		Infrastruc	ture		Public	facilities	
Administrative area of study	Artery	Collector	Local	SD	SMP	SLTA	RSU
	road	road	road	-3D	214IL	SLIA	PKS
·	(km)	(km)	(km)	(units)	(units)	(units)	(units)
A. Kampar basin						:	
a. Weir and canal Rantanu Berangin							
Kec. Bangkinang	40	30	60	99	17	13	. 11
Kec. Kampar	40	20	50	89	19	2	4
Kec. Siak Hulu	20	35	70	63	4	.1	2
Subtotal (a)	100	85	180	251	40	16	17
b. Kampar Kiri 1 Dam							
Kec. Kampar Kiri	60	15	75	83	8 -	2	16
c. Kampar Kiri 2 Dam							
Kec. Singingi	40	5	· : 60	29	2		2
Total (a + b + c)	200	105	315	363	- 50	18	- 35
B. Indragiri basin							
a. Sinamar Dam							
Kec. Pyk. Utara	10	10	15	34	7	6	6
Kec. Pyk. Timur	20	15	25	21	5	3	6
Kcc. Harau	15 -	20	.50	43	3	1	9
Kec. Luhak	20	25	60	83	7	3	15
Kec. Lintau-Buo	25	15	40	55	4	2	6
Subtotal (a)	90	85	190	236	26	15	42
b. Sukam Dam		1. J.					
Kec. Sijunjung	35	20	45	52	5	4	7
Kec. Tjg. Gadang	20	15	50	73	10	3	15
Subotal (b)	55	35	95	125	15	7	22
c. Kuantan Dam				·			
Kec. Tjg. Gadang	20	15	50	73	10	3	15
Kec. Ktn. Mudik	60	10	30	45	4	1	14
Subtotal (c)	80	25	80	118	14	4	29
d. Weir and Canal, Lbk.Jambi							
Kec. Ktn. Mudik	60	10	30	45	. 4	1	14
Kec. Ktn. Tengah	10	25	35	59	13	5	20
Kec. Ktn. Hilir	. ·	75	45	50	5	1	6
Kec. Cirenti		15	20	26	2	2	- 8
Кес. Регапар		20	. 15	25	3	- 1	6
Kec. Pasir Penyu	45	30	60	64	·. 9	4	12
Subtotal (d)	115	¹ 175	205	269	36	14	66
Total (a+b+d)	260	·	490				

Table V.19 INFRASTRUCTURE AND PUBLIC FACILITIES OF STUDY AREA IN KAMPAR -INDRAGIRI RIVER BASIN, 1993.

Source: The monography of each Kecamatan, 1993

Note)

SD = elementary school, SMP = junior high school

SMA = senior high school

RSU/ PKS = hospital/ reiginal clinic

-			<u> </u>			· · · · · · · · · · · · · · · · · · ·		
	Item	Old	Old	Tradit.	Seni			Recrea-
	Administrative district	mosque	grave	construc.	Rebana	Balimau	Martial	tion
	A. KAMPAR river basin	2	⁻ 10	2	8	6	2	13
	a. Rantau Berangin Weir				· · ·			
	1. Kec. Bangkinang		-	-	1	1	-	2
	2. Kec. Kampar	1	1	-	1	1	-	1
	3. Kec. Siak Hulu	-	. 3		1		-	2
1	sum of a	1	4	. .	3	2	-	5
	b. Kampar Kiri 1 dam						· ·	
	Kec. Kampar Kiri	-	1	1	1	1	1	2
	c. Dam Kampar Kiri 2							
	Kec. Singingi	-	1	1	1	a 1 -	1	1
þ	B. INDRAGIRI river basin	0	8	24	26	12	12	54
	a. Sinamar dam							
	1. Kec. Pyk. Utara	-	-	1	1	-	-	1
1	2. Kec. Pyk. Timur		-	1	1.	-	-	- 2
	3. Kec. Harau		1 .	1	1 .	·	1	3
	4. Kec. Luhak	-	1	1	1	-	1	4
	5. Kec. Lintau-Buo	-	-	1	1	, -	1	. 2
	sum of a	-	2	5	5	- ·	3	12
ł	b. Sukam dam			1				
	1. Kec. Sijunjung		-	1	1		1	. 3 .
	2. Kec. Tjg. Gadang	-		1	1	-	1	2
	sum of b	-	-	2	2	<u> -</u>	2	5
	c. Kuantan dam							
	1. Kec. Tjg. Gadang		. - 1	1	1	are Line a	1	2
	2. Kec. Ktn. Mudik	• ·	·	1	1	1	-	. 1
	sum of c		-	2	2	1	1	3
	d. Lubuk Jambi Weir							
	1. Kec. Ktn. Mudik	1 - -	1	1	1	1		1
	2. Kec. Ktn. Tengah	-	. 1	÷.1	1	1	-	2
	3. Kec. Ktn. Hilir	-	-	. 1	1	1	-	.1
	4. Kec. Cirenti	-	-	-		1	<u> </u>	· 1
	5. Kec. Peranap	-	-	-		1	-	-
	6. Kec. Pasir Penyu	-	-	· · -	· 1	-	-	2
	sum of d	· - ·	2	3	4	5	-	7

Table V.20 NUMBER OF HISTORICAL ASSETS AND CULTURAL PROPERTIES ATADMINISTRATIVE REGENCIES IN THE STUDY AREAS, 1994.

Data source : Key informations at each district in, 1994



Parameter	Unit	
Temperature	oC	17.87 - 31.2
Colour	col.unit	range from clear
		muddy
Total Dissolved Solid (TDS)	mg/l	60 - 152
Electrical conductivity	mS/cm	0.37 - 0.55
pH	-	5.93 - 7.16
Dissolved Oxygen (DO)	ppm	4.30 - 8.32
Chemical Oxygen Demand (COD)	ppm	10.20 - 48.20
Biological Oxygen Demand (BOD)	ppm	31.20 - 42.20
Oil & grease content	ppm	7.164 - 12.305
Total hardness (Ca and Mg)	ppm	16.64 - 26.62
Cadmium (Cd)	ppm	undetected
Zink (Zn)	ppm	0.003 - 0.019
Cupper (Cu)	ppm	9x10-4 - 1.9x10-3
Lead (Pb)	ppm	undetected
Chromium (Cr)	ppm	undetected
Mercury (Hg)	ppm	undetected
Cl-	ppm	2 - 6
NO3 -	ppm	0.43 - 0.52
NH4 +	ppm	0.06 - 0.33
SO 4 2-	ppm	0.86 - 2.47

Table V.21 WATER QUALITY OF INDRAGIRI RIVER AT LUBUKJAMBI, PERANAP, RENGAT AND KUALA CINAKU.

(Data from Laboratory of Public Works of Rain, 1990)

Table V.22 RESULT OF WATER QUALITY TEST OF INDRAGIRI RIVER AT
KUALA CINAKU, KUALA PERANAP AND TALUKKUANTAN IN
SEPTEMBER, 1994.

Parameter	Unit	Findings
Temperature	oC	28 - 29
Colour		range from clear to
	-	greenish
Total Dissolved Solid (TDS)	ppm	101.50 - 147.00
Total Suspended Solid (TSS)	ppm	429.00 - 706.00
pH	-	5.5 - 5.7
Dissolved Oxygen (DO)	ppm	4.3 - 4.4
Biological Oxygen Demand (BOD):	Ppm	דוד עוד
* Kuala Cinaku	ppm	26
* Kuala Peranap	ppm	8
* Taluk Kuantan	ppm	21
Chemical Oxygen Demand (COD):	Ppm	~
* Kuala Cinaku	ppm	44
* Kuala Peranap	ppm ppm	11
* Taluk Kuantan	ppm	35
Zn	ppm ppm	0.065 - 0.072
Cu	ppm -	undetected
 K +	ppm	1.618 - 2.115
As	ppm	0.000 - 2.115
Fe	ppm	0.170 - 0.23
Mn	ppm	undetected
Hg	ppm	not analyzed
Ba	ppm	0.010 - 0.022
Cd	ppm	undetected
Se	ppm	undetected
Pb	ppm	0.00 - 0.02
PO 4 -	ppm	0.181 - 0.186
NO3 -	ppm	0.0264 - 0.0267
NO2 -	ppm	0.044 - 0.045
SO 4 2-	ppm	1.049 - 1.103
NH3 -N	ppm	0.0018 - 0.0020
Cl -	ppm	2.1061 - 3.3100
CN -	ppm	undetected
F -	ppm	undetected
HS	ppm	undetected
Bacteria:		
Fecal Colliform	#/ml	<1600
Total Colliform	#/ml	<5000

Table V.23 BOTANICAL INVENTORY IN THE STUDY AREA OF INDRAGIRI RIVER BASIN.

NT-	Laat	Colored C		Dar		ct site		Stati		
No	Local name	Scientific name	Family	÷	DSM	DKN	BKK	NE	D	
1	Bintangur	Callophyllum sp	Guttifer	x		x	x	x	.	
2	Balau hitam	Palaquium sp	Sapotac	x		x		x	l	
3	Belimbing hutan	Elaeocarpus sp	Oxalae			x	x	x	4	
4	Balik Angin	Mallotus paniculatus	Euphart	x						
5	Durian	Durio zibethinus	Bombac		x	x	x	x		
6	Enau	Arenga pinnata	Palm	x		x	-	x	x	
7	Balau	Shorea sp	Dipterocarp	x		x	x	x		
8	Damar	Aleurittes moluccana	Euphorb		x			x		
9	Kelat	Eugenia spicata	Myrt	x		x	x	x		-
10	Keruing	Dipterocarpus appendicutus	Dipterocarp	<u>^</u>	•	x	x	x	x	
11	Loso	Cinnammomum sp	Laur			x	x	л	X	ľ
12	Lalan	Santiria oblongifolia	Eben							
13	Meranti merah	Shorea accuminata				X	x	x		
14	Mersawa		Dipterocarp			° x	x	х		
1		Anisoptera curtisis	Dipterocarp		X	X .	X	X		ĺ
15	Medang	Listsea sp	Laur	х	Х.	X.	x	X		
16	Marpoyan	Rhodamnia toinervia		x		x	x			1
17	Mauparning	Quercus lucida	Fagac	 		x	x .	X		
18	Rengas	Gluta rengas	Anacard	X		x	x			
19	Resak	Vatica sp	Dipterocarp	x	X			· X		
20	Sungkai	Peronema canesceris	Verb		x	x		x	x	
21	Sondunk-sondunk	Endospernum sp	Euphorb			x	x			-
22	Sijangkang	Dillenia sp	Dillenia	·		. x	x	x		
23	Tarok	Artocarpus sp	Neor			x				
24	Tampui	Elatriospernum tapos	Euphorb			x	x	х		
25	Terentang	Campenosperma sp	Anacard			x	x	x		
26	Tembusu	Fragrarea fragrans	Loganiac	·		x	î X	x	x	
27	Jelutung	Dyera sp	Apocynac			x	x			
28	Jirak putih	Dehasia sp	Laurac			^	Δ.	X		1
29	Petai titik	Alostonia exelsa	Euphorb	X			12	x		-
29 30	Petai gadang	Alostonia scholaris		X			· ·		х	
30 31	Petai		Euphorb	x						
		Parkia speciesa	Mimosac		x		н. 			
32	Modang pulut-pulut	Alseodaphine sp	laurac	x					x	
33	Gerunggang	Crafexyten sp	Guttiferac	x		x	x			
34	Sago	Aderanthera pavonina	Leguinninac	x					x	-
35	Nangka	Artocarpus integra	Morac	x	x			x		
36	Cemara	Agathis spp	Araucar	x :				. x '		
37	Rambai	Baccausea sp	Apocynac	x			ан — — — — — — — — — — — — — — — — — — —	x		
38 [:]	Gamai-gamai	Baeckea frutescens	Aeyrtac	x					х	
39	Betung	Baulbusa sp	Graun					x ·		
40	Barangan gounja	Costanopsis tungarniy	Fagac	x						
41	Pinang kuning	Chrysalidocarpus sp	Palmae	x				x		
42	Modang jaring	Elaeocarpus sp	Tilliaceae	x.						
43	Paga-paga	Eugenia spp	Myrt	x		v	. .	v	:	
44	Timah-timah	Litsea sp1	Laurac			x	x	X	x	
45	Ampodu barau-barau	Litsea sp2		X				x	х	
46	Nyatoh		Laurac	• X •				x		
40 47		Palaquium sp	Sapotac	x			[x	Х.	
	Nyatoh pinago	Palaquium sp	Sapotac	x			· · .	X .	х	
48	Kalek Baringin	Sycopsis lumii	Aeryrtac	x				x .		
49 _.	Lansek	Lansium domasticuls	Murtaune		x			x		
50	Pala	Myristica foragraus	Myrist		x			x		
51	Indarung	Trema Orientalis	Tiliac		x					
		[Project site]	DKM= Lower				Status			L

DSM= Sukam dam

D = Protected L = Endangered

No.	Local name	Scientific name		oject si			Statu
			DSR	DSM	DKN	BKK	D
	I.Mamalia						
1	Babi hutan	Sus scrofa	v v	v	v .	¥	· ·
2	Beruang Madu	Helarctos malayanus		v	v	v	v v
3	Beruk	Macaca nomestrina	v	· •	\mathbf{v}	v i	
4	Harimau	Panthera tigris sumateraensis	v	v	v .	v	v
5	Kijang	Muntiacus muncak	v	v	?	?.	
6	Landak	Hystrik brachyura		v			v
7	Berang-berang	Lutra sumatrana	1	v .			
8	Lutung Hitam	Presbytis cristata	1 A.	v		÷	
9	Gajah	Elephas maximus	· ·		v	v .	v v
0	Monyet ekor panjang	Macaca fascicularis	v	v	v ·	l v	
.1	Rusa	Cerves unicalor	v.	v	v .	v v	l v
2	Napu	Tragulus napu		v			l v
3	Musang	Paradoxorus hermaporoditus	v	v	V.	v	l v
4	Siamang	Symphalongus syndactilus	v	v	v	v	.
5	Tapir	Tapirus indicus	v	v	v	v.	l v
6	Ungko	Hylobates agilis	v.	v	·		v v
7	Trenggiling	Manis javanica		v		· ·	[.] .
	II. Birds			<u> </u>			<u> </u>
1	Bubut Merah	Centropus bengalensis	v	v			
2	Beo	Gracula regiwsa		v	v	v . 1	v v
3	Burung Madu Kuning	Nectarini jugularis		v			
4	Cacakurawa	Pynonotus zeylancicus	v	v			
5	Ayam hutan	Galus-galus		v	v	y	v
6	Elang Bondol	Heliastur indicus		v		1 ' .	
7	Elang Hitam	Spizaetur bartelsi	v	v	v	v	i '
8	Kucica Hitam	Copsyclus malabaricus		v	'		
9	Pucuk Ular	Anhinga melanongester		v			v
10	Madu Gunung	Aethopyga eximialis		v			
11	Punai	Treron sp	v	v	:		'
i2 -	Raja Udang Sungai	Alcedo attheis	l v	v	1.	ļ	
13	Tekukur	Steptopelia chenesis		· v	· .		
14	Walet Gunung	Arerodranus brevirostris	1.1	v ·	. *		v
	III.Reptilia	Arerourunus brevirosinis			·	 	
1	Biawak	Varanus salvator				1.	1
2	Kura-kura	Oritra bonensis	Y				
3	Buaya Sinyolong	Tonnistora schlegelli			V.	V	
4	Ular Sanca Hijau	Chondrophython viridis		.	V *	V	V
5	Ular Sendok	Naja tripudianis	V .		V	v	
5 6	Buaya Katak		V		V	V V	
о 7	Bingkaruang	Crocodylus sp Markena ur			Y	V I	1 ·
1		Marbaya sp	<u>v</u>	V	v	V	<u> </u>
1	IV. Amphibia Katak coklat	Dame Lucia - Louis	1.10		·		
1		Rama lumnocharis	V I	N	_~ v) V	ľ
2	Katak hijau	Rama sp		• V			:
3	Katak hijau besar	Rama macrodon	II I	V I	1	1 - 1	- V

Table V.24 INVENTORY OF TERRESTRIAL MAMMALS, BIRDS, REPTILES AND AMPHIBIAFOUND IN THE INDRAGIRI RIVER BASIN STUDY AREA.

经投资的 医外口

BKK = Lubuk Jambi Weir and canal

DSM = Sukam Dam

Status: D = Protected

	••••••••••••••••••••••••••••••••••••••
Month	Rainfall
	(mm)
Jan.	216
Feb.	163
Mar.	247
Apr.	231
May	213
Jun.	108
Jul.	136
Aug.	121
Sep.	168
Oct.	268
Nov.	248
Dec.	284
Total	2403
Average	200
Maximum	

Table.V.25 Average Monthly Rainfall in Lower Kuantan Dam and Lubukjambi Wier and Irrigation Canal (1981-1992)

Source : KI-RBDP and Pasar Kampar weather station on November, 1994



Month	Temperature	Humidity
	(C)	(%)
Jan.	27.8	81.1
Feb.	28.2	79.5
Mar.	28.4	79.6
Apr.	28.8	79,2
May	28.8	82.0
Jun.	28.8	77.6
Jul.	28.3	77.6
Aug.	28.3	77.1
Sep.	28.2	82.0
Oct.	28.3	80.8
Nov.	28.2	79.3
Dec.	27.4	84.8

Table V 26 Mean Daily Temperature and U idity at

Source : KI-RBDP and Pasar Kampar weather station on November, 1994

28.8

27.4

84.8

77.1

Maximum

Minimum

Month	Mean Discharge (m ³ /sec.)
Jan.	237.8
Feb.	181.7
Mar.	221.7
Apr.	245.3
May	222.6
Jun.	96.4
Jul.	82.2
Aug.	93.6
Sep.	163.8
Oct.	191.1
Nov.	213.8
Dec.	260.4
Average	184.2
Maximum	260.4
Minimum	82.2

Table V.27 Average Monthly Kampar River Discharge (1981-1992)

Source : KI-RBDP November, 1994

Table V.28 Recorded floods and peak discharges in Kampar River

The date of flooding	Peak of discharge (m ³ /sec.)
	(III /SCC.)
12/05/1978	2516
20/1/1989	1845
17/12/1991	1710
19/1/1991	1539
07/01/1986	1516

Type of Use	Amount of Use (m ³ /sec.)
Domestic Use	720,924
Irrigation Use	1,574,964,200
Industrial Use	252,000
Total	1,575,937,124

Table V.29 Water use at Down Reaches of Lower Kuantan Dam

Source : KI-RBDP November, 1994

Table V.30 Water Quality of Kampar River

No	Parameter	Unit	Station1	Station2	Station3	Station4	
PHY	SICS						
1	Temperature	oC	26.5	27	27.5	28	
2	Suspended Solid Matters	ˈ g/l	0.024	0.064	0.132	0.037	
3	Dissolved Solid Matters	g/l	0.348	0.506	0.272	0.395	
1 A A A A A A A A A A A A A A A A A A A	Turbidity	m	1	0.5	0.75	0.5	
	Electrical Conductivity	mmho/cm	69	69	69	79	
	MICS		09	09	09	19	
	pH		8.2	8.4	8.1	8.2	
$\frac{1}{2}$	Голикания Гепто/Fenti	mal	1.5	1.3	0.76	0.88	
3		mg/l	0.12	0.14	ND	0.06	
	Manganese	mg/l					
4	Barium	mg/l	ND	ND ND	ND	ND	
5	Copper	mg/l	ND	ND	ND	ND	
6	Crom Hexavalen	mg/l	ND	ND	ND	ND	
7	Total crom	mg/l	0.021	0.025		0.01	
8	Cadmium	mg/l	ND	ND	ND	ND	
9	Mercury	∘	0.02	0.01	0.01	0.01	
10	Lead	mg/l	ND	ND	ND	NE	
11	Stanum	mg/l	0.04	0.02	ND	NE	
12	Arsen	mg/l	ND	ND	ND	NE	
13	Selenium	mg/l	ND	ND	ND	NE	
14	Nickel	mg/l	ND	ND	ND	NE	
15	Cobalt	mg/l	ND	ND	ND	NE	
16	Cyanide	mg/l	ND	ND	ND	NI	
17	Sulphit	mg/l					
18	Sulphat	mg/l		9.62	1	11.09	
19	Flourida			1	1	0.013	
	Free Cloride	mg/l	1		4 · · · · ·	1	
20		mg/l				1	
21	Free Ammonium	mg/l	0.03			•	
22	Nitrate	mg/l	0.13	1	1		
23	Nitrite	mg/l		1	I .	0.00	
24	Phosphor	mg/l		1	1	1	
25	DO	mg/l	6.5			1	
26	BOD	mg/l			1	4.	
27	COD	mg/l			1 .		
28	Blue Methelyn	∣ mg/l			1	1	
29	Oil/Grase	mg/l	0.03	0.1	0.27	NI	
30	Pesticide		a de la fa				
1997 - 1997 1997 - 1997	BHC		. +	+	+		
	Heptachlor	-		+			
	Heptachlor Epoxide		+	· +	+	· -	
	Aldrin						
i ·	Dieldrin		+				
	DDT		· ·	1 .			
l `	Endo sulfan						
31	Alkalinity	mg/l	9.75	8.78	10.73	8.7	
32	· · · · · · · · · · · · · · · · · · ·	mg/l	1	1		and the second se	
33	Fenol		1 .	1			
1		mg/l				1	
34	· · · · · · · · · · · · · · · · · · ·	mg/l	A	24.84		17.8	
Note) Location of station : 1 Kotopanjang 3 Kuok							

Table V.31 Present Land Use in Rantau	berangin Weir and
irrigation canal	

No.	Land Use	Area	Employment
		(ha.)	percentage
1	Residential area / Home Yard	25.5	6.1
2	Paddy field / Crop land	60.0	14.3
3	Plantation	38.7	9.2
4	Others*	295.8	70.4
	Total	420.0	100.0

* : including forest, grassland, shurub etc.

