinggi	3,600.00 m <sup>3</sup> /year 2 company
	Total	144,238.66 m <sup>3</sup> /year 35 company
5	<i>MURA</i>	45,630 m <sup>3</sup> /year of 4 tax payers, more than 40 tax payers under processing (G 4,680m <sup>3</sup> /y; S 40,950m <sup>3</sup> /y)
6	<i>MUBA in 2002</i>	8,272,073 m <sup>3</sup> /year 19 company total
	groundwater:	7,682,770 m <sup>3</sup> /year
	Musi River:	589,303 m <sup>3</sup> /year
7	<i>Palembang</i>	110,903,061 m <sup>3</sup> /year 20 company (converted into 12 months in 2002)
8	<i>Pagaralam</i>	7,665 m <sup>3</sup> /year 2 company
9	<i>Prabumulih</i>	No Answer
10	<i>Rejang L..</i>	Not yet exists

## 2. Issues

- 1 *OKU*
  - 1) Lacking of society's realization
  - 2) UPTD still has the difficulties in measuring an accurate usage of water.
- 2 *OKI*

None
- 3 *MuaraEnim*

No answer
- 4 *Lahat*

No answer
- 5 *MURA*
  - 1) Measuring formulation for water discharge is used for oil palm estate.
  - 2) River or irrigation water is used for fish ponds.
  - 3) Water usage for a person's need
- 6 *MUBA*
  - 1) Conditions of connecting roads to hinterlands are very bad. These hamper coordination among districts.
  - 2) Tax payers always manipulate data. So, there often happens conflict with officials.
  - 3) Generally, tax payers do not agree with new tariff.
  - 4) Lot of tax payers do not want pay tax, because they have not yet get water.
  - 5) Most of tax payers are not fair and not cooperative with officials.
  - 6) Half of tax payers still make their payment through regional government bill.
  - 7) Specially for this time, we have only motorcycles, so there is a problem of not reaching to loctions.
- 7 *Palembang*

No answer
- 8 *Pagaralam*

No answer
- 9 *Prabumulih*

No answer
- 10 *Rejang L..*

No answer