Table V.32 Present Land Use in Bangkinang embankment

No.	Land Use	Area	Employment
· .		(ha.)	percentage
1	Residential area / Home Yard	170.0	68.0
2	Paddy field / Crop land	80.0	32.0
3	Plantation	0.0	0.0
4	Others*	0.0	0.0
	Total	250.0	100.0

* : including forest, grassland, shurub etc.

No.	Sampling location	Parameters	H Test	Category
1	Kampung Batu	pН	6	Slightly Acid
		N (mg/l)	25	Medium
		P (mg/l)	· · 7 .	Low
		K (mg/l)	100	Low
. 2	Sungai Jering	pН	6	Slightly Acid
		N (mg/l)	10	Low
		P (mg/l)	12	Low
		K (mg/l)	75	Low
3	Sentajo	pН	5.5	Acid
		N (mg/l)	12	Low
		P (mg/l)	10	Low
		K (mg/l)	70	Low

V - 31

Table V.33 Soil fertility at Rantauberangin Weir, irrigation canal and Bangkinang embankment

No	Local Name	Scientific Name	Family	FR	KR	DR	NP	Stat	us
	·			%	%	%	%	D	L
1	Apam kandis	Collophyllum sp	Guttiferae	0.91	0.58	0.39	1.88		
2	Ampuyan	Memecylon sp	Melastomataceae	6.36	4.68	15.23	26.27		
3	Alai	Deplanchea sp	Bignoniaceae	0.51	0.58	0.39	1.88		
4	Bintangur	Callophyllum pulcherrimum	Guttiferae	2.73	1.75	0.20	4.68		
5	Balam	Palaquem comatum	Sapotaceae	1.82	1.75	2.10	7.18		
6	Baga	Pouteria malaccencea	Sapotaceae	1.82	2.92	3.67	9.32		
7	Cubadak hutan	Artocarpus integer	Moraceae	0.91	1.17	1.09	4.08		
8	Cengkudan	Geramora sp	Celaminaceae	8.16	1.17	1.47	4.46		
9	Durian hutan	Durio griffitii	Bombacaceae	4.54	0.58	0.66	2.09		
10	Kayu kolek	Bugenia sp	Myrtaceae	2.73	18.13	12.97	39.28		
11	Kuranji	Dialluem indium	Caesalpiniaceae	4.54	0.58	0.66	2.09		
12	Kempas	Kompasia malaceencis	Fabaceae	2.73	2,34	5.45	10.52		
13	Karet	Hevea brassiliensis	Euphorbiaceae	4.54	2.34	5.45	10.52		
14	Laban	Vitex pubescens	Varbanaceae	1.80	3.51	0.59	3.56		
15	Meranti	Shorea leprosula	Dipterocarpaceae	1.82	1.17	6.50	10.07		
16	Mendang	Litsea firma	Lauraceae	5.45	1.75	6.57	18.13		
17	Mahang	Macaranga tricoba	Euphorbiaceae	5.45	7.02	7.82	19.70		
18	Narahan	Artocarpus tripidus	Anacardianaceae	5.45	6.43	5.01	16.30		
19	Nyatoh	Dayena obscura	Sapotaceae	0.91	5.46	0.36	1.85		
20	Putat	Barringtonia sp	Lecythraceae	0.91	0.58	1.52	3,01		
21	Paga	Ploiarium sp	Thaccaceae	1.82	0.58	3.26	7.36		
22	Paniang-paniang	Querqus lucida	Fagaceae	3.64	2,34	3.52	10.08		
23	Rambutan hutan	Nephellium sp	Sapindaceae	4.54	2.92	2.06	13.03	· ·	
24	Sanduak-sanduak	Endospermum sp	Eurycaceae	1.82	6.43	0.18	3.17		
25	Simpur	Dillenia sp	Dilleniaceae	2.73	1.17	0.96	5.44		
26	Petata	Strombosiu javanica	Olacaceae	5.45	1.75	5.22	17.10		
27	Timah-timah	Drypetes sp	Euphorbiaceae	1.82	6.43	0.38	3.27		
28	Terantang	Campanorperma macrophyla	Anacardianceae	1.82	1.17	0.16	3.15		
29	Tapi	Polyalthia sp	Annonaceae	0.91	1.17	0.17	2.25		
30	Tampui	Elateriospermum tapos	Euphorbaceae	1.82	1.75	0.47	4.04		
31	Ubar	Eugenia sp	Myrtaceae	0.91	0.58	0.52	2.01		
		· · · · · ·		91.37	90.78	95.00	264.76		

Table V.34 Tree Flora of forest in the project area of Kampar river basin .

Notes :

FR = Relative frequency KR = Relative density DR = Relative dominace NP = Importance value Table V.35(1/2) Terrestrial Fauna in the project area, Kampar river basin.

		·	Status
Local N	lame S	ceintific Name	Р
MAMMALS		· · · · ·	
1 Beruang Madu	Helarctos ma	alayanus	v
2 Beruk	Macaca nom	estriana	
3 Babi Hutan	Sus serofa		-
4 Harimau	Panthea tigri	is sumateraensis	v
5 Monyet Ekor P	anjang Macaca fasci	icularis	-
6 Rusa	Cervus unico	olor	v
7 Musang	Paradoxorus	hermaphroditus	-
8 Siamang	Symphalongi	us syndactilus	-
9 Tapir	Tapirus indic	cus	v
10 Kijang	Muntiacus m	uncak	-
11 Lutung Hutan	Perbetys sp		-
12 Berang-berang	Cynegole ber	nneti	-
13 Ungko	Hylobates sp	· · · .	v
14 Tringgiling	Manis javani	ica	v
15 Landak	Hyrix brachy	ora	v
16 Simpai	Prebitys nota	inophus	v
17 Tupai Tanah	Lariscus insi	gnis	-
18 Napu	Tragulus nap	- 74	v
AVES			
19 Burung madu k	uning Nactarini jug	gularis	v
20 Elang bondol	Heliastur ind	licus	v
21 Pecak ultar	Anhinga mela	angaster	v
22 Tekukur	Streptopelia d	chenensis	
23 Burung layang-	layang Herunda rest	rica	
24 Merpati	Columba levi	ia	v
25 Balam	Streptopelia	chinensis	v
26 Ketitiran	Geopelia stri	ata	-
27 Raja uang sunga	ai Alcedo arthis	3	v
28 Kucica hitam	Copsichus m	alabatricus	· 4
29 Beo	Gracula regin	usa	v
30 Elang Hitam	Galus-galus		-
31 Ayam Hutan	Spizaitur bal	telsi	-
32 Elang	Accipiter sp		-
33 Bubut merah	Centropus sp) 2	
34 Gagak	Cispus macro	orhyncus	-
35 Murai Batu	Rhipodera ae		-
36 Punai	Spenuras oxy	orus	-
37 Enggang	Bucerus sp		v
38 Kuaw	Argisianus ar	reus	v

.

			Status
_	Local Name	Sceintific Name	Р
39	Biawak	Varanus salvator	-
40	Kura-kura	Oritra binensis	v .
41	Ular sendok	Naja tripudianis	-
42	Bingkarubng	Crocodilus sp	-
43	Ular tenah	Angkistrodon rhodostoma	-
44	Ular sanca hijau	Chondrophyton niridis	v
AM	PHIBIAN		
45	Katak coklat	Rana liolenaris	-
46	Katak hijau	Rana cancrifora	-
47	Katak hijau besar	Rana Macrodon	v
48	Kodok biasa	Bufo melanopticus	-
INS	ECT		
49	Kupu-kupu raja	Danaus flexipus	
50	Kupu-kupu kubis	Pilris rapae	· -
51	Peloncat bintik perak	Epargyreus dores	-
52	Kupu-kupu mata mutiara	Enodia porthandia	-
53	Ngengat lompat cepat	Itensicenca maja	-
54	Kupu-kupu ekor walet	Papilio phyxenes asterius	-
55	Ngenat ujng kait	Drepana arculata	-
56	Kupu-kupu belerang	Colias philodica	-
57	Kupu-kupu pinus	Neaphasia menapia	· -
58	-	Lepnelisca borcalis	· -
59	-	Dione juno	-
60	-	Oenelis jutha	-

Table V.35(2/2) Terrestrial Fauna in the project area, Kampar river basin.

P: Protected species

	Family	Local Name	Scientific Name
1	Cyprinidae	Semilang Batang	Barbichthys leavis
2		Sepimping	Chela oxygastroides
3		Mali	Dangilla cuvieri
4	а. С. н. с.	Motan Besar Kepala	Dangilla sp
5		Umbut-umbut	Dangilla sumatera
6		Semilang Pulau	Ephalzeorhynchus kallopterus
7		Barau	Hampala bimaculata
8		Barau	Hampala lepidota
9		Kujam	Lucioname setigerus
0		Sijolong	Lucioname triname
1		Parang	Macrorichthys macrochirus
2		Paweh	Oetheochillus hasselti
3		Kujam	Oetheochillus kahayanensis
4		Siburuk Perut	Oetheochillus kelabau
5			Oetheochillus spilurus
.6		Kapiek	Puntius belinka
17		Tabengalan	Puntius bromenoides
18		Siban	Puntius bulu
9		Singarek	Puntius fasciatus
20		Sipaku	Puntius hexazona
21		Olang	Puntius schanafeldi
22		Mentulu	Puntius sp
23		Olang	Puntius tetrazona
24	19	Pantau	Rasbora argyrotaenea
25	· · · · · ·	Pantau	Rasbora dorseocellata
26		Pantau Bero	Rasbora lateristriata
27		Pantau	Rasbora rutteni
28		Pantau Beras	Rasbora vaillanti
29		Kelabau	Thynnichthys thynnoides
30		Motan	Thynnichthys vaillanti
31	Clariidae	Limbek Baguit	Clarias batrachus
32		Limbek Akar	Clarias teismany
33		Koli	Ephalzeorhynchus sp
34	Siluridae	Lais	Clarias sp
35		Loi Modang	Cryptopterus cryptopterus
36		Loi Godang Kapalo	Cryptopterus lais
37		Loi	Cryptopterus mononema
<u>3</u> 8		Loi	Cryptopterus sp
<u>39</u>		Lukek	Cryptopterus sp
40		Baliak Tulang	Hamichilurus chaperi
17	the second se		

ER.

Hamichilurus moonbergii

Hamichilurus schrinema

Siluruides hypothalmus

Siluruides indragiriensis

Wallago leri

Selais

Tapah

Sikumu

Loi Bomban

Loi Modang

41 42

43

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Table V.36(2/2) INVENTORY OF FISHES IN THE MIDDLE REACHES OF KAMPAR RIVER.

	Family	Local Name	Scientific Name
46	Pangasidae	Patin	Pangasius pangasius
47		Juaro	Pangasius polyuranadon
48	· · ·	Riu-riu	Pseudeutropius branchiopepteus
49	Bagridae	Baung Moncik	Bagrichthys hypselopterus
50		Baung Pisang	Bagroides macrochantus
51		Baung Hitam	Bagroides macropterus
52		Baung Kuning	Bagroides malapterus
53		Baung	Macrones nigriceps
54	-	Baung Tunggik	Macrones sp
55		Geso	Macrones wycky
56	Cobitidae	Ciling-ciling	Botia hymenophysa
57		Rajo Guntili	Botia macrochantus
58		Tali-tali	Namechilus fasciatus
59	н. Полого на селото на	Lida-lida	Notopterus bornensis
60	· · · · · ·	Belido	Notopterus chitala
61	Osteoglossidae	Domo/Kaloso	Sclerophages formosus
62	Anabantidae	Katung	Anabas sp
63		Puyu	Anabas testudineus
64		Singkek	Helostoma temmenchi
65		Silinca	Polyacanthus hasselti
66		Sopek	Trichogaster leeri
67		Sopek Siam	Trichogaster pectoralis
68		Sopek	Trichogaster trichopterus
69	Ophiochepalidae	Toman	Betta anabantoides
70		Tempalo	Betta taenia
71		Haruan	Ophiochephalus bistoriatus
72		Lompong	Ophiochephalus lucius
73.		Jolai	Ophiochephalus maruliades
74		Toman	Ophiochephalus melanosoma
75		Batuik	Ophiochephalus pleuropthalmus
76		Kaluih	Osphronemus gourami
77	Nandidae	Tambun	Nandus nebolusus
78	Lutjinidae	Ikan Sira	Lutjanus argentimaculatus
79	Trichiuridae	Timah	Trichirius haunela
80	Therponidae	Silopu	Synanchesia sp
81	Toxotidae	Sumpik	Toxotes chatareus
82	Mastacembelidae	Tilan	Magrocnathus aculeatus
83		Tilan	Mastachembelus armatus
84	Belonidae	Julung-julung	Xenentodon canciloides
85		Bolai	Xenentodon maculatus
86	Polynemidae	Tumbuk bong	Dermogenis sumatranus
87	Symbranchoidae	Senangin	Eleuthromena tetradactilum
88	Tetraodontidae	Buntal	Lagochaphalus lunaris
89	1	Boloik	Monopterus albus
90		Buntal	Tetraodon nigropunctatus
91	Solaidae	Lidah-Lidah	Synaptura conmesuni
L			

Station	Species	Frequency
		(N/m^2)
Upper Reaches	Tricoptera	
Koto Panjang	Pryganea sp	42.4
	Agripnia ap	42.4
	Pseudostenophylax sp	42.4
	Hydroptila sp	42.4
Lower Reaches	Diptera	
Rantau Berangin	Chrironomus sp	84.8
	Annelida	
	Pristina sp	42.4
	Dero sp	169.4
Bangkinang	Annelida	
	Dero sp	42.4
	Gastroptera	
	Pleurocera sp	42.4
Dabau Bingkuang	Tricoptera	· .
	Parapsyche sp	42.4
	Limnephilidae	42.4
	Gastropodia	
	Pleurocera sp	42.4
	Goniobasis sp	42.4

Table V.37 Species of Benthos identified at stations in Kampar river.

No.	District	Population (pers.)	Area (ha)	Density (pers./km ²)	Household (n)
1.	Bangkinang	60.335	507.89	99	12.067
2.	Siak Hulu	65.840	3,875.41	17	14.993
3.	Kampar Kiri	45.870	1,961.00	23	9.995
4.	Kampar	92.294	923.53	90	16.452
	Total	264.339	7,267.63	36	52.511

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Table V.38 Population, population density and number of households in the area of Kuok weir and Rantauberangin irrigation canal.

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Sorce : General survey of Kampar district, 1992

No.	Name of village	Area	Population	Density	Household
		(km ²)	(person)	(pers./km ²)	(n)
1.	Tanjung Belit	35.00	696	20	175
2.	Tanjung Belit Selatan	27.00	645	24	141
3.	Air Tiris	40.31	4,336	107	867
4.	Ranah	7.70	4,043	525	808
5.	Penyasawan	.41.00	5,282	129	1,056
6.	Rumbio	26.00	3,496	134	699
7.	Padang Mutung	22,88	2,060	94	412
.8.	Pulau Rambai	6.00	2,808	435	561
9.	Rimbo Panjang	11.00	1,399	127	279
10.	Pulau Payung	10.11	2,868	284	573
11.	Muara Jalai	22.50	3,584	159	716
12.	Bangkinang	51.12	7,946	155	1,589
13.	Salo	26.16	4,424	169	884
14.	Kuok	52.21	5,463	105	1,092
15.	Pulau Jambu	23.77	2,364	a de 199	472
16.	Muara Uwai	23.12	2,377	103	475
17.	Pasir Sialang	21.63	3,013	129	602
18.	Petapahan	235.00	758	3	175
	Total	712.17	57,554	80	11,576

Table V.39 Population, population density and number of households of Kuok weir and Rantauberangin irrigation canal.

Sorce: District census

No.	Village	:	Age group	
	-	<15	15 - 59	60 <
1.	Tanjung Belit	37.8	57.2	4.5
2	Tanjung Belit Selatan	39.1	58.2	2.7
3.	Air Tiris	33.6	60.7	5.7
4.	Ranah	37.4	59.5	3.1
5.	Penyasawan	36.9	59.2	3.9
6.	Rumbio	34.1	61.8	4.1
7.	Padang Mutung	37.2	59.1	3.7
8.	Pulau Rambai	37.1	58.8	4.1
9.	Rimbo Panjang	37.3	57.9	4.8
10.	Pulau Payung	.38.1	57.8	4.1
- 1	Muara Jalai	36.5	57.9	5.6
12.	Bangkinang	36.3	56.5	7.2
13.	Salo	38.8	55.4	5.8
14.	Kuok	38.2	56.9	4.9
15.	Pulau Jambu	39.1	54.8	6.1
16.	Muara Uwai	40.1	56.7	3.2
17.	Pasir Sialang	39.9	55.0	5.1
18.	Petapahan	39.9	66.5	4.5

Table V.40 Age structure in the area of Kuok weir andRantauberangin irrigation canal.

ulation census 1990 20u

	Kamp	ar Kiri	Kan	npar	Bangl	cinang	Siak	Hulu
	Total	%	Total	%	Total	%	Total	%
A. Livelihood								
- Agriculture	38531	84.3	62206	67.4	35356	58.6	27850	42.0
- Industry / house industry	184	0.4	1661	1.8	1267	2.1	2172	3.3
- Commercial	3857	8.4	8491	9.2	14300	23.7	14221	21.6
- Service	-	_	-	-	· _	_	_	······
- Others	3165	6.9	19936	21.6	9412	15.6	21596	32.8
B. Education								
- not educated / before school	11513	25.1	19104	20.7	11463	19.0	11720	17.8
- Primary school	24082	52,5	48177	52.2	22738	37.5	23789	34.1
- Secondary school	5687	12.4	13016	14.2	12248	20.3	13959	21.3
- High school	4174	9.1	10337	11,2	9762	16.1	11324	17.2
- College	413	0.9	1569	1.7	4305	7.1	999	9.1
C. Age				:				
- 0 - 4		14.7		13.2		12.9		12.7
- 5-14		22.1		27.3		20.1		20.7
- 15 - 24		19.7		17.2		19.5		18.6
- 25 - 34		15.6		13.7		14.1		15.3
- 35 - 44		11.1		11.6		13.1		11.5
- 45 - 54		8.3	· · ·	8.7		-9,2		10.1
- 55 <		8.5		8.3		11.1		11.0

Table V.41 Population composition of livelihood, education and age structure in four Kecamatans (districts) related to Kuok weir and Rantauberangin irrigation canal

Source : Data Lapangan, 1995

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Table V.42 Land ownership,1995, in Kuok weir and Rantauberangin irrigation area.

Ownership	Number	%
Community	128	88.8
Nation	13	9.2
Others	3	2.0
Total	144	100.0

Source : Data Olahan, 1985

No.	Village(Desa)	Paddy field	Unused land	Total	Critical land
1.	Tanjung Belit	-	2,800	2,800	-
2.	Tanjung Belit Selatan	-	2,700	2,700	-
3.	Air Tiris	1,132	2,899	4,031	. -
4.	Ranah	327	443	770	-
5.	Penyasawan	396	2,704	3,100	-
6.	Rumbio	273	2,327	2,600	-
7.	Padang Mutung	1,157	1,194	2,351	-
8.	Pulau Rambai	250	350	600	
9.	Rimbo Panjang	650	5,950	6,600	
10.	Pulau Payung	300	711	1,011	
11.	Muara Jalai	400	1,850	2,250	·
12.	Bangkinang	7	5,105	5,112	' -
13.	Salo	1,695	2,446	2,616	-
14.	Kuok	308	.4,913	5,221	-
15.	Pulau Jambu	485	1,892	2,377	m
16.	Muara Uwai	168	2,144	2,312	-
17.	Pasir Sialang	180	1,983	2,126	-
18.	Petapahan		23,500	23,500	720
	Total	7,728	65,861	73,589	720

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Table V.43 Distribution of Productive land of villages related to Kuok weir andRantauberangin irrigation canal.

Source: Population census, 1990

				Family				
1			Children's	planning	Health			
No.	Village (Desa)	Clinic	hospital	service	adviser	Shaman	Hospital	Doctor
1.	Tanjung Belit		2	2	-	5	-	-
2.	Tanjung Belit Selatan	-	2	1	- ·	8	-	- .
3.	Air Tiris	1	3	1	5	2	-	-
4.	Ranah		4	2	1	3		÷
5.	Penyasawan		3	3		6		-
6.	Rumbio		· 5	2	1	5	-	-
7.	Padang Mutung		4	1 .			21 _	·
8.	Pulau Rambai		2	2		4	-	-
9.	Rimbo Panjang		2	. 1		2	-	1
10.	Pulau Payung		1		1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -	1	-	-
11.	Muara Jalai		1	1	1	8 .	-	-
12.	Bangkinang		8	5	15	- 4	1	4
13.	Salo		4	3	5	7	-	1
14	Kuok	1	3	.4	2	8	-	· · · ·
15.	Pulau Jambu		3	3		4	- 	
16.	Muara Uwai		. 1	- 3		3 ·	<u>_</u>	
17.	Pasir Sialang	· · ·	2	2		4	-	- '
18.	Petapahan	1			· · ·	1	· -	

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Table V.44 Health facilities in villages related to Kuok weir and Rantauberangin irrigation canal.

Source: District's general survey

No.	Type of crop	Kec.Ka	ampar	Kec.Ban	gkinang	
		Extention	Production	Extention	Prodution	
1.	Paddy field	529.7	1,715.42	2,518.5	6265.00	
2.	Upland field	1654.0	4,571.50	557.0	1201.00	
3.	Corn	249.0	739.03	6.0	9.50	
4.	Soy bean	: · · -	-	6.0	5.32	
5.	Cassava	251.0	2,889.76	73.0	532.50	
6.	Sweet potato	29.0	287.50	4.0	17.00	
7.	Peanuts	104.0	99.53	12.0	14.40	
8.	Greennuts	11.0	12.42	7.0	6.50	

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Table V.45 Type of crop and area and production of mixed farming in KecamatanKampar and Bangkinang.

Source: District's general survey,1992

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No.	Village name	Land tran	sportation	Water transportation
	MotorTanjung Belit1	Motor bike	Car	• • ·
1.	Tanjung Belit	1		1
2.	Tanjung Belit Selatan	1 .		1
3.	Air Tiris		1	
4.	Ranah		. 1	
5.	Penyasawan		1	
6.	Rumbio		1	
7.	Padang Mutung		1	
8.	Pulau Rambi		1	
9.	Rimbo Pnjang		1	
10.	Pulau Payung	1	-	
11.	Muara Jalai		1	
12.	Bangkinang		1	
13.	Salo		. 1	
14.	Kuok		1	
15.	Pulau Jambu			1
16.	Muara Uwai		1	
17.	Pasir Sialang		1	
	Petapahan	1		

Table V.46 Land and river transportation in the area of Kuok weir andRantauberangin irrigation canal.

Source: District general survey, 1990

No.	Type of vehicle	Bangkinang	Kampar	Kampar Kiri	Siak Hulu
1.	Bicycle drawn carriage	4	6	-	18
2.	Pedicab	7	3	<u>-</u>	-
3.	Buffalo-drawn carriage	-	2	-	1
4.	Horse-drawn carriage	-	~	· -	· •
5.	Motor-bicycle drawn carriage	3	2	17	20
б.	3 wheel motor-drive vehicle	7	10	· _ ·	· - ·
7.	4 wheels motor-drive vehicle	15	17		
8.	Canoe without motor	8	14	22	12
9.	Canoe with outboard motor	6	5	18	9
10.	Motorboat	-	-	2	· -
11.	Others	3	3	2	-

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Table V.47 Vehicles in four districts (Kecamatans) related to Kuok weir and
Rantauberangin irrigation canal.

Source: District census, 1990

Table V.48Evaluation of Significant Impacts of Kampar Kanan Water Supply Project.Area : Kuok Weir and Rantanberangin irrigation channelActivity Stage : Pre-Construction Stage

이 이렇는 것은 것은 것은 것은 것은 것은 것을 것 같아요. 것은 것을 했다. 것은 것은 것은 것은 것을 했다.

		PRE-CONS	<u>STRUC</u>	TION STAGE	<u></u>
н Н	•	Survey and Investigation		Compensation for Land Release	
NVIRONMENT COMPONEN	rs Kinds of impact	Remark	Scale	Remark	Scal
OCIOECONOMY AND CULT	URE				
1. Public Perception/Attitude	a. No.of people	830/152,629 x 100 = 0.54 %	1	830/152,629 x 100 = 0.54 %	
	b. Extent of area	лаптом	1	small	
	c. Duration	only during pre-construction stage	2	pre-construction stage	
	d. Intensity	significant	2	low	
	e. No of components	one socio-economic component	1	4	
	f. Period	cummulative, not too long	3	cummulative, not too long	11
	g. Recoverage	possibly eliminated	2	possibly eliminated	
-	Average of scale		1.7		11
2, land ownership	a. No.of people	· · · · · · · · · · · · · · · · · · ·	T	830/152,629 x 100 = 0.5 %	Γ
•	b. Extent of area		·	two districts	
	c. Duration		[.	pre-construction stage	1
	d. Intensity		ł	low	
	e. No.of Components	1 1		4	
	f. Period			cummulative, not too long	
	g. Recoverage			can not to be eliminated	
	Average of scale				2
3. Means of Livelihood/ Emplo	y- a. No.of people			197/19,512 x 100 = 1.0 %	
ment	b. Extent of area	· · · ·	Ľ	two districts	
	c. Duration			low	
	d. Intensity	· · ·		pre-, and construction stage	
	e. No.of Components			4	
	f. Period			cummulative, not too long	
	g. Recoverage	· · · ·		can not be eliminated	
	Average of scale				2
4. People's income	a. No.of people	1	1	830/152,629 x 100 = 0.5 %	Τ
• • •	b. Extent of area			two districts	
	c. Duration		1	pre-construction stage	
	d. Intensity			low	
	e. No.of Components			4	
	f. Period			cummulative, not too long	
	g. Recoverage		1 :	temporary	
	Average of scale				2
5. Public facilites	a. No.of people	· · · · · · · · · · · · · · · · · · ·		830/152,629 x 100 = 0.5 %	T
·	b. Extent of area		Ţ.	two districts	
	c. Duration d. Intensity			pre-, and construction stages low	
	e. No.of Components		1	4	1
	f. Period			cummulative, short	
	g. Recoverage			can be recovered	
	Average of scale			La contra	2

Table V.48 Evaluation of Significant Impacts of Kampar Kanan Water Supply Project.Area : Kuok Weir and Rantauberangin Irrigation ChannelActivity Stage : Construction Stage

		CO	DNSTR	JCTION STAGE				4. Constru	iction	impromontation	
		1. Mobilization of heavy quipment		2. Mobilization of manpower		3. Land clearance					+
WIRONMENT COMPONENTS	Kinds of impact	Remark	Scale	Remark	Scale	Remark	Scale	4-1.River improvement	Scal	e 4-2. Main construction	Sca
OPHYSICS-CHMISTRY											
1. Air quality/ noise	a. Extent	6,293/152,629 x 100 = 4.0 %	1			1330/152,629 x 100 = 0.9 %	1	500 people, 0.3%	1	1,330/152,629 x 100 = 0.9 %	1
	b. Area	relatively small	11			relatively small	1	small, at the work side	1	small	1
	c. Duration	construction stage	2			at part of the construction stage	.2	construction stage	3	construction stage	3
	d. Intensity	increase	2			increase	2	increase	3	increase	2
and the second sec	e. No.of components	2	Ĩ			3	1	5	2	2	1
		neutralized	11'			neutralized	-	neutralized	1	neutralized	1
	f. Period					can be eliminated	î	possibly eliminated	1	possibly eliminated	
	g. Recoverage	can be eliminated	1.3	4	1 :	can be eminiated	1.3		1.7	-	1
	Average of scale	· · · · · · · · · · · · · · · · · · ·	1.12		1	No one is affected		A few people is affected	1	1,330/152,629 x 100 = 0.9 %	
2. Physiography/ geology	a. Extent		1			relatively small		small		small	
	b. Area									construction stage	3
	c. Duration		,			construction stage	3	construction stage	3	_	
	d. Intensity		. '			increase	2	low		increase	
	e. No.of Components							5 components	2	2 components	
	f. Period	1			1	neutralizable	1	neutralized		neutralized	
	g. Recoverage				1	can not be eliminated	1	possibly eliminated		not possible to eliminate	
	Average of scale				_	 	1.3		1.4		2.
3. Water quality	a. Extent					5463/152,629 x 100 = 3.5 %	1	3465/152,629 x 100% = 2.2%	1		
	b. Area				1	relatively small, one subdistrict area	3	small	1		
	c. Duration				1.	at the construction stage	3	construction stage	3	1 · · ·	1.
	d. Intensity					increase	2	increase	2		
	c. No.of Components				1 ×	7	2	5	2		
-	f. Period					neutralizable	1	cummulative, in a long time	2		
	g. Recoverage				1	cannot be eliminated, no compound	1	can not to be eliminated	1		
	Average of scale	5	1				1.9		1.7		Ŀ
4. Land use system	a. Extent	1	1			830/152,629 x 100 = 0.5 %	1		-		ŀ
	b. Area					relatively small	1				1.
	c. Duration					at part of the construction stage	3				
	d. Intensity		1		1 .	change of land function is great	3				
	e. No.of Components				1	7	2		1.		
	f. Period		1.			neutralizable	1		1		· ·
	g. Recoverage				1	can be eliminated	1				
	Average of scale						1.7				
C. D			+		+		1	3,465/152,629 x 100 = 2.2 %	1		_
5. River Flow Pattern	a, Extent							small			
	b. Area		1		1				3		1.
	c. Duration							construction stage	2		1
	d. Intensity		1					low			
	e. No.of Components f. Period						1 , 1	5 components	2		1
	t Daried		- L.	1 Second and the second sec	1.1	1 A distance of the second se second second sec	1.1	cummulative, in a long time			1
								terrain that a stant stant of the	- F		
	g. Recoverage Average of scale							impossible to eliminate	5		

Table V.48 Evaluation of Significant Impacts of Kampar Kanan Water Supply Project.Area : Kuok Weir and Rantauberangin Irrigation ChannelActivity Stage : Construction Stage

		CONSTRUCTION STAGE						4. Construction implementation					
		1. Mobilization of heavy quipment 2. Mobilization of manpower				3. Land clearance							
WIRONMENT COMPONENTS	Kinds of impact	Remark	Scale	Remark	Scale	Remark	Scale	4-1.River improvement	Scale	4-2. Main construction	Scale		
DLOOY													
6. Terrestrial Flora	a. Extent					No one is affected							
	b. Extent of area		. ·			relativey small							
	c. Duration		1			construction stage, partly post- stage	4						
	d. Intensity					low	2				1		
	c. No.of Components					7	2						
	f. Period					neutralized	1.1						
	g. Recoverage		.			not possible to eliminate	4						
	Average of scale		<u> </u>				2.1			· · · · · · · · · · · · · · · · · · ·			
7. Terrestrial Fauna	a. Extent					No one is affected	1			· .			
	b, Extent of area]		1	relatively small	1	·					
	c. Duration				1.1	construction stage, partly post- stage	4						
	d. Intensity	and the second				low	2						
	c. No.of Components					7	2		1				
	f. Period			and the second		cummulative, for a long time	1						
	g. Recoverage				÷	can be eliminated	1.0						
$w_{i} = -\delta_{i} + \delta_{i} + \delta_{$	Average of scale		i		ľ	and the second	17						
8. Aquatic Fauna	a. Extent		1.					No one is affected	1				
or a sequence a nume	b. Extent of area							relatively small	1				
	c. Duration	· · ·						construction and post- stage	4				
	d. Intensity							very low	2				
	c. No.of Components						1	5	2				
	f. Period				•		1 .	neutralizable	1				
							1.1	cannot be eliminated	4				
	g. Recoverage					· · · · · · · · · · · · · · · · · · ·		cannot be eminimated	2.1				
	Average of scale		1 a.		1.				2.1				
			<u> </u>					· · · · · · · · · · · · · · · · · · ·					
CIOECONOMY AND CULTURE							1.1		- ·				
9. Public Perception/Attitude	a. No.of people		1	15,869/152,629 x 100 = 10.4 %	2		1						
	b. Extent of area		I .	2 districts	3				1.				
	c. Duration			construction stage	3			and the second	1				
	d. Intensity		Ľ	low	2					· · · ·			
	e. No.of components			3	1				1				
	f. Period			cummulative, in a short time	3				-				
	g, Recoverage			can be eliminated	2								
· · · ·	Average of scale				2.3					· · · · · · · · · · · · · · · · · · ·			
10. Custams/ traditions	a. No.of people		1	500/152,629 x 100 = 0.3 %	1								
In. Custano trautiono	b. Extent of area		1.1	very small, around the worker's domicile	1								
	c. Duration			part of construction stage	2		l' i						
	d. Intensity			low	2		· [.		· ·				
			1 .	c	2								
	e. No.of Components			cummulative, in a long time	2		1						
	f. Period				1								
· · · · · · · · · · · · · · · · · · ·	g. Recoverage			can be eliminated	1		1.						
	Average of scale				1.6				-		┥		
11. Means of Livelihood/ Employ-	a. No.of people	the second s	1.	500/152,629 x 100 = 0.3 %	1				1		·		
ment	b. Extent of area			Indragiri Hulu Regency	3		1.10			and the second sec			
	c. Duration		1.	part of construction stage	3				1				
	d. Intensity			low	2								
	e. No.of Components			3	1								
	f. Period			cummulative, in a short time	3								
	g. Recoverage		1 .	can be eliminated	2		.1						
· ·	Average of scale				2.1								

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Table V.48 Evaluation of Significant Impacts of Kampar Kanan Water Supply Project.Area : Kuok Weir and Rantauberangin Irrigation ChannelActivity Stage : Construction Stage

		CONSTRUCTION STAGE								4. Construction implementation						
		1. Mobilization of heavy quipment		2. Mobilization of manpower		3. Land clearance										
ENVIRONMENT COMPONENTS	Kinds of impact	Remark	Scale	Remark	Scale	Remark	Scale	4-1.River improvement	Scale	4-2. Main construction	Sea					
12. People's income	a. No.of people			500/152,629 x 100 = 0.3 %	1											
	b. Extent of area	н. 		Indragiri Hulu Regency	3											
· · · ·	c. Duration	· · ·		at the construction stage	3											
	d. Intensity			low	2						[
	e. No.of Components			3	1						ļ					
	f. Period			cummulative, in a short time	3		-									
	g: Recoverage			can be eliminated	2											
· · · · · · · · · · · · · · · · · · ·	Average of scale				2.1					1						
13. Environment aesthetics	a. No.of people	5463/152,629 x 100 = 3.5 %	1		:	830/152,629 x 100 = 0.5 %	1									
	b. Extent of area	small	1			small, just around the location	1			· · · ·						
	c. Duration	construction stage	3			construction stage	2									
	d. Intensity	very low	1			low	2									
	e. No.of Components	3	1	· · ·		7.0	2									
	f. Period	cummulative, not seen quickly	1			cummulative, for a long time	2									
	g. Recoverage	can be eliminated	1			can be eliminated	1			and the second second						
	Average of scale		1.3				1.6									
14. Public health	a. No.of people	6293/152,629 x 100 = 4 %	1			1330/152,629 x 100 = 0.9 %	1	3465/152,629 x 100 % = 2.2	% 1	1,330/152,629 x 100 = 0.9	% 1					
	b. Extent of area	small	1		1	small	2	small	1	small	2					
	c. Duration					.		construction stage	3	construction stage						
	d. Intensity	medium	3			medium 7.0	3	low	2	low						
	e. No.of Components	cummulative, in a short time				cummulative, in a short time	2	8.0 cummulative, in a short time								
	f. Period	can be eliminated	3			can be eliminated, controlled	3	can be eliminated		cummulative, in a short time can be eliminated	-					
	g. Recoverage Average of scale	can be eminiated	1.7			can be eminimated, controlled	2.2	can be chilinated	1.9	can be emitmated	2					
15. Public facilites	a. No.of people	5463/152,629 x 100 = 3.5 %	1							······································						
1.5. I dolle facilités	b. Extent of area	relatively small			- [-				1							
	c. Duration	part of construction stage	2													
	d. Intensity	low	1.													
· · ·	e. No.of Components	3														
	f. Period	cummulative, in a short time	3		1											
	g. Recoverage	can be eliminated	2				1		l	•						
	Average of scale		1.6													

Table V.48Evaluation of Significant Impacts of Kampar Kanan Water Supply Project.Area : Kuok weir and Rantauberangin Irrigation ChannelActivity Stage : Post-Construction Stage

Sec.

Activity Stage : Post-Construct	aton Stage	PROJECT ACTIVITY	
		Weir and irrigation channel	1
ENVIRONMENT COMPONENTS	Kinds of impact	operation / maintenance	Scal
EOPHYSICS-CHMISTRY	Indias of Impuer		
1. physiography and geology	a. No.of people	No one is affected	1
1. physiography and geology	b. Extent of area	Kampar Regency	2
	c. Duration	Post-construction stage	5
	•••	geometrical changes to river body	3
	d. Intensity	3	1
	e. No.of Components		1
	f. Period	cumulative, effects are long	5
	g. Recoverage	impossible to eliminate	2
		compound effects	
· · · · · · · · · · · · · · · · · · ·	Average of scale		2.7
SOCIOECONOMY AND CULTUR	RE		
1. Means of Livelihood/ Employ		97,562	3
ment opportunities	b. Extent of area	Kampar Regency	3
	c. Duration	construction stage	5
	d. Intensity	high	4
	e. No.of Components	3	1
· · ·	f. Period	cummulative, in a short time	3
	g. Recoverage	impossible to eliminate	4
	-	no compound effect	
	Average of scale		3.4
2. Income	a. No.of people	97,562	4
	b. Extent of area	Kampar Regency	3
	c. Duration	construction stage	5
	d. Intensity	high, 50-75 % of people are affected	4
	e. No.of Components	3	1
	f. Period	cummulative, in a short time	3
	g. Recoverage	impossible to eliminate	4
	g. Recoverage	no compound effect	'
	Average of scale	no composite creet	3.4
		97,562	2
3. Public health	a. No.of people	wider area than the planned area	3
	b. Extent of area	· · ·	4
	c. Duration	construction stage	1 2
	d. Intensity	medium	- I
	e. No.of Components	3	3
	f. Period	cummulative, in a short time	3
	g. Recoverage	cannot be eliminated	
	Average of scale		2.
4. Environment aesthetics	a. No.of people	15,423	3
	b. Extent of area	wider area than the planned area	5
	c. Duration	post-construction stage	5
	d. Intensity	low	2
	e. No.of Components	3	4
	f. Period	cummulative, in a short time	4
	g. Recoverage	cannot be eliminated	3
	Average of scale		3.

Table V.49 Evaluation of Significant Impacts of Bangkinang Area River Improvement Works. Area : Bangkinang dike Activity Stage : Pre-Construction Stage

		PRE-CONS	STRU	CTION STAGE	
· ·		Survey and Investigation	· ·	Compensation for Land Release	
INVIRONMENT COMPONENT	S Kinds of impact	Remark	Scale	Remark	Scal
OCIOECONOMY AND CULTU	JRE				1
1. Public Perception/Attitude	a. No.of people	3465/152,629 x 100 = 2.2 %	1	3465/152,629 x 100 = 2.2 %	
ан сайтаан ал ал ан ал ан	b. Extent of area	narrow	1	small	
	c. Duration	only during pre-construction stage	2	pre-construction stage	1 :
	d. Intensity	significant	E	low	
	e. No.of components	one socio-economic component	1	4	
	f. Period	cummulative, not too long	3	cummulative, not too long	
	g. Recoverage	possibly eliminated	2	possibly eliminated	
·	Average of scale		1.7		1.
2. land ownership	a. No.of people	· · · · · · · · · · · · · · · · · · ·		3,465/152,629 x 100 = 2.2 %	<u> </u>
•	b. Extent of area			two districts	
	c. Duration			pre-construction stage	
	d. Intensity			low	İ
	e. No.of Components			4	
	f. Period			cummulative, not too long	
	g. Recoverage			can not to be eliminated	
	Average of scale				2.
3. Means of Livelihood/ Employ				40/19,512 x 100 = 0.2 %	
ment	b. Extent of area	· · · · · · · · · · · · · · · · · · ·		two districts	i :
	c. Duration			low	
	d. Intensity			pre-, and construction stage	
	e. No.of Components			4	
	f. Period			cummulative, not too long	
•	g. Recoverage			can not be eliminated	
	Average of scale			can not be chininated	2.
4. People's income	a. No.of people			3465/152,629 x 100 = 2.2 %	
4. I copie a meomo	b. Extent of area			$5405/152,029 \times 100 = 2.2 \%$	
	c. Duration			· · · · · · · · · · · · · · · · · · ·	
	d. Intensity			pre-construction stage	
	e. No.of Components			low	
	f. Period			4	
	g. Recoverage			cummulative, not too long	· · ·
				temporary	
5. Public facilites	Average of scale a. No.of people			3465/152,629 x 100 = 2.2 %	2.
	b. Extent of area			$3403/152,029 \times 100 = 2.2\%$ two districts	
	c. Duration			pre-, and construction stages	
	d. Intensity			low	
	e. No.of Components f. Period			4	
e Antonio de la companya	g. Recoverage			cummulative, short can be recovered	
	Average of scale	· · · · · ·	. •	Can be recovered	1 .

Table V.49 Evaluation of Significant Impacts of Bangkinang Area River Improvement Works:Area : Bangkinang DikeActivity Stage : Construction Stage

		and the second	CONSTRUCTION STAGE 1. Mobilization of heavy quipment		2. Mobilization of manpower	1	3. Land clearance			4. Ce	instruction implementation	
DDD11502 I. Alterent 3455152,629 x 100 = 2.5 % I. Alterentity mail I. I. Alterentity mail I.	NVIRONMENT COMPONENTS	Kinds of impact				Scal		Scal	4-1.River improvement			Scale
L.Air publy seise n.Extent 3450752,029 x 100 - 22.5 % 1 300 peeple, 0.25 % 1 inuil 1 <td></td> <td>Transa or napacs</td> <td>Tioman</td> <td></td> <td></td> <td>1</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>1</td>		Transa or napacs	Tioman			1						1
h. Areanobiology mult1number of the construction stage1relatively mult1relatively mult1mult due work side1monthe. Bod Components313133		a Rytent	$3465/152.629 \times 100 = 2.2\%$				$3865/152.629 \times 100 = 2.5\%$	1	500 people, 0.3%	1	3.865/152.629 x 100 = 2.5 %	1
e. Dradio (Incrustor (Incrustor (Incrustor 	1. All quality hoise			Î								
a. Intensity increase 2 increase 3 increase 3 f. Period neutralized 1 neutralized 1 periodic period												3
a. Non Grammandi 3 1 5 2 2 J. Priorid neutalized 1 neutalized 1 neutalized 1 neutalized 2. Physingraphy geology 4. Matsu: 1 neutalized 1 neutalized 1 neutalized 2. Physingraphy geology 4. Matsu: 1 neutalized 1 neutalized 1 neutalized 2. Physingraphy geology 4. Matsu: 1 neutalized 1 neutalized 1 neutalized 3. None - - neutalized 1 neutalized 1 neutalized 1 neutalized 4. Intensity -<				1		1					-	
Lend B. Recoverage Recoverage (2 mode eliminated (2 mode 2 mode 2 mode 2 (2 mode 2 (2 mode 2 (2 mode 2 (2 mode 2 mode 2 (2 mode			increase	2			increase		increase			2
s. Recoverage cost beliminated 1 cost beliminated 1 possibly eliminated 1 2. Physiography/goolagy a. Bitstat. 1 1 No ore is inflected		e. No.of components	3	1		Į	3	1	5	2		L.
Average of Suble 1.3 1.3 1.3 1.3 1.3 1.7 2. "Physiography geology b. Atea 1.4 Areo propel is affected 1 stand1 1 2. "Physiography geology b. Atea 1 stand1 1 stand1 1 stand1 1 2. "Physiography geology b. Atea 2 contraction stage 3 construction stage 3 c. Daration. d. Intensity e. No.of Components 2 low 1 stand1 g. Recoverage a. Extent actionation 1 stand1 1 extraction stage 3. Water quality a. Extent actionation 1 stand2 1 stand2 1 a. Intensity a. Extent actionation actionation 1 stand2 1 stand2 a. Intensity a. Extent actionation actionation actionation 1 stand2 actionation 1 d. Intensity a. Extent actionation actionation actionation 1 stand2 actionation 1 d. Intensity a. Extent actionationation actionationationation actionationation actionationation actionationation <td></td> <td>f. Period</td> <td>neutralized</td> <td>11</td> <td></td> <td></td> <td>neutralized</td> <td>1</td> <td>neutralized</td> <td>1</td> <td>neutralized</td> <td>1</td>		f. Period	neutralized	11			neutralized	1	neutralized	1	neutralized	1
Average of Suble 1.3 1.3 1.3 1.3 1.3 1.7 2. "Physiography geology b. Atea 1.4 Areo propel is affected 1 stand1 1 2. "Physiography geology b. Atea 1 stand1 1 stand1 1 stand1 1 2. "Physiography geology b. Atea 2 contraction stage 3 construction stage 3 c. Daration. d. Intensity e. No.of Components 2 low 1 stand1 g. Recoverage a. Extent actionation 1 stand1 1 extraction stage 3. Water quality a. Extent actionation 1 stand2 1 stand2 1 a. Intensity a. Extent actionation actionation 1 stand2 1 stand2 a. Intensity a. Extent actionation actionation actionation 1 stand2 actionation 1 d. Intensity a. Extent actionation actionation actionation 1 stand2 actionation 1 d. Intensity a. Extent actionationation actionationationation actionationation actionationation actionationation <td></td> <td>g. Recoverage</td> <td>can be eliminated</td> <td>1</td> <td>· ·</td> <td></td> <td>can be eliminated</td> <td>1</td> <td>possibly eliminated</td> <td>1</td> <td>possibly climinated</td> <td>1</td>		g. Recoverage	can be eliminated	1	· ·		can be eliminated	1	possibly eliminated	1	possibly climinated	1
2. Physiographyl geology a. Latent 1 A.Kory septel a alfozed 1 A.Kory Science 1 <	•			13						1.7		1.4
b. Area c. Duration d. Jetersity c. Buration d. Jetersity construction stage 3 construction stage 1 increase 2 low 1 increase c. Noof Components f. Period g. Recoverage f. Period 1 increase 2 low 1 increase 2 increase 1 increrease 1 increase	2. When the state of the state						No one is affected			1	3 865/152 629 + 100 - 2 5 %	1
c Duration; d Intensity A Noof Components f. Period B Recoverage Area of scale A Under quality B Area C Duration: A Under quality B Area C Duration: C Durat	2. Physiography/ geology											
d Intensity e. Noof Components f. Period g. Recoverage Autor quality 3. Wher quality a. Extent c. Duration- d. Intensity e. Noof Components f. Period g. Recoverage Autor quality a. Extent b. Area c. Duration- d. Intensity e. Noof Components f. Period g. Recoverage Autor quality b. Area c. Noof Components f. Period g. Recoverage Autor quality b. Area c. Noof Components f. Period g. Recoverage Autor quality b. Area c. Noof Components f. Period g. Recoverage f. Period f. Per								- 1				1
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g. Recoverage can be eliminated 1 Average of scale 1.7 5. River Flow Pattern a. Extent b. Area small 1 c. Duration- construction stage 3 d. Intensity low 2 e. No.of Components 5 components 2 f. Period g. Recoverage 1						•	1					
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b. Area c. Duration d. Intensity e. No.of Components f. Period g. Recoverage	5. River Flow Pattern								$3,465/152,629 \ge 100 = 2.2 \%$	1		
c. Duration d. Intensity e. No.of Components f. Period g. Recoverage 3 low 2 S components 2 cummulative, in a long time 2 impossible to eliminate 5										1 I		
d. Intensity c. No. of Components f. Period g. Recoverage 2 2 2 2 3 3 3 4 3 4 3 4 3 4 3 4 3 4 3 4								1 ·		1.2		
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,我们还不知道,你们还是你了,你们还是你的你,我们还不是你要了你?"你说道:"你们要你是你们,你们还是你们还能让你说道:你是你你不是你,你们你能能能能了?""你是						N. A.		(²				in the S
了,我们们在身上的,你们还不能是我们来想你没好,你的你们就是我在我们的你们,你们还能知道你的你说,你们们你还要把你们不能不能能说了我们,你就是你的你们,你们你能不能能					나는 방 것 같은 것 같은 것 같은 것 같이 많이 하는 것 같이 많이 했다.				그 같은 것을 물을 물고 있는 것?		이 영향은 그는 것 같아요. 그	

Table V.49 Evaluation of Significant Impacts of Bangkinang Area River Improvement Works:Area : Bangkinang DikeActivity Stage : Construction Stage

WIRONMENT COMPONENTS		1 Mahilimation of Landson suffrage		2. Mobilization of manpower	<u> </u>	3. Land clearance	[]		10	onstruction implementation	
	Visida of !	1. Mobilization of heavy quipment Remark	Scale		Scale		Sun l	4-1.River improvement		e 4-2. Main construction	Scale
4 4 4 4 H I	Kinds of impact	Kemark	Scale	Kemark	Scale	Kemark	Scale	4-1. River improvement	ocan	er4-2, main construction	Scale
YOOJO	n Pastant					No one is affected	· 1				
6. Terrestrial Flora	a. Extent					relativey small					
· · ·	b. Extent of area		1		1						
	c. Duration		1 * *			construction stage, partly post- stage	4				
	d. Intensity		1	· · · · ·		low	2			1 · · · · · · · · · · · · · · · · · · ·	
	e. No.of Components				1 ·	7	2				
	f. Period				- ·	neutralized	1				
	g. Recoverage					not possible to eliminate	4				
1. State 1.	Average of scale		- ·			•	2.1				
. Terrestrial Fauna	a. Extent		<u> </u>	······································	<u>†</u>	No one is affected	1	· · · · · · · · · · · · · · · · · · ·			
1 Circsinal Launa	b. Extent of area				· ·	relatively small			1		
· · · · · · · · · · · · · · · · · · ·										ł .	
	c. Duration				ł	construction stage, partly post- stage	4				
	d. Intensity					low	2				
. · · · · · · · ·	e, No.of Components					7	2				
	f. Period		1 ·			cummulative, for a long time	1				
	g. Recoverage		1		1	can be eliminated	1.0		Į		
	Average of scale	· · · · · · · · · · · · · · · · · · ·	· ·		1		1.7			<u> </u>	
3. Aquatic Pauna	a. Extent				1			No one is affected	1		
· · · · · · · · · · · · · · · · · · ·	b. Extent of area				1 1 1			relatively small	1		
	c. Duration		.		1			construction and post- stage	4		
	d. Intensity							very low	2		
						and the second		e	2		
	e. No.of Components						· ·		4		
	f. Period							neutralizable			
	g. Recoverage		· :					cannot be eliminated	4		
	Average of scale								2.1		
	an ing tan <u>a an</u>										
CIOECONOMY AND CULTURE					1						
9. Public Perception/Attitude	a. No.of people		1	15,869/152,629 x 100 = 10.4 %	2					· ·	
•	b. Extent of area			2 districts	3						
						· · · ·	·				
	c. Duration			construction stage	3						1
· · · · ·	d. Intensity			low	2			· · · ·			
	 No.of components 		1	2	1						
			1	3							
an a	f. Period			cummulative, in a short time	3		1				
	f. Period			cummulative, in a short time can be eliminated	3		l .				
	f. Period g. Recoverage				2						
10 Custame/traditions	f. Period g. Recoverage Average of scale			can be eliminated	1 -						
10. Custams/ traditions	f. Period g. Recoverage Average of scale a. No.of people			can be eliminated 400/152,629 x 100 = 0,2 %	2 2.3						
10. Custams/ traditions	f. Period g. Recoverage Average of scale a. No.of people b. Extent of area			can be eliminated 400/152,629 x 100 = 0.2 % very small, around the worker's domicile	2 2.3 1 1						
10. Custams/ traditions	 f. Period g. Recoverage Average of scale a. No.of people b. Extent of area c. Duration 			can be eliminated 400/152,629 x 100 = 0.2 % very small, around the worker's domicile part of construction stage	2 2.3 1 1 2						
10. Custams/ traditions	 f. Period g. Recoverage Average of scale a. No.of people b. Extent of area c. Duration d. Intensity 			can be eliminated 400/152,629 x 100 = 0.2 % very small, around the worker's domicile	2 2.3 1 1 2 2						
10. Custams/ traditions	 f. Period g. Recoverage Average of scale a. No.of people b. Extent of area c. Duration d. Intensity e. No.of Components 			can be eliminated 400/152,629 x 100 = 0.2 % very small, around the worker's domicile part of construction stage low 5	2 2.3 1 1 2 2 2 2						
10. Custams/ traditions	 f. Period g. Recoverage Average of scale a. No.of people b. Extent of area c. Duration d. Intensity c. No.of Components f. Period 			can be eliminated 400/152,629 x 100 = 0.2 % very small, around the worker's domicile part of construction stage low 5 cummulative, in a long time	2 2.3 1 1 2 2						
10. Custams/ traditions	 f. Period g. Recoverage Average of scale a. No.of people b. Extent of area c. Duration d. Intensity e. No.of Components f. Period g. Recoverage 			can be eliminated 400/152,629 x 100 = 0.2 % very small, around the worker's domicile part of construction stage low 5	2 2.3 1 1 2 2 2 2 2 2 1						
10. Custams/ traditions	 f. Period g. Recoverage Average of scale a. No.of people b. Extent of area c. Duration d. Intensity c. No.of Components f. Period 			can be eliminated 400/152,629 x 100 = 0.2 % very small, around the worker's domicile part of construction stage low 5. cummulative, in a long time can be eliminated	2 2.3 1 1 2 2 2 2						
	 f. Period g. Recoverage Average of scale a. No.of people b. Extent of area c. Duration d. Intensity e. No.of Components f. Period g. Recoverage Average of scale 			can be eliminated 400/152,629 x 100 = 0.2 % very small, around the worker's domicile part of construction stage low 5. cummulative, in a long time can be eliminated	2 2.3 1 1 2 2 2 2 2 2 1						
11. Mcans of Livelihood/ Employ-	f. Period g. Recoverage <u>Average of scale</u> a. No.of people b. Extent of area c. Duration d. Intensity e. No.of Components f. Period g. Recoverage <u>Average of scale</u> a. No.of people			can be eliminated 400/152,629 x 100 = 0.2 % very small, around the worker's domicile part of construction stage low 5 cummulative, in a long time can be eliminated 400/152,629 x 100 = 0.2 %	2 2.3 1 1 2 2 2 2 2 1 1.6						
11. Means of Livelihood/ Employ-	f. Period g. Recoverage <u>Average of scale</u> a. No.of people b. Extent of area c. Duration d. Intensity e. No.of Components f. Period g. Recoverage <u>Average of scale</u> a. No.of people b. Extent of area			can be eliminated 400/152,629 x 100 = 0.2 % very small, around the worker's domicile part of construction stage low 5 cummulative, in a long time can be eliminated 400/152,629 x 100 = 0.2 % Indragiri Hulu Regency	2 2.3 1 1 2 2 2 2 2 1 1.6 1 3						
11. Mcans of Livelihood/ Employ-	f. Period g. Recoverage <u>Average of scale</u> a. No.of people b. Extent of area c. Duration d. Intensity c. No.of Components f. Period g. Recoverage <u>Average of scale</u> a. No.of people b. Extent of area c. Duration			can be eliminated 400/152,629 x 100 = 0.2 % very small, around the worker's domicile part of construction stage low 5 cummulative, in a long time can be eliminated 400/152,629 x 100 = 0.2 % Indragiri Hulu Regency part of construction stage	2 2.3 1 1 2 2 2 2 2 1 1.6 1 3 3						
11. Mcans of Livelihood/ Employ-	f. Period g. Recoverage <u>Average of scale</u> a. No.of people b. Extent of area c. Duration d. Intensity c. No.of Components f. Period g. Recoverage <u>Average of scale</u> a. No.of people b. Extent of area c. Duration d. Intensity			can be eliminated 400/152,629 x 100 = 0.2 % very small, around the worker's domicile part of construction stage low 5 cummulative, in a long time can be eliminated 400/152,629 x 100 = 0.2 % Indragiri Hulu Regency	2 2.3 1 1 2 2 2 2 2 1 1.6 1 3						
10. Custams/ traditions 11. Mcans of Livelihood/ Employ- ment	f. Period g. Recoverage <u>Average of scale</u> a. No.of people b. Extent of area c. Duration d. Intensity c. No.of Components f. Period g. Recoverage <u>Average of scale</u> a. No.of people b. Extent of area c. Duration d. Intensity e. No.of Components			can be eliminated 400/152,629 x 100 = 0.2 % very small, around the worker's domicile part of construction stage low 5 cummulative, in a long time can be eliminated 400/152,629 x 100 = 0.2 % Indragiri Hulu Regency part of construction stage low 3	2 2.3 1 1 2 2 2 2 2 2 1 1.6 1 3 3 2 1						
11. Means of Livelihood/ Employ-	f. Period g. Recoverage <u>Average of scale</u> a. No.of people b. Extent of area c. Duration d. Intensity e. No.of Components f. Period g. Recoverage <u>Average of scale</u> a. No.of people b. Extent of area c. Duration d. Intensity e. No.of Components f. Period			can be eliminated 400/152,629 x 100 = 0.2 % very small, around the worker's domicile part of construction stage low 5 cummulative, in a long time can be eliminated 400/152,629 x 100 = 0.2 % Indragiri Hulu Regency part of construction stage low 3 cummulative, in a short time	2 2.3 1 1 2 2 2 2 2 2 1 1.6 1 3 3 2 1 3						
1. Means of Livelihood/ Employ-	f. Period g. Recoverage <u>Average of scale</u> a. No.of people b. Extent of area c. Duration d. Intensity c. No.of Components f. Period g. Recoverage <u>Average of scale</u> a. No.of people b. Extent of area c. Duration d. Intensity e. No.of Components			can be eliminated 400/152,629 x 100 = 0.2 % very small, around the worker's domicile part of construction stage low 5 cummulative, in a long time can be eliminated 400/152,629 x 100 = 0.2 % Indragiri Hulu Regency part of construction stage low 3	2 2.3 1 1 2 2 2 2 2 2 1 1.6 1 3 3 2 1						

Table V.49 Evaluation of Significant Impacts of Bangkinang Area River Improvement Works:Area : Bangkinang DikeActivity Stage : Construction Stage

		CONSTRUCTION STAGE						
		1. Mobilization of heavy quipment		2. Mobilization of manpower	· .	3. Land clearance		
ENVIRONMENT COMPONENTS	Kinds of impact	Remark	Scale	Remark	Scale	e Remark	Scale	4-1.River improvement
12. People's income	a. No.of people		1	400/152,629 x 100 = 0.2 %	1			
	b. Extent of area	· · ·		Indragiri Hulu Regency	3			
	c. Duration		ŀ	at the construction stage	3			
	d. Intensity			low	2			
	e. No.of Components		1	3	1			
	f. Period			cummulative, in a short time	3			
	g. Recoverage			can be eliminated	2			and the second second
	Average of scale		1		2.1		1	
13. Environment aesthetics	a. No.of people	3465/152,629 x 100 = 2.2 %	1		1	3,465/152,629 x 100 = 2.2 %	1	
	b. Extent of area	small	-1	and the second		small, just around the location	1	
	e. Duration	construction stage	3			construction stage	2	
	d. Intensity	very low	1			low	2	
	e. No.of Components	3	- 1			7.0	2	
	f. Period	cummulative, not seen quickly	1			cummulative, for a long time	2	
	g. Recoverage	can be eliminated	1		· ·	can be eliminated	1	
	Average of scale		1.3				1.6	
14. Public health	a. No.of people	3463/152,629 x 100 = 2.2 %	1			3865/152,629 x 100 = 2.5 %	2	3465/152,629 x 100 % = 2.2
	b. Extent of area	small	1			small	2	small
	c. Duration							construction stage
	d. Intensity	medium	3			medium	3	low
	e. No.of Components	3	1	· · · ·		7.0	2	8.0
	f. Period	cummulative, in a short time	3			cummulative, in a short time	3	cummulative, in a short time
	g. Recoverage	can be eliminated	3			can be eliminated, controlled	2	can be eliminated
15. Public facilites	Average of scale	24(5/150 (00 - 100 - 0.0 %)	1.7		- <u> </u>		2.3	
15. Public facilities	a. No.of people	$3465/152,629 \ge 100 = 2.2 \%$			1			
	b. Extent of area	relatively small			· 1			
	c. Duration	part of construction stage	2		1.			
	d. Intensity	low						
	e. No.of Components f. Period	cummulative, in a short time			1.			
		commutative, in a short time	3					
	g. Recoverage	can be emminated	2				·	
L	Average of scale		1 1.0		_ _	·Ł	<u> </u>	l

		struction implementation 4-2. Main construction	Scale
%	1 1 3 2 1 3 2 1.9	3,865/152,629 x 100 = 2.5 % small construction stage low 2 cummulative, in a short time can be eliminated	1 2 3 2 1 3 2 2.0

Table V.49 Evaluation of Significant Impacts of Ba	angkinang Area River Improvement Works.
Area : Bangkinang Dike	

K

Activity Stage : Post-Construction Stage

A

		PROJECT ACTIVITY	1
		Weir and irrigation channel	1
NVIRONMENT COMPONENTS	Kinds of impact	operation / maintenance	Sca
GEOPHYSICS-CHMISTRY			1
1. physiography and geology	a. No.of people	No one is affected	1
P -	b. Extent of area	Kampar Regency	2
	c. Duration	Post-construction stage	5
	d. Intensity	geometrical changes to river body	3
	e. No.of Components	3	1
	f. Period	cumulative, effects are long	1
	g. Recoverage	impossible to eliminate	5
	• •	compound effects	
	Average of scale		2.
OCIOECONOMY AND CULTUR			1
1. Means of Livelihood/ Employ-	a. No.of people	97,562	3
ment opportunities	b. Extent of area	Kampar Regency	3
	c. Duration	construction stage	5
	d. Intensity	high	4
	e. No.of Components	3	1
	f. Period	cummulative, in a short time	3
	g. Recoverage	impossible to eliminate	4
	U	no compound effect	·
	Average of scale		3.
2. Income	a. No.of people	97,562	4
	b. Extent of area	Kampar Regency	3
	c. Duration	construction stage	5
	d. Intensity	high, 50-75 % of people are affected	4
	e. No.of Components	3	1
	f. Period	cummulative, in a short time	3
	g. Recoverage	impossible to eliminate	.4
		no compound effect	
	Average of scale		3.
3. Public health	a. No.of people	97,562	. 2
	b. Extent of area	wider area than the planned area	3
	c. Duration	construction stage	4
and the second second second second	d. Intensity	medium	3
	e. No.of Components	3	3
	f. Period	cummulative, in a short time	3
	g. Recoverage	cannot be eliminated	2
	Average of scale		2.
4. Environment aesthetics	a. No.of people	15,423	3
	b. Extent of area	wider area than the planned area	5
	c. Duration	post-construction stage	5
	d. Intensity	low	2
	e. No.of Components	3	4
	f. Period	cummulative, in a short time	4
			1 -
	g. Recoverage	cannot be eliminated	3

Table V.50 Average Monthly Rainfall in Lubukjambi Dam, intake weir and irrigation canal (1981-1992)

Rainfall	(mm)	288	165	284	253	263	112	133	109	158	212	282	319	2,578	215	319	100
Month		Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul	Aug.	Sep.	Oct.	Nov.	Dec.	Total	Average	Maximum	Minimum

Table V.51 Mean Daily Temperature and Humidityin Kuantan Dam and Lubukjambi Weirand Irrigation Canal (1979-1993)

											`						
-	Humidity	a (%)	86.7	77.6	77.4	77.5	84.0	86.3	84.1	83.8	85.4	76.9	68.4	70.3	6.67	86.7	. 68.4
	Temperature	(C)	26.5	27.4	27.2	27.2	27.8	27.4	27.2	27.4	27.0	27.6	27.0	26.0	27.1	27.8	26.0
	Month		Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug	Sep.	Oct.	Nov.	Dec.	Average	Maximum	Minimum

Table V.53 Mean Daily Temperature and Humidity in Rengat City (1983-1993)

			_													
Humidity	(%)	89.0	85.0	89.0	86.0	88.0	85.0	86.0	84.0	86.0	88.0	89.0	89.0	87.0	89.0	84.0
Temperature	(C)	25.3	25.9	25.7	26.8	26.5	27.2	26.3	26.8	26.4	25.9	26.0	25.8	26.2	27.2	25.3
Month		Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Average	Maximum	Minimum

Table V.52 Average Monthly Rainfall in Rengat City (1983-1993)

Rainfall (mm)	191	142	183	230	185	101	96	82	157	213	237	254	2,071	172	254	82
Month	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total	Average	Maximum	Minimum

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Table V.55 Recorded floods and peak discharges in Indragiri River (Pulau Berhalo)

			•						
•	Peak of	discharge	(m ³ /sec.)	3850	1342	1342	2250	1401	-
-	The date of	flooding		08 January 1986	27 January 1988	24 Januari 1989	29 December 1991	01 January 1992	

Source : JICA Interim report (1994)

Table V.56 Water Use at Downstream stretch of Lower Kuantan Dam (1994)

Amount of Use (m ³ /sec.)	2,241,120 527,693,350 1,884,700	531,819,170
Type of Use	Domestic Use Irrigation Use Industrial Use	Total

Table V.54 Average Monthly Indragiri RiverDischarge in Lower Kuantan Dam (1981-1992)

Mean Discharge	(m ³ /sec.)	353.3	259.8	345.3	332.5	338.0	136.0	119.8	106.4	179.7	252.1	379.8	327.7	260.9	379.8	106.4
Month		Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Average	Maximum	Minimum

Month	Mean Discharge
• •	(m ³ /sec.)
4.	
Jan.	654.3
Feb.	423.0
Mar.	574.0
Apr.	589.5
May	579.8
Jun.	248.9
Jul.	217.8
Aug.	193.9
Sep.	309.1
Oct.	440.6
Nov.	644.7
Dec.	666.6
Average	461.9
Maximum	666.6
Minimum	193.9

Table V.57 Average Monthly Indragiri River Discharge in Rengat (1981-1992)

No										
		[1	2	: 3	4	5	6	7	8
	SICS					· ·				
1	Temperature	oC.	26	27	26	25	26	24	27	29
2	Suspended Solid Matters	g/l	0.188	0.396	0.188	0.188	0.188	0.188	0.188	0.095
3	Dissolved Solid Matters	g/1	0.041	0.048	0.041	0.041	0.041	0.041	0.041	0.038
4	Turbidity	m	1.0	1.0	2.3	2.0	0.5	1.0	1.0	1.0
5	Electrical Conductivity	mmho / cm	165	150	165	165	165	165	165	100
CHE	MICS									
1	pH		8.1	8.4	7.8	8.1	8.4	8.4	7.7	7.2
2	Ferro/Ferri	mg/l	0.80	0.89	. 0.25	0.39	1.20	0.08	0.48	0.79
3	Manganese	mg/l	0.06	0.06	ND	0.05	0.01	0.06	ND	ND
4	Barium	mg/l	ND	ND	ND	ND	ND	ND	ND	ND
5	Copper	mg/l	ND	ND	ND	ND	ND	ND	ND	ND
6	Zinc	mg/l	ND.	ND	ND	ND	ND	ND	ND	NÐ
7	Hexavalent Cromium	mg/l	0.008	0.01	0.004	0.006	0.005	0.003	0.007	0.009
8	Total chrom	mg/l	ND	ND	0.001	ND	ND	0.001	ND	ND
9	Cadmium	mg/l	ND	ND	ND	ND	ND	ND	ND	ND
10	Mercury	μg/1	0.01	0.01	0.01	ND	0.02	0.01	ND	ND
11	Lead	mg/l	ND	ND	ND	ND	ND	ND	ND	ND
12	Stanum	mg/l	0.01	0.01	ND	ND	0.04	0.01	ND	0.01
13	Arsenic	mg/l	ND	ND -	ND	ND	ND	ND	ND	ND
14	Selenium	mg/l	ND	ND	ND	ND	ND	ND	ND	ND
15	Nickel	mg/l	ND	ND	ND	ND	ND	ND	ND	ND
16	Cobalt	mg/l	ND	ND	ND	ND	ND	ND	ND	ND
17	Cyanide	mg/l	ND	ND	ND	ND	ND	ND	ND	ND
18	Sulphide	mg/l	1.75	1.56	1.94	1.75	0.97	1.75	1.94	1.56
19	Sulphate	mg/l	0.086	0.03	0.02	0.012	0.054	0.069	0.023	0.055
20	Fluoride	mg/l	0.013	0.043	0.063	0.008	0.035	0.035	0.038	0.008
21	Free Cloride	mg/l	4.76	3.18	1.59	2.38	3.18	2.38	1.59	1.59
22	Free Ammonia	mg/l	0.14	0.21	ND	0.17	ND	0.21	0.23	0.36
23	Nitrate	mg/l	0.13	0.13	0.18	0.13	0.13	0.13	0.16	0.16
24	Nitrite	mg/l	0.002	0.005	0.001	0.002	0.001	0.002	0.005	0.006
25	Phosphate	mg/l	0.116		0.098	0.111	0.138	0.109	0.250	0.131
26	DO	mg/l	6	6	6.8	5,8	6.2	6.4	4.8	3,8
27	BOD	mg/l	3	4	4	3.2	3	3	5	4.9
28	COD	mg/l	15.6	11.9	12	14.6	14	15	20.9	4.5 19.6
29	Methelyn Blue Active	<i>σ</i> -			<u>.</u>				2.017	12.0
	Substances	mg/l	0.008	0.012	0.007	0.007	0.006	0.001	0.010	0.015
30	Oil/Grase	mg/l	0.11	NÐ	0.33	ND	0.2	ND	ND	0.1
31	Pesticide		+	· +		+	+	+	+	+
32	Alkalinity	mg/l	54.6	44.85	14.63	76.05	36.08	38.03	44.82	24.38
33	Hardness	mg/l	57.94	48.59	31.77	76.63	46.72	35.51	50.46	29,90
34	Phenol	mg/l	ND	0.002	0.003	ND	0.004	ND	ND	0.001
35	Permanganate	mg/l	7.13	9.23	16.43	10.43	9.83	9.83	17.85	16.43

Table V.58 Water Quality of Indragiri River

2: Pintu Batu 3: Batang Banuang 4: Batang Karing V - 62

7: Lubuk Jambi 8: Rengat



Table V.59 Spatial Structure Plan in Lower Kuantan Dam and Reservoir Area (1994)

No.	Zone	Tanjung Gadang	Kuantan Mudik	Amount	Occupied percentage
				(Ha.)	(%)
1	Protected Zone	0	200	200	2.8
2	Buffer Zone	2,702	0	2702	38.1
3	Cultivation Zone	4,198	0	4198	59.1
4	Others	0	0	0	0
	Total	6,900	200	7,100	100

Table V.60 Spatial Structure Plan in Lubukjambi Weir and Irrigation Canal

V - 63

No.	Zone	Arca (Ha.)	Occupied percentage (%)
1	Plantation	230	60
2	Others	150	40
· · ·	Total	380	100

No.	Land Use	Area (Ha.)	Occupied percentage (%)
1	Home Yard	477	6.7
2	Paddy Field	424	6.0
3	Plantation	1,927	27.1
4	Grass Land	4,272	60.2
	Total	7,100	100.0

Table V.61 Present Land Use in Lower Kuantan Dam and Reservoir Area

Table V.62 Present Land Use in Lubukjambi Weir and Irrigation Canal

No.	Land Use	Атеа (На.)	Occupied percentage (%)	
1	Home Yard	16.2	4.3	
2	Paddy Field	23.3	6.1	
3	Plantation	203.0	53.4	
4	Grass Land	137.5	36.2	
	Total	380.0	100.0	

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			1	
No.	Sampling location	Parameters	H Test	Category
1	Pintu Batu	pH	6	Acid
		Ν	12	Low
		Р	8	Low
		K	70	Low
2	Tanjung Keling	pH	5.5	Acid
		Ν	10	Low
		P ···	10	Low
		K	75	Low
3	Batang Karing	pН	5.5	Acid
		N	12	Low
		Р	10	Low
		K	60	Low

Table V.63 Soil fertility category in Lower Kuantan Reservoir

Table V.64 Soil fertility category in Lubukjambi Irrigation Canal

No.	Sampling location	Parameters	H Test	Category
1	Kampung Batu	pН	6	Acid
		Ν	25	Medium
		Ρ	7	Low
		K	100	Low
2	Sungai Jering	pН	. 6	Acid
		Ν	10	Low
		Ρ	12	Low
		K	75	Low
3	Batang Karing	pH	5.5	Acid
		N	12	Low
1		P	10	Low
		K	70	Low

Table V.65 Spatial Structure Plan in Rengat City Dike

No.	Zone	Area (Ha.)	Occupied percentage (%)
1	Plantation	12	13.95
2	Others	15	17.44
3	Buffer Zone	37	43.02
4	Others	22	25.58
	Total	86	100

Table V.66 Present Land Use in Rengat City Dike

		and the second sec	Occupied
No.	Land Use	Area	percentage
		(Ha.)	(%)
1	Home Yard	17.5	20.7
2	Paddy Field	19.0	22.5
3	Plantation	0.0	0.0
4	Grass Land	48.0	56.8
	Total	84.5	100.0

No	Scientific Name	Local Name	Family	RF	RD	RB	IV	sta	tu
				- %	%	%	%	D	
									•
1	Aleurites moluccana	Damar	Euphorbeaceae	2.83	2.27	2.39	7.49		
2	Artocarpus elasticus	Tarok	Moraceae	2.83	2.27	1.77	6.87		
3	Artocarpus integer	Cubadak hutan	Moraceae	2.83	2.27	0.31	5.41		
4	Calophyllum pulcherrimum	Bintangur	Guttiferae	6.98	6.82	5.80	19.60		ļ
5	Campnosperma sp.	Tarantang	Anacardiaceae	2.83	2.27	2.39	7.49		
6	Cinnamomum sp.	Laso	Lauraceae	2.83	2.27	1.44	6.54		
7	Cratoxylon sp.	Geronggang	Guttiferae	2.83	2.27	1.07	6.17		ļ
8	Dillenia sp.	Sijangkang	Dilleniaceae	2.83	2.27	0.65	5.75		
9	Drypetes sp	Timah-timah	Euphorbeaceae	2.83	2.27	0.49	5.59	•	
10	Durio oxleyanus	Durian	Bombacaceae	2.83	2.27	1.25	6.35		l
11	Elateriospermum tapos	Tampuih	Euphorbeaceae	6.98	4.57	2.58	14.13		
12	Endospermum sp	Sanduak-sanduak	Euphorbeaceae	2.83	2.27	1.07	6.17		
13	Eugenia sp.	Kabau	Myrtaceae	2.83	2.27	2.76	7.86		
14	Fagrea fragrans	Tambusu	Loganiaceae	2.83	2.27	1.48	6.58		l
15	Ficus variegata	Aro	Moraceae	2.83	2.27	3.95	9.05		
16	Garcinia celebica	Kandis	Guttiferae	2.83	2.27	2.44	7.54	а. С	
17	Gultha rengas	Rengas	Anacardiaceae	2.83	2.27	0.73	5.83		
18	Koompassia malaccensis	Kampas	Fabaceae	4.65	6.82	34.43	45.90		l
19	Litsea sp	Medang	Lauraceae	2.83	2.27	2.59	7.69		
20	Macaranga triloba	Mahang	Euphorbeaceae	2.83	2.27	1.77	6.87		
21	Mallones paniculata	Baliak Angin	Euphorbeaceae	2.83	2.27	2.54	7.64		
22	Palaquium sp	Balam	Sapotaceae	2.83	2.27	7.53	12.63		l
23	Parashorea nellata	Timbalun	Dipterocarpaceae	2.83	2.27	1.01	6.11	ĺ	
24	Parkia speciosa	Petai	Fabaceae	2.83	2.27	2.04	7.14		l
25	Payena obscura	Nyatoh	Sapotaceae	2.83	2.27	2.24	- 7.34		I
26	Peronema canescens	Sungkai	Verbenaceae	2.83	2.27	0.73	5.83		
27	Pterospermum javanicum	Bayur	Sterculiaceae	2.83	2.27	1.82	6.92		ļ
28	Quercus lucida	Pancang-pancang	Fagaceae	2.83	2.27	1,45	6.55		
29	Scorodocarpus borneensis	Kulim	Olacaceae	2.83	2,27	0.52	5.62		
30	Shorea leprosula	Meranti	Dipterocarpaceae	2.83	2.27	1.01	6.11		
31	Shorea platyclados	Banio	Dipterocarpaceae	2.83	2.27	0.50	5.60		
32	Shorea sp	Balau	Dipterocarpaceae	2.83	2.27	0.37	5.47		ļ
33	Syzygium sp	Kolek Jambu	Myrtaceae	2.83	2.27	1.04	6.14		
34	Terminalia copelandii	Jao	Combretaceae	2.83	2.27	0.31	5.41		
35	Vatica sp	Resak	Dipterocarpaceae	2.83	2.27	1.25	6.35	1	1

Table V.67 Flora (Tree) in Future Lower Kuantan Dam Location (Station 1)

RF = Relative frequency RD = Relative density

RB = Relative dominance IV = Importance Value D = Protected species L = Endangered species

Na	Sainuil N	Tanalat	T		[1	I	
No	Scientific Name	Local Name	Family	RF	RD	RB	IV	sta	T
				%	%	. %	%	D	L
1	Alceodaphne umbeliflora	Medang Kunyit	Lauraceae	3.33		. 1.24		•	
	Alseodhapne sp	Medang Kaladi						N -	İ
	Aquilaria malaccensis	Gaharu	Lauraceae Guttiferae	6.66		2.83		1	· ·
	Aromadendron sp			3.33			7.23		
7 5	Artocarpus elasticus	Pauh-pauh Tarok	Magnoliaceae	3.33			6.74		
5	- · ·		Moraceae	3.33			9.86		
0 7	Calophyllum pulcherrimum	Bintangur	Guttiferae	6.98					
8	Colophyllum sp	Pingan-pingan	Guttiferac	3.33			6.23		ľ
-	Crypteronia sp	Dolik	Crypteroniaceae	6.66	4.76	2.44	13.86		
	Dialium indum	Kuranji	Fabaceae	3.33	14.28	30.33	47.94		
	Endospermum sp	Sanduak-sanduak	Euriceae	3.33		1.61	7.32		
	Eugenia sp	Ubar	Myrtaceae	3.33		10.90	16.61		
	Ficus variegata	Aro	Moraceae	3.33	2.83	0.83	6.99	1	
3	Gironniera nervosa	Medang Babulu	Ulmaceae	3.33	2.38	0.57	6.28	1.	
	Koompassia malaccensis	Kampas	Fabaceae	4.65	7.14	12.56	24.35		: Í
- 1	Litsea firma	Medang Kelor	Lauraceae	3.33	2.38	1.73	7.44		1
- 1	Macaranga triloba	Mahang	Euphorbeaceae	3.33	2.38	0.94	6.65	ŀ	
1	Mallotos paniculata	Baliak Angin	Euphorbeaceae	3.33	2.38	1.03	6.74		
- 1	Nephelium glabra	Rambutan Hutan	Sapindaceae	3.33	2.38	0.92	6.63		.
- 1	Palaquium sp	Balam	Sapotaceae	3.33	2.38	2.97	8.68		
20	Polyalthia sp	Тарі	Annonaceae	3.33	- 2.38	2.06	7.77	· · ·	
- 1	Pterospermum javanicum	Bayur	Sterculiaceae	3.33	4.76	12.35	20.44		
22	Sautriria oblongifolia	Kedondong	Olacaceae	3.33	4.76	3.05	11.14		
23	Shorea sp	Meranti Bareh	Dipterocarpaceae	3.33	2.38	1.32	7.03		
24	Stenipermium sp	Medang Api-api	Celastraceae	3.33	4.76	1.47	9.56		
25	Strerculia cordata	Kalumpang	Sterculaceae	3.33	2.38	1.20	6.91		
26	Strombossiajavanica	Patata	Olacaceae	3.33	2.38	1.73	7.44		· .
				98.21	95.65	99.54	293.40		<u> </u>

Table V.68 Flora (Tree) in Future Reservoir of Lower Kuantan Dam Location(Banjar Tengah Forest) (Station 2)

RF = Relative frequency RD = Relative density RB = Relative dominance IV = Importance Value D = Protected species L = Endangered species

No	Scientific Name	Local Name	Family	RF	RD	RB	IV	sta	tus
				%	%	-%	%	D	L
	· · · · · · · · · · · · · · · · · · ·								. • 1
· 1	Artocarpus integra	Cubadak Hutan	Moraceae	2.70	7.55	3.35	13.60		
2	Artocarpus tripilus	Manarahan	Moraceae	5.40	6.60	6.25	18.25		
3	Calophyllum pulcherrimum	Bintangur	Guttiferae	5.40	3.77	2.42	11.59		
4	Cratoxylon sp	Sibalugur	Guttiferae	2.78	0.94	0.71	4:43		
5	Dialium indum	Kuranji	Caesalfiniacea	5.40	5.66	13.85	24.91		
6	Elaeocarpus stipularis	Jirang Tupai	Tileaceae	2.70	0.94	0.44	4.08	,	
7	Elateriospermum tapos	Tampuih	Euphorbeaceae	5.40	5,66	10.88	21.94		
8	Endospermum sp	Sanduak-sanduak	Euriceae	2.70	0.94	9.70	13.34		
9	Eugenia sp	Kabau	Myrtaceae	2.70	0.94	1.49	5.13		
10	Garcinia sp	Manggis Hutan	Guttiferae	2.70	0.94	1.10	4.74		
11	Gerinia celebica	Kandis	Guttiferae	2.70	1.89	0.69	5.28		
12	Hevea brasiliensis	Karet	Euphobiaceae	5.40	7.55	3.44	16.39		
13	Terminalia copelandii	Jao	Combretaceae	6.66	0.94	0.78	8.38		
14	Koompassia malaccensis	Kampas	Fabaceae	5.40	5.66	12.54	23.60	•	.
15	Litsea sp	Medang	Lauraceae	2.70	2.83	1.60	7.13		
16	Macaranga prainosa	Kubin	Euphorbeaceae	2.70	1.89	0.39	4.98		
17	Nephelium glabra	Rambutan Hutan	Sapindaceae	5.40	1.89	7.67	14.96		
18	Palaquium sp	Balam	Sapotaceae	2.70	1.98	1.20	5.88		
19	Parkia speciosa	Petai	Fabaceae	2.70	3.77	8.30	14.77		[.
20	Pterospermum javanicum	Bayur	Sterculaceae	2.70	1,89	5.39	9,98		
21	Quercus javanica	Paniang-paniang	Fagaceae	2.70	3.77	1.97	8.44		
22	Santiria oblongifolia	Kedondong	Bruseraceae	2.70	6,60	. 12.66	21.96		
23	Syzygium sp	Kolek Jambu	Myrtaceae	5.40	11.32	9.81	26.53		
24	Shrorea retinodes	Sebayang	Dipterocarpaceae	2.70	0.94	3.88	7.52		
25	Strombossia javanica	Petata	Olacaceae	2.70	1.89	0.39	4.98		
26	Taraktogenos sp.	Buluh-Buluh	Flacourtiaceae	2.70	0.94	3.31	6.95		· ·
27	Vitex pubescens	Laban	Verbenaceae	5,40	1.89	1.94	9.23	: : 	
				101.24	91.58	126.15	318.97		

Table V.69 Flora (Tree) in Future Reservoir of Lower Kuantan Dam Location(Lubuk Kapiek Forest) (Station 3)

RF = Relative frequency RD = Relative density

RB = Relative dominance IV = Importance Value D = Protected species L = Endangered species

			1								1
	No	Scientific Name	Local Name	Family	RF	RD	RB	IV	sta	ius	×.
		·	· · · ·		70	%	%	%	D	L	
	1	Artocarpus elasticus	Tarok	Moraceae	3.92	3.57	1.32	8.81			
	2	Artocarpus integer	Cubadak Hutan	Moraceae	1.96	1.78	0.52	4.26	1		
	3	Calophyllum pulcherrimum	Bintangur	Guttiferae	1.96	1.78	0.57	4.31			
	4	Campnosperma sp	Tarantang	Anacarciaceae	1.92	1.78	1.84	5.54			
	5	Cratoxylon sp	Sibalusui	Guttiferae	3.92	3.57	1.27	8.76			
	6	Dialium indum	Kuranji	Fabaceae	3.92	. 3.57	0.99	8.48			
	7	Durio grifitii	Durian Hutan	Bombacaceae	3.92	2.57	6,48	12.97			
	8	Eugenia sp	Kolek	Myrtaceae	3.92	5.36	7.05	16.33			
	9	Ficus variegata	Aro	Moraceae	5.88	5.36	5.33	16.57			
	10	Garcinia celebica	Kandis	Guttiferae	1.96	1.78	1.84	5.58			
	11	Koompassia malaccensis	Kampas	Fabaceae	3.92	7.14	13.04	24.10			
:	12	Mangifera foctida	Ambacang Hutan	Anacardiaceae	1.96	1.78	1.04	4.78			
	13	Nephelium glabra	Rambutan Hutan	Sapindaceae	1.96	1.78	0.38	4.12			
	14	Palaquium sp	Balam	Guttiferae	5.88	7.14	8.44	21.46			4
	15	Pterospermum javanicum	Bayur	Sterculaceae	1.96	1.78	1.94	5.68			
	16	Quercus javanica	Paniang-paniang	Fagaceae	3.92	5.36	3.98	13.26			
	17	Santiria oblongifolia	Kedondong	Bruseraceae	3.92	3.57	1.47	8.96			4
	18	Scorodocarpus borneensis	Kulim	Olacaceae	3.92	7.14	6.55	17.61			
	19	Shorea lepurosula	Meranti	Dipterocarpaceae	9.80	12.50	13.09	35.39			
	20	Shorea ovata	Banirawan	Dipterocarpaceae	1.96	1.78	2.32	6.06	.		
	21	Shorea platyclados	Banio	Dipterocarpaceae	3.92	3.57	5.08	12,57		•	
1		Simplocus fasciculata	Jirak	Synflocaceae	1.96	1.78	4.24	7.98			
	23	Stenospermium sp	Medang Api-api	Celastraceae	1.96	1.78	1.84	5,58			
		Teminalia copelandi	Jao	Combrettaceae	2.83	2.27	0.31	5.41			
	25.	Terminalia catappa	Ketaping	Combretaceae	1.96	1.78	2.53	6.27			
	26	Vitex pubescens	Labuai	Аросупасеае	3.92	3.57	1.27	8.76			
	27	Vitex sp1	Laban	Verbinaceae	:1.96	1.78	0.82	4.56			
	28	Vitex sp2	Pulai	Apocynaceae	5.88	5.36	2.82	14.06			
Ļ	29	Vitex sp3	Putat	Apocynaceae	3.92	3.57	1.56	9.05			1
L			1		100,79	106.55	99.93	307.27			

Table V.70 Flora (Tree) in Future Reservoir of Lower Kuantan Dam Location(Pintu Batu Forest) (Station 4)

RF = Relative frequency RD = Relative density

RB = Relative dominance IV = Importance Value D = Protected species L = Endangered species

1.1	· · · · · · · · · · · · · · · · · · ·		and the second second second						
No	Scientific Name	Local Name	Family	RF	RD	RB	IV	lati	us
				%	%	. %	%	D	L
1	Alseodhapne umbelliflora	Medang kunyit	Lauraceae	2.94	4.08	3.74	10.76		
2	Alstonia sp	Pulai	Apocynaceae	2.94	4.08	3.01	10.03		ł
3	Amercus cucida	Barangan	Fagaceae	2.94	2.04	6.60	11.58		
4	Artocarpus elasticus	Tarok	Moraceae	2.94	2.04	2.02	7.00	÷.	
5	Calophyllum pulcherrimum	Bintangur	Guttiferae	2.94	4.08	4.45	11.47		
6	Campnosperma sp	Tarantang	Anacarciaceae	2.94	2.04	1.46	6.44		
7	Dacryodes angalata	Kedondong	Burceraceae	2.94	2.04	0.42	5.40		
8	Dillenia sp	Resak	Dilleniaceae	2.94	2.04	1.50	6.48		ľ
9	Durio oxleyanus	Durian	Bombacaceae	2.94	2.04	1.03	6.01		
10	Elateriospermum tapos	Tampuih	Euphorbeaceae	5.88	2.04	2.02	9.94		1
11	Endospermum sp	Sanduak-sanduak	Euriceae	2.94	2.04	0.55	5.53		
12	Eugenia sp	Daek	Myrtaceae	2.94	2.04	5.36	10.34		
13	Eugenia spicata	Kolek	Myrtaceae	2.94	2.04	1.46	6.44		
14	Ficus variegata	Aro	Moraceae	2.94	2.04	4.48	9.46		
15	Hevea brasiliensis	Karet	Euphorbiceae	5,88	12.24	8.33	26.45		
16	Koompassia malaccensis	Kampas	Fabaceae	5.88	10.20	33.72	49.80		
17	Macaranga sp	Sapek-sapek	Euphorbiceae	2.94	6.12	3.25	12.31		
18	Macaranga triloba	Mahang	Euphorbeaceae	2.94	4.08	4.19	11.21		
19	Mallotos paniculata	Baliak Angin	Euphorbeaceae	2.94	2.04	1.03	6.01		
20	Palaqueum sp	Balam	Guttiferae	2.94	2.04	0.70	5.68		
21	Parkia speceosa	Petai	Mumoceae	2.94	2.04	1.89	6.87		
22	Perenema canescens	Sungkai	Verbaneceae	2.94	2.04	0.80	5.78		
23	Quercus bennetii	Paniang-paniang	Fagaceae	5.88	4.08	0.70	10.66		
24	Shorea acuminata	Meranti merah	Dipterocarpaceae	2.94	4.08	0.50	7.52		
25	Shorea lepidota	Meranti putih	Dipterocarpaceae	5.88	6.12	2,70	14.70		
26	Simplocos fasciculata	Jirak nasi	Myrtaceae	2.94	2.04	0.33	5.31	1	
27	Strombossia javanica	Petata	Olacaceae	2.94	2.04	0.57	5.55		
28	Vatica sp	Resak	Dipterocarpaceae	2.94	2.04	1.46	6.44		
. 1				97.02	95.88	98.27	291.17		T

Table V.71 Flora (Tree) in Future Reservoir of Lower Kuantan Dam Location(Lubukkambacang Forest) (Station 5)

RF = Relative frequency RD = Relative density RB = Relative dominance IV = Importance Value

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D = Protected species L = Endangered species

		Local Name	Sceintific Name			Loca	tion		Statu	s
				I	II	Ш	IV	V	Р]
	MAMALIA			1]
1		Kambing Hutan	Carprecornis sumatraensis	V		V	V	V	v	
2		Rusa	Cervus unicolor		V	V V	v	v		
3		Musang air	Cynegole benneti		V		v	ľ	v ·	
4		Gajah	Elephas maximus	'V		V		1	v	
-5		Kucing Hutan	Felis bengalenis		v	v	v		v	
6		Beruang Madu	Helarctos malaxamis	v	v.	v v	v	V	v	
7	·	Ungko .	Hylobates sp	1 ·	v	v	v	1 · .	v	
8		Landak	Hyrix brachyura	ļ	v	$ \mathbf{v} $	v		v	
9		Tupai Tanah	Lariscus intignis		v	v	\mathbf{v}	$ \mathbf{v} $	v	ŀ
10		Monyet Ekor Panjang	Macaca fascicutaris	.v			v			
11		Beruk	Macoca nomestriana	\mathbf{v}	v	v	v	$ \mathbf{v} $		
12		Trenggiling	Manis javanica		v	v	v		v	
13		Kijang	Mumticus muncak		l v		ν.		v	
14		Harimau Dahan	Naofelis nebulosa	Į	v	v			v	
15		Pukang/Kukung	Nyeticeus coucang		v	v	v		v	
16		Harimau	Panthera tigris sumateraensis	v	v	v	V.	v	v	
17		Musang	Paradoxocus hermaprodetus	v	, ,	$ \mathbf{v} $	v			
18		Lutung Hutan	Presbytis sp		V	. •	¥		· v	L
19		Simpai	Prebytis melanophos		v	v	v	v	v	
20		Surili	Presbytis nygula		v		Y	*	v	
21		Babi Hutan	Sus scrofa	v	v	v	v	v	· *	L
22		Siamang	Symphalongus syndactilus	v	v			.	v	
23		Tapir	Tapirus indius	v	¥.	v	v	v	v	L
24		Kancil	Tragulus javanicus	*	v	V	v	ľ.	V	
	BIRDS				V.		v	<u> </u>		ł
25		Elang	Accipiter sp		v		v		ĺ	
26		Puyuh	Arborophila sp		v	v	v			ľ
27		Kuaw	Argisianus argus		· v	v	V	v	v	ł
28	1 A.	Bangau	Balarica sp	1.1	•	. •		v		
29	н (тр. 1997) 1997 — Прилости (тр. 1997) 1997 — Прилости (тр. 1997)	Enggang	Buceres sp		10		V	V V		ľ
30		Murai	Corsuchus sp	· ·	v	v	V			ļ
31		Bubut	Centropus sp		V V	v	V	V		[
32		Gagak	Cespes macrorhyncos				V	V		ŀ
33		Pelatuk			V	V	. V .	V		
34	an the A	Tengalak	Dinopiore sp	⁻	V.	V		, V		ŀ
35		Elang Hitam	Oriolus maculatus		V		V		V	
36		Beo	Spizaetur bartelsi							
37		Burung Udang	Gracula regiusa	V	• •		V		V	
37 38	÷		Haleyon chloris		V	. V	v		V	
38 39		Serindit	Loriculkuc vernalis	1	V	V	V	V	V	ŀ
		Burung Hantu Burung Dama	Otus sp		V	V	V	. V	V	
40 41	· · ·	Burung Daun	Phyloscopus faciatus	[.	V		v	V.		
41		Burung Kencak	Rhipidura javanica		Y		v		· ·	
42		Murai Batu	Rhipudura aeneus	ŀ .	V		V	1.1		
43		Punai	Spenurus oxyurus		$[\mathbf{V}]$	V	V		1	
44		Ayam Hutan	Gallus gallus	V	(\mathbf{V})		V		. V	ľ
45		Ibis Putih	Thereskia sp	1.1	\mathbf{v}	\mathbf{v}				1

Table V.72(1/2) Terrestrial Fauna Found in the project area in Indragiri river basin.

		Local Name	Sceintific Name			Loca	tion		Status
				Ι	Π	III	IV	V	Р
	REPTILIA								
46		Ular sanca hijau	Chondrophyton niridis			V .	v		v
47		Bingkaruang	Maboya sp	v	V	v	v	v	
48		Ular sawah	Phyton retiarlatus			v	v		V.
49		Ular sendok	Naja tripudianis	v		v	\mathbf{V}^{\cdot}		V
50		Kura-kura	Oritra binensis	V	V	v		V	
51		Labi-labi	Citra ndica			v	V		
52		Buaya Sihyolong	Tonnistora schlelegelli	1	V	v	v		v
53		Biawak	Varabus salvator	V		v	v		V
	AMPHIBIA				- 1. 1				
54		Kodok biasa	Bufo melanopticus	$ \cdot \mathbf{V} $		V V	\mathbf{v}	Ý	
<u>5</u> 5		Katak hijau	Rana cancrifora	V	V	V V	· ·	v	
56		Katak coklat	Rana lioneralis	V			v	$\cdot \mathbf{V}$	
57		Katak hijau besar	Rana Macrodon		v	V			<u> </u>
÷ .	INSECT			:					
58		Kupu-kupu raja	Danaus flexipus	. V	v	V	V	V	
60		Ngengat ujung kait	Drepana arculata	V	Ϋ́.	1 V		V	
61		Kupu-kupu mata mutiara	Enedia protlandia	V	v	V	V	v	
62		Peloncat bintik perak	Epargyreus dorus	V	V		V		
63		Ngengat lompat cepat	Itensicenca maja		V	v	V	v	ļ
65		Kupu-kupu belerang	Colias philodica	V	V		V	V	1
66		Kupu-kupu pinus	Neophasia menupia	V		V.	V	V	
			Oenelis jutha			V V		V	
		а 1 — 1 — 1 — 1 — 1 — 1 — 1 — 1 — 1 — 1 —	Dione juno		V	V	1.	V	
			Lephelisca borcalis	$ \mathbf{V} $	V	V	V		
67		Kupu-kupu Ekor Walet	Papilio phyxenes asterius	V V	v		V	V	
68		Kupu-kupu kubis	Pilris rapae	V		v	v	V	
69		Kupu-kupu besar	Speyeria cybele	v		V	V		
70		Peloncat bintik perak	Epargyreus dorus	¹ V	V		V		
71		Kupu-kupu kubis	Pilris rapae	V	Ι.	V	V	V	

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Table V.72 (2/2) Terrestrial Fauna Found in the project area in Indragiri river basin.

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I. Forest area near Lower Kuantan Damsite

II. Forest area near Lubuk Jambi

III. Forest area near Banjar Tengah

IV. Forest area near Lubuk Kapiek

V. Forest area near Pintu Batu

P: Protected forest

Local Name Family Scientific Name Cyprinidae 1 Semilang Batang Barbichthys leavis 2 Sepimping Chela oxygastroides 3 Umbut-umbut Dangilla cuvieri 4 Mali Dangilla sp 5 Kujam Dangilla sumatera 6 Semilang Pulau Ephalzeorhynchus kallopterus Barau Hampala bimaculata 7 Barau Hampala lepidota 8 Sijolong Lucioname setigerus 9 Lucioname triname 10 Paweh Oetheochillus hasselti 11 Kujam Oetheochillus kahayanensis 12 Kelabau Oetheochillus kelabau Siburuk Perut 13 Oetheochillus spilurus 14 Kapiek Puntius belinka 15 Tabengalam Puntius bromenoides 16 Siban Puntius bulu 17 Singarek Puntius fasciatus 18 Sipaku Puntius hexazona 19 Olang Puntius scanafeldi 20 Mentulu Puntius sp 21 Olang Puntius tetrazona 22 Parang Rasbora argyrotaenea 23 Pantau Rasbora dorsepcellata 24 Pantau Bero Rasbora lateristriata 25 Pantau Rasbora rutteni 26 Pantau Beras Rasbora vaillanti 27 Motan Thynnichthys thynnoides 28 Motan Besar Kepala Thynnichthys vaillanti 29 Clariidae Limbek Baguit Clarias batrachus 30 Limbek Akar Clarias teismany

Ephalzeorhynchus sp

Cryptoterus cryptoterus

Cryptoterus mononema

Hamichilurus chaperi

Hamichilurus moonbergii

Hamichilurus schrinema

Siluruides hypothalmus

Siluruides indragiriensis

Pangasius polyuranadon

Pseudeutropius branchiopepteus

Pangasius pangasius

Clarias sp

Cryptoterus lais

Cryptoterus sp

Cryptoterus sp

Wallago leri

Pangasius sp

Table V.73 (1/2) INVENTORY OF FISHES IN THE MIDDLE REACHES OF INDRAGIRI RIVER.

بالمراجع المحاج المحاجم أوالم المحاج المحاج

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Siluridae

Pangasidae

Koli

Lais

Loi

Loi

Lukek

Selais

Tapah

Sikumu

Patin

Juaro

Riu-riu

Loi Modang

Baliak Tulang

Loi Bomban

Loi Modang

Patin Kunyit

Loi Godang Kapalo

Table V.73 (2/2) INVENTORY OF FISHES IN THE MIDDLE REACHES OF INDRAGIRI RIVER.

r			
	amily	Local Name	Scientific Name
48 Bagrida		aung Moncik	Bagrichthys hypselopterus
50			Bagroides macrochantuseps
51		aung Hitam	Bagroides macropterus
52	1		Bagroides malapterus
53		aung	Macrones nigriceps
54		aung Tunggik	Macrones sp
55 Cobitid	ae Ci	lling-ciling	Botia hymenophysa
56	Ra	ajo Guntili	Botia macrochantus
57	Ta	ali-tali	Namechilus fasciatus
58	Li	da-lida	Notopterus bornensis
59		elido	Notopterus chilata
60 Osteog	lossidae De	omo/Kaloso	Sclerophages formosus
61 Anabar	tidae Ka	atung	Anabas sp
62	Pu	ואנ	Anabas testudineus
63	Si	ngkek	Helostoma temmenchi
64	K	aluih	Osphronemus gourami
65	Si	linca	Polyacanthus hasselti
66	Sc	opek	Trichogaster leeri
67	Sc	opek Siam	Trichogaster pectoralis
68	Sc	opek	Trichogaster trichopterus
69 Ophioc	hepalidae To	oman	Betta anabantoides
70	Te	empalo	Betta taenia
.71	H	aruan	Ophiochephalus bistoriatus
72	L	ompong	Ophiochephalus lucius
73	T	oman	Ophiochephalus melanosoma
74	B	atuik	Ophiochephalus pleuropthalmus
75 Nandid	ae Jo	olai	Ophiochephalus maruliades
77 Lutjini		ambun	Nandus nebolusus
78 Trichiu	the second second second second second second second second second second second second second second second se	an Sira	Lutjanus argentimaculatus
79 Therpo		imah	Trichirius haunela
80 Toxoti		lopu	Synanchesia sp
	embelidae Ti	ilan	Mastachembelus armatus
82	Si	umpuik	Toxotes chatareus
83 Belonie		ilan	Magrocnathus aculeatus
84		olai	Xenentodon maculatus
85 Polyne		ılung-julung	Xenentodon cancioides
		umbuk bong	Dermogenis sumatranus
87 Tetrao		enangin	Eleuhromena tetradactium
88	B	oloik	Monopterus albus
89		untal	Tetraodon nigropunctatus
90 Solaida		untal	Lagochaphalus lunaris
91		idah-Lidah	Synaptura conmesuni

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Table V.74 Species inventory and abundance of phytoplankton in Lubukjambi weir and irrigation area (Station 3)

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	Species	Number	Density
1. Chlorophyceae	Closterium tumidim	17	3.13
	Closterium praelogum	19	1.27
	Pleurataenium sp	4	0.27
	Micropora sp	3	0.20
	Staurastrum cingulum	3	0.20
•	Hematococcus lacustris	2	0.13
	Oscillataoria angustissima	2	0.13
	Akistrodesmus sp	1	0.07
	Westella sp	1	0.07
	Pediastrum tetras	1	0.07
2. Bacillariophyceae	Rhoicosperia curvata	5	0.33
	Synedra amphicephala	7	0.47
	Cosmarium globossum	7	0.47
	Neidium iridis	2	0.13
	Cymbella affinis	2	0.13
	Amphipleura pellucida	2	0.13
	Achantes cilensis	1	0.07
3. Cyanophyceae	Cyanoptyche gleocystis	4	0.27
	Nostoc spongiosforme	1	0.07
4. Rhodophyceae	Eirodesmus phaeticus	2	0.13
	Phormidium sp	1	0.07
5. Charophyceae	Nitella jurcata	1	0.07
	Total	88	7.88



No.	Desa (Village)	Population	Area	Density	Hou	usehold
•	· · ·				Total	Submerged at EL.120m
	(n)	(persons)	(ha)	(pers./km ²)	(n)	(n)
1	Durian Gedang	1270	62.2	21	266	237
2	Padang Teraap	769	13.29	58	155	109
3	Tanjung Keliling	1234	88.09	14	290	259
4	Air Ramo	1147	38,67	30	261	.245
5	Banjar Tengah	539	38.89	14	126	164
6	Batang kering	652	36.25	18	114	113
7	UPT Timpeh 4	2576	12.6	204	560	92
	Total	8187	289.99	51.3	1772	1219

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Table V.75 Population, population density and households of seven Desas(Villages) in the reservoir area of Lower Kuantan dam.

Source: Field survey, 1995

Table V.76 Number of houses submerged in the reservoir area of Lower Kuantan dam.

A. All of D	esa (Viila	ge)		n an an a' sa	· · · ·		- -	
	1	2	3	4	5	6	7	
Kecamatan	Sijunjung			Tanjung (Gadang	1		Total
Desa	Durian Gadang	Padang Tarap	Tanjung Keling	Air Amo	Banjar Tengah	Batang Karing	Timpeh IV	
Elevation		1						
100 m	0	109	259	66	164	0	0	598
110 m	0	109	259	66	164	0	0	598
116 m	224	109	259	191	164	107	.0	1054
120 m	237	109	259	245	164	113	92	1219

B. Main Kampung (small village)

Desa	Tanjung	Keling	· · · ·	Banjar T	engah	Batang K	aring
Kampung	Tanjung Keling	Pintu Batu	Mudik- muk	Banjar Tengah	Lubuk Kapiek	Batang Karing	Sungai Mandar
Elevation							
100 m	154	32	73	109	55	0	0
110 m	154	32	73	109	55	0	0
116 m	154	32	73	109	55	104	3
<u>120 m</u>	154	32	73	109	55	110	3

Note)

a. Small huts are not included.

b. Name of village is based on the map of 1: 10,000

c. Timpeh IV and V are new trasmigration area.

d. Elevation is the reservoir water level.

No.	District	Population	Area	Density	Household
		(n)	(ha)	(pers./km ²)	(n)
1	Kuantan Mudik	17,438	42,238	41	3,864
2	Kuantan Tengah	26,711	18,300	145	5,897
3	Kuantan Hilir	16,115	7,179	224	3,940
4	Cerenti	13,198	48,800	27	2,811
	Total	73,462	116,517	437	16,512

Table V.77 Population, poppulation density and number of households of four Kecamatans in the area of Lubukjambi irrigation canal.

Source: Indragiri Hulu survey, 1992

Table V.78 (1/2) Population, population density and number of households in villages related to Lubukjambi intake weir and irrigation canal.

No	No. Village (Desa) Area Reputation Depaits				
No.	Village (Desa)	Area	Population	Density	Household
<u> </u>	· · · ·	(km²)	(persons)	(pers/km ²)	<u>(n)</u>
1	Aur Duri	9.5	229	30.0	45
2	Banuaran	4.2	357	89.0	71
3	Benai	1.5	708	354.0	156
4	Benai Kecil	1.7	239	119.0	49
5	Beringin Jaya	6.7	1340	191.0	294
6	Bukit Kausan	9.9	734	73.0	- 149
7	Bukit pedusunan	12.4	967	81.0	213
8	Gunung	12.0	632	53.0	157
9	Inuman	31.0	212	7.0	44
10	Jeluar Patah	28.2	758	27.0	160
11	Kampung Baru	12.2	929	77.0	217
12	Kampung Medan	5.1	1508	301.0	301
13	Kampung Tengah	5.4	552	110.0	110
14	Kepala Pulah	6.6	115	. 16.0	23
15	Koto Benai	· 1.8	305	152.0	71
16	Koto gunung	9.9	674	67.0	100
17	Koto Kari	3.3	576	192.0	114
18	Koto Kuabu	45.0	633	15.0	153
19	Koto lubuk Jambi	12.2	855	71.0	171
20	Koto pangian	3.8	210	53.0	42
21	Koto Sentajo	4.3	738	184.0	177
22	Koto Taluk	5.5	2182	364.0	577
23	Koto Tuo	4.4	270	68.0	54
24	Kp. Baru Sentajo	5.1	1669	333.0	326
25	Luai	7.3	453	65.0	151
26	Lubuk Jambi	45.5	1006	22.0	234
27	Lubuk Jambi	8.1	610	76.0	119
28	Muara Sentajo	5.0	1398	280.0	301
29	Mudik Hulu	28.0	655	23.0	174
30	Parit TA. Hitan	17.8	427	24.0	106
31	Pasar Baru baserah	1,1	1520	1520.0	304
32	Pasar Teluk	2.3	1986	993.0	381
33	Pasar Usang Baserah	1.9	550	275.0	110
	Pasar usang Pangian	8.0	2363	295.0	473
1	Pebawa Hilir	9.3	764	85.0	177
36	Pebawa Hulu	9.2	718	80.0	155
37	Petapahan	13.3	346	27.0	112
	Pintu Gadang	4.8	1425	258.0	295

No.	Village (Desa)	Area	Population	Density	Household
	:	(km ²)	(persons)	(pers./km ²)	··· (n)
39	Pisang Berebus	11.1	514	47.0	117
40	Pulah kedundung	10.3	- 766	77.0	169
41	Pulah Kumpai	12.0	1144	95.0	229
42	Pulau Augit	13.5	1386	99.0	277
43	Pulau binjai	8.4	637	. 80.0	142
44	Pulau Bralo	10.0	1370	137.0	274
45	Pulau Gadang	4.3	978	245.0	209
46	Pulau Jambu	35.0	659	19.0	131
47	Pulau Kijang	6.8	708	101.0	142
48	Pulau Komang	5.8	1198	200.0	264
49	Pulau Madinah	6.6	393	56.0	79
50	Pulau Panjang	20.0	629	31.0	122
51	Pulau Rengas	9.5	651	65.0	130
52	Pulau Tengah	2.3	510	255.0	102
53	rantau Silang	8.7	801	89.0	190
54	Rawang Binjai	12.0	480	40.0	96
55	Saik	13.3	312	24.0	202
56	Sawah	11.8	2957	246.0	587
57	Seberang Pantai	9,7	290	29.0	167
58	Seberang TA. Hitam	28.3	260	10.0	53
59	Serosa	38.0	473	12.0	118
60	Siberakun	4.6	616	123.0	147
61	Sikelelawar	9.9	223	22.0	50
62	Simandolak	6.1	1304	217.0	306
63	Simpang Tanah Lapang	4.0		168.0	135
64	Simpang Tiga	16.8	2665	133.0	581
65	Sukaping	11.0	738	67.0	148
66	Sungai Ala	41.5	620	15.0	149
67	Sungai Manau	11.1	993	90.0	225
68	Sungai Pinang	.41.0			174
69	Tanjung	42.2		ş	154
70	Tanjung Medang	31.2	457	15.0	105
71	Taratak Air Hitam	17.6	779	43.0	176
72	Teluk Beringin	12.1	779	65.0	364
73	Toar	12.2	1057	88.0	235
	Total	941.4	61,204	138.2	13,615

Table V.78 (2/2) Population, population density and number of households in villages related to Lubukjambi intake weir and irrigation canal.

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No	Village	Population (n)	Area (ha)	Density (pers./km ²)	Household (n)
1	Kampung Dagang	2,419	81.0	30	484
2	Sekip Hulu	5,518	27.8	199	1,104
3	Sekip Hilir	4,190	7.5	559	797
4	Kelurahan Pasiran	5,578	10.3	542	929
	Total	17,705	126.6	1,330	3,314

Table V.79 Population, population density and number of households in villages related to Rengat ring dike.

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Source: Field Survey, 1995

	Population					
Livelihood/Education	Kec. Siju	Kec. Sijunjung		Kec. Pulau Gadang		
	Total	%	Total	%		
A. Livelihood				•		
- Agriculture	4,546	63.1	6,894	86.4		
- Industry / house industry	89	1.2	692	8.6		
- Commercial	391	5.4				
- Service	1,523	21.1	397	5.0		
- Others	656	10.2				
B. Education						
- not educated / before school	8,800	26.0	47,784	76.8		
- Primary school	8,672	26.0	4,181	18.1		
- Secondary school	7,858	23.0	6	3.4		
- High school	6,966	20.0	9	1.6		
- College	1,078	3.2	0	0.5		
C. Age structure						
0 - 4	3,917	11.7	3,519	15.2		
5 - 14	8,940	26.8	5,532	23.9		
15 - 24	6,078	18.2	4,268	18.4		
25 - 34	5,422	16.2	3,796	16.4		
35 - 44	3,561	10.7	2,684	. 11.		
45 - 54	2,632	7.9	1,573	6.		
55 <	2,824	8.5	1,782	7.		

Table V.80 Population composition of Livelihood, education and age structureof two Kecamatans in the area of Lower Kuantan dam.

Source: Field survey, 1995

Name of village No. Age group (Desa) <15 yrs 15 - 59 yrs 60 yrs < Aur Duri 1 38.8 54.1 7.1 2 Banuaran 41.0 43.9 2,9 3 Benai 37.9 54.8 7.3 4 Benai Kecil 38.8 56.7 4.5 5 Beringin Java 40.2 57.7 2.1 6 Bukit Kausan 41.0 55.8 3.2 7 Bukit pedusunan 38..9 55.2 5.9 8 Gunung 37.8 55.4 6.8 9 Inuman 38.7 54.1 7.2 10 Jeluar Patah 41.3 56.8 1.9 11 Kampung Baru 41.3 53.5 5.2 12 kampung Medan 40.4 57.5 2.1 13 Kampung Tengah 41.1 56.7 2.2 Kepala Pulah 14 40.5 56.8 2.7 15 Koto Benai 39.1 53,7 7.2 Koto gunung 16 37.9 55.8 6.3 17 Koto Kari 41.2 57.6 1.2 18 Koto Kuabu 39.4 53.9 6.7 19 Koto lubuk Jambi 37.8 56.0 6.2 20 Koto pangian 39.5 53.4 7.1 21 Koto Sentajo 38.5 55.8 5.7 22 Koto Taluk 48.9 50.2 0.9 23 Koto Tuo 39.0 56.5 4.5 24 Kp. Baru Sentajo 39.3 54.6 6.1 25 Luai 40.3 55.4 4.3 26 Lubuk Jambi 39.0 55.2 5.8 27 Lubuk Jambi 36.3 55.8 8.2 Muara Sentajo 28 38.6 55.6 5.8 29 Mudik Hulu 39.8 53.1 7.1 30 Parit TA. Hitan 40.1 57.0 2.9 31 Pasar Baru baserah 39.4 53.5 7.1 32 Pasar Teluk 37.1 57.7 7.233 Pasar Usang Baserah 38.7 54.2 7.1 Pasar usang Pangian 34 40.8 56.1 3.1 35 Pebawa Hilir 39,9 52.9 7.2 36 Pebawa Hulu 41.3 53.7 5.1 37 Petapahan 39.2 54.5 6.3 38 Pintu Godang 39.9 53.0 7.1 39 **Pisang Berebus** 39.5 53.7 6.8 40 Pulah kedundung 40.6 57.5 1.9 41 Pulah Kumpai 40.1 58.0 1.9 42 Pulau Augit 40.6 55.9 3.5 43 Pulau biniai 40.255.7 4.1 44 Pulau Bralo 41.3 55.1 3.6 45 Pulau Godang 41.1 57.9 1.0 46 Pulau Jambu 40.5 57.6 1.9 47 Pulau Kijang 40.2 43.6 3.4 48 Pulau Komang 40.1 57.8 2.1 49 Pulau Madinah 40.0 56.8 3.1 50 Pulau Panjang 39.9 52.6 7.5

Table V.81 (1/2) Age structure in villages related to Lubukjambi irrigation canal, 1992

No.	Name of village		Age group	
	(Desa)	<15 yrs	15 - 59 yrs	60 yrs <
51	Pulau Rengas	40.4	56.3	3.3
- 52	Pulau Tengah	40.3	58.0	1.7
53	rantau Silang	41.5	56.8	4.7
54	Rawang Binjai	40.3	56.5	3.2
55	Saik	34.3	58.4	7.3
56	Sawah	40.2	57.9	1.9
-57	Seberang Pantai	39.9	55.0	5.1
58	Seberang TA. Hitam	39.9	53.2	6.9
59	Serosa	40.1	52.8	7.1
60	Siberakun	39.8	54.3	5.9
61	Sikelelawar	42.0	55.1	2.9
62	Simandolak	39.9	54.0	6.1
63	Simpang Tanah Lapang	41.1	56.3	2.6
64	Simpang Tiga	40.3	58.0	1.5
65	Sukaping	40.7	55.2	4,1
66	Sungai Ala	39.7	54.4	5.9
67	Sungai Manau	41.7	54.2	4.1
68	Sungai Pinang	38.9	53.9	7.2
69	Tanjung	39.9	53.8	6.3
70	Tanjung Medang	38.7	54.4	6.9
71	Taratak Air Hitam	40.2	57.3	2.5
72	Teluk Beringin	38.7	54.2	7.1
73	Toar	38.9	55.0	6.1

Table V.81 (2/2) Age structure in villages related to Lubukjambi irrigation canal, 1992

		Kecamatan (District)				
No	Occupation	K.Tengah	K.Hilir	K.Mudik	Cerenti	
1	Agriculture	8,236	8,433	9,032	9,032	
2	Industry	121	402	114	114	
3	Local mining	39	· · · ·	125	125	
4	Electricity			17		
5	Carpentar	99		127	115	
6	Commercial		459	550	350	
7	Transport	880		155	111	
8	Bank			6		
9	Civil servant	235	399	323	225	
10	Service	1,866	675	675	105	

Table V.82 Number of people working in each occupation type in four districts related to Lubukjambi irrigation canal.

Source: District survey, 1992

No		· · · · ·			
	Educational level	K.Tengah	K.Hilir	K.Mudik	Cerenti
1	Not educated	29	30.1	27	28.9
2	Primary school	58.7	59.6	56.6	59.9
3	Secondary school	7.5	6.2	8.2	7.3
4	Highschool	4.5	3.4	6.7	3.9
5	College	0.4	0.7	1.5	0.8
<u> </u>	Total (%)	100.1	100	100	100,8

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Table V.83 Number of people educated at different levels in four districts (Kecamatans) related to Lubukjambi irrigation canal.

Source: District survey, 1992

e la contra e tribulé de la

2 3 4 5 6 7 8 9 10 11	Aur Duri Banuaran Benai		school	school	school	
3 4 5 6 7 8 9 10 11			1			
4 5 7 8 9 10 11	Benai				· · · ·	
5 6 7 8 9 10 11		1	2	1	1	
5 6 7 8 9 10 11	Benai Kecil				- - -	
6 7 8 9 10 11	Beringin Jaya	· · ·	1			
7 8 9 10 11	Bukit Kausan		1			
8 9 10 11	Bukit pedusunan		1	· · · ·		
9 10 11	Gunung	1	1	and the second		· · · ·
10 11	Inuman		1			
11	Jeluar Patah		1			
	Kampung Baru			1		
14	kampung Medan		1			
13	Kampung Tengah		1	2		
•		· · ·	1			
	Kepala Pulah		1	1.		· · ·
	Koto Benai		1			
	Koto gunung		1			
1	Koto Kari		1			
	Koto Kuabu		1 -			
	Koto lubuk Jambi			1		
	Koto pangian					
	Koto Sentajo		1			
1	Koto Taluk		2		1	
	Koto Tuo					
	Kp. Baru Sentajo		2			
1	Luai		1	1		
	Lubuk Jambi	· · ·	1			
	Lubuk Jambi	1	1	2		
	Muara Sentajo		1 -	1		
- E	Mudik Hulu		1			
30 1	Parit TA. Hitan		1			14. 1. 1.
31 1	Pasar Baru baserah		1	· · · ·	. *	
32. I	Pasar Teluk	2	3	3 3	1	
33 I	Pasar Usang Baserah		2			
34 I	Pasar usang Pangian		2			
35 I	Pebawa Hilir		2			
36 I	Pebawa Hulu		1			
37 I	Petapahan			1		
8 I	Pintu Godang		1	1	·.	
	Pisang Berebus		2		1	
	Pulah kedundung		2	·		
	Pulah Kumpai		1			
	Pulau Augit		2		· · ·	
	Pulau binjai		1			
	Pulau Braio		1			
	Pulau Godang					I
	Pulau Jambu		1			
			1			
	Pulau Kijang Pulau Komana		1			1
	Pulau Komang		1		1	
	Pulau Madinah Pulau Panjang		1	a a transformation a la companya de la companya de la companya de la companya de la companya de la companya de		

Table V.84 (1/2) Educational facilities at villages related to Lubukjambi irrigation canal.

No.	Name of village	Kindergarden	Primary school	Secondary school	High- school	College
51	Pulau Rengas		1			
	Pulau Tengah		1			
53	rantau Silang					
54	Rawang Binjai		1			
55	Saik					
56	Sawah		4		1	
57	Seberang Pantai		2	1	1	
58	Seberang TA. Hitam		·1			
59	Serosa		1			
60	Siberakun		2			1. A.
61	Sikelelawar		1	•		
62	Simandolak	1	3	1		
63	Simpang Tanah Lapang	1	1 2	1		
64	Simpang Tiga		2	3	2	
65	Sukaping		1		5	
66	Sungai Ala		1			
67	Sungai Manau		1			
68	Sungai Pinang		-3			
69	Tanjung		1			
70	Tanjung Medang	1	1			
71	Taratak Air Hitam		1	<u> </u>		
72	Teluk Beringin		1			
73	Toar	<u> </u>	1	1	<u> </u>	<u> </u>

Table V.84 (2/2) Educational facilities at villages related to Lubukjambi irrigation canal.

Source: Population census 1990

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	e al construction de la construc		·····	
No	District	Ag	ge Group (yea	rs)
		< 15	15-59	60 <
1	Kampung Dagang	40.4	56.1	3.5
2	Sekip Hulu	38.1	55.7	6.2
3	Sekip Hilir	38.7	55.0	6.3
4	Kelurahan Pasiran	39.3	55.8	49

Table V.85 Age Structure near Rengat Ring dike, 1992

Source: Monography of Rengat district 1993

Livelihood/Education/Age structure	Populat	tion
	Total	%
A. Livelihood		
- Agriculture	3,329	18.8
- Industry / house industry	88	0.5
- Commercial	13,668	77.2
- Service	1,523	21.
- Others	620	3.
B. Education		
- not educated / before school	4,603	26.
- Primary school	3,212	20.
- Secondary school	3,435	19.
- High school	5,134	29.
- college	921	5.
C. Age group		
0-4	2,320	13.
5 - 14	4,373	24.
15 -24	3,258	18.
25 -34	3,028	[·] 17.
35 -44	1,983	11.
45 - 54	1,611	9.
55 <	1,133	6.

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Table V.86 Livelihood, educational level and age structure in Rengat

Source: Data Lapangan, 1995

Diseases	Kec.Siju	njung	Kec.Tanjung	Gadang
·	Total	%	Total	%
Influenza	1969	35.2	1721	36.5
Skin disease	1220	22.6	704	22.9
Diarrhea	899	16.1	513	16.7
Anemia	820	14.7	314	10.2
Rheumatic	684	13.2	416	13.6
Total	5592	101.8	3068	99.9

Table V.87 Type of diseases in two districts of Sijunjung and TanjungGadang related to Lower Kuantan dam.

Source: Sensus in 1994

Medical facilities	Sijunjung	Tanjung Gadang
Doctor	5	5
Nurse	- 8	160
Midwife	4	15
Shaman	19	
Schaman for baby	43	54
Sub-midwife		10
Health adviser		6
Sanitary		2
Clinic		· · · 3 · · · ·
Small clinic	1	3
Hospital		24
Pharmacy		2

Table V.88 Number of health facilities in Kec.Sijunjung and Kec.Tanjung Gadang related to Lower Kuantan dam, 1994

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No.		Clinic	Chirdren's hospital	Family planning service	Health adviser	Medical man
1	Aur Duri			and the second		2
2	Banuaran		1	1		1
.3	Benai	1	1	1		1
4	Benai Kecil		1	1	1	
5	Beringin Jaya		1	1	1	· 1.
6	Bukit Kausan					4
7	Bukit pedusunan					2
8	Gunung		1	1		3
9	Inuman		1 -	1	1	2
10	Jeluar Patah		1	1		1
11	Kampung Baru			1		
12	kampung Medan		1	1.		1
13	Kampung Tengah		1	1		
14	Kepala Pulah		1	1		2 2
15	Koto Benai		1	1		1
16	Koto gunung		1	1	2	2
17	Koto Kari		1	1	-	1
18	Koto Kuabu		1	1	1	4
19	Koto lubuk Jambi		1	1	2	1
20	Koto pangian		1	1	-	2
21	Koto Sentajo		1	1		2
22	Koto Taluk		3	1.	4	2
23	Koto Tuo		1	1	-	2
24	Kp. Baru Sentajo		1	1		1
	Luai		1	1	1	1
	Lubuk Jambi		1	1	· · ·	1
27	Lubuk Jambi	1	1	1	5	1
28	Muara Sentajo	<u>ь</u>	1	2		2
	Mudik Hulu		1	1	1	2
30	Parit TA. Hitan		1	1		1
31	Pasar Baru baserah		1	1		1
	Pasar Teluk		2	2	· · ·	
	Pasar Usang Baserah	1	1	$\frac{2}{2}$	2	3
34	Pasar usang Pangian	L ·				
35	Pebawa Hilir		1	1		1
36	Pebawa Hulu		1			
37	Petapahan		1	1	2	
38	Pintu Godang		1	1		2
30 39	Pisang Berebus		1	1		1
39 40	Pulah kedundung			1	· · . 1	- 1
40 41	Pulah Kumpai		1	1		1
41 42			1	.		2
42 43	Pulau Augit Pulau hinini		1	·		1
	Pulau binjai Bulau Brata	•	1			2
44	Pulau Braio		1			
45	Pulau Godang		2	1		2
46	Pulau Jambu		1	1		2
47	Pulau Kijang		1	1		3
48	Pulau Komang		1	2	1	3
49	Pulau Madinah		1	1		1 1 1
50	Pulau Panjang		1	1		2

Table V.89(1/2) Health facilities in villages related to Lubukjambi irrigation cannal.

No.	Villages	Clinic	Chirdren's hospital	Family planning service	Health adviser	Medical man
- 51	Pulau Rengas	·	1	· · ·		1
52	Pulau Tengah		1	1		2
53	rantau Silang		1	1		1 .
54	Rawang Binjai		1	2		1
55	Saik		1		2	2
56	Sawah	1	1	-1	3	2
57	Seberang Pantai		1	1	1	3
58	Seberang TA. Hitam		1	1		2 .
59	Serosa		1	1		2
60	Siberakun		1	1	3	2
61	Sikelelawar		:			· 2
62	Simandolak		1	1		1
63	Simpang Tanah Lapang	<u>.</u>	1	1		1
64	Simpang Tiga		1	1		. 1
65	Sukaping		1	· · · ·		1
66	Sungai Ala		1	1	1 .	3
67	Sungai Manau		1	1	1	
68	Sungai Pinang		1	1		5
69	Tanjung		. 1	1		2
70	Tanjung Medang		1	1		2
71	Taratak Air Hitam		1	1		1
72	Teluk Beringin		1		1	2
73	Toar	L	1	1	·	2

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Table V.89(2/2) Health facilities in villages related to Lubukjambi irrigation canal.

Source:Population sensus 1990

Health facilities	Village				
	Kampung Dagang	Sekip Hilir	Sekip Hulu		
Hospital		1			
Medical office			3		
Clinic		-	-		
Small clinic	· 1	· · · ·			
No licenced medical doctor	. 1	3	2		
Children's hospital	4	1	9		
Medical doctor	4	3	2		
Health adviser	4	7	6		
Shaman	3	1	3		

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Table V.90 Health facilities in three villages related to Rengat ring dike.

Source: Monograhy of Rengat city 1992

Table V.91 Number of domestic animals at Kec.Sijunjung and Kec.Tanjung Gadang, 1995

Type of domestic animals	Sijunjung	Tanjung Gadang
Buffalo	1,663	2,163
Cow	1,412	1,950
Goat/sheep	1,394	475
Chicken	25,262	78,480
Duck		2,148

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Source: Field survey, 1995

No.	Health facilities	Sijunjung	Tanjung Gadang
1	Hospital		
2	Clinic		
3	Small clinic		
4	Doctor		
5	Nurse		
6	Midwife		
7	Village midwife		
8	Old fashioned doctor		
9	Streetside shop/small shop		
10	Mosque		
11	Small mosque		
12	Market		
13	Bank		
14	Family planning service		
15	Children's hospital		
	Primary school		
17	Secondary school		
18	Highschool		
19	Regional course		
20	Sports field		

Table V.92 General facilities in Sijunjung and Tanjung Gadang district, 1992

Source: District survey, 1992

Table V.93 Small industry/house industry at Kec.Tanjung Gadang district, 1995

Small industry/house industry	Tanjung Gadang
Brick manufacturing	6
Ice manufucturing	. 8
Threshing/Rice Miling	14
Tofu manufatcuring	2
Blacksmith	3
Car service station	3
Motorbike service station	4
Bicycle service station	5
Car wash	2
Furniture shop	5
Quarrying	3

Source: Field survey, 1995

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(Second

No.	Type of facilities	K. Mudik	K. Tengah	K. Hilir	Cerenti
1	Hospital	1.	×		
2	Clinic	and the training			
3	Small clinic				
4	Doctor .				
5	Nurse				
6	Midwife				
7	Village midwife				
8.	Old fashioned doctor	[·			
9	Streetside shop/small shop		1		
10	Mosque				
11	Small moque				: · · ·
12	Market				
13	Bank				
14					
	Children's hospital				
	Primary school				
17	Secondary school		and the factor		
18	High-school				
19	Village course				
20	Sports field	· · ·			

Table V.94 General facilities, 1992

Source: District survey, 1992

No.	Administrative area	Wet paddy field	Dry paddy field
	4	(ha)	(ha)
1	Aur Duri	89.0	861.0
	Banuaran	61.0	359.0
	Benai	6.5	143.5
	Benai Kecil	15.0	150.0
5	Beringin Jaya	320.4	349.0
6	Bukit Kausan	260.0	690.0
.7	Bukit pedusunan	90.0	1195.0
8	Gunung	6.0	1243.0
9	Inuman	50.0	3050.0
!	Jeluar Patah		2817.0
	Kampung Baru	312.0	1216.0
	kampung Medan	35.0	475.0
	Kampung Tengah	130.0	410.0
	Kepala Pulah	169.0	431.0
1	Koto Benai	19.0	151.0
	Koto gunung	75.0	1075.0
1.1	Koto Kari	25.0	300.0
	Koto Kuabu	15.0	4535.0
	Koto lubuk Jambi	21.0	819.0
	Koto pangian	21.5	358.5
	Koto Sentajo	29.0	396.0
1 .	Koto Taluk	90.0	459.5
	Koto Tuo	35.0	405.0
	Kp. Baru Sentajo	94.3	412.7
	Luai	30.0	900.0
	Lubuk Jambi	13.0	4487.0
	Lubuk Jambi	0.5	850.5
1	Muara Sentajo	147.0	356.0
1	Mudik Hulu	231.0	2569.0
	Parit TA. Hitan	25.0	1752.0
31	Pasar Baru baserah	2.0	110.0
32 33	Pasar Teluk	2.0 17.5	225.0 172.5
33	Pasar Usang Baserah Pasar usang Pangian	17.5	
		20.0	800.0 831.0
	Pebawa Hilir Pebawa Hulu	29.0	1
	Petapahan	11.4 179.0	898.0 908.0
38	Penapanan Pintu Godang	68.5	406.5
39	Pintu Godang Pisang Berebus	225.0	1041.0
40	Pulah kedundung	75.0	1350.0
40	Pulah Kumpai	185.0	1015.0
41	Pulau Augit	620.0	730.0
42		264.5	730.0
43	1 2	109.0	891.0
	Pulau Godang	55.0	370.0
	Pulau Godang Pulau Jambu	1	1.9
40	1	40.5 34.5	645.5
47		34.5	200.0
48		109.5	551.0
		39.9	7.5
50	Pulau Panjang	1 39,9	<u> </u>

Table V.95(1/2) Area of paddy fields and upland ricefields

No.	Administrative area	Wet paddy field	Dry paddy field
		(ha)	(ha)
51	Pulau Rengas	126.0	824.0
52	Pulau Tengah	27.0	205.0
53	rantau Silang	60.0	710.0
54	Rawang Binjai	300.0	900.0
55	Saik	200.0	800.0
56	Sawah	185.0	990.0
57	Seberang Pantai	110.0	760.0
58	Seberang TA. Hitam	278.1	2548.9
59	Serosa	50.0	3850.0
60	Siberakun	4.5	459.5
61	Sikelelawar	45.0	945.0
62	Simandolak	269.0	171.0
63	Simpang Tanah Lapang		
64	Simpang Tiga	200.0	1475.0
65	Sukaping	132.0	968.0
66	Sungai Ala	137.0	4013.0
67	Sungai Manau	181.0	929.0
68	Sungai Pinang	200.0	3900.0
69	Tanjung	167.0	4033.0
70	Tanjung Medang	80.0	2940.0
71	Taratak Air Hitam	21.0	1729.0
72	Teluk Beringin	57.0	720.0
73	Toar	154.0	1204.0

Table V.95(2/2) Area of paddy fields and upland ricefields

Source: Population sensus 1990

No.	Type of vehicle	K. Mudik	K. Tengah	K. Hilir	Cerenti
1	Bicycle drawn carriage	32	45	63	16
2	Pedicab		4		
3	Buffalo-drawn carriage		5	:	· ·
4	Horse-drawn carriage	35			
5	Motor-bicycle drawn carriage		15	14	11
6	3 wheel motor- drive vehicle	37			
7	4 wheels motor- drive vehicle	37	34	28	16
8	Canoe without motor	4	26	15	6
9	Canoe with outboard motor	1	10	12	6
10	Motorboat	1	1	· .	
11	Others		14	1	

Table V.96 Vehicles in four districts (Kecamatans) related to Lubukjambi irrigation canal.

Source: District census, 1990

No.	Administrative district	Trans	ports	Transports on water
		Motorbike	Car	
1	Kampung Dagang	2	1	2
2	Sekip Hulu	2	1	3 .
3	Sekip Hilir	2	1	
4	Kelurahan Pasiran			

Table V.97 Land and water transportation in four villages related toRengat ring dike.

Source: City survey of Rengat 1992

Table V.98 Type and number of vehicles in Rengat District.

T

No.	Type of vehicle	Rengat District
1	Bicycle drawn	
	carriage	
2	Pedicab	8
3	Buffalo-drawn	
	carriage	
4	Horse-drawn	
	carriage	
5	Motor-bicycle	
	drawn carriage	31
6	3 wheel motor-	
	drive vehicle	
7	4 wheels motor-	
	drive vehicle	26
8	Canoe without	
	motor	26
9	Canoe with	24
	outboard motor	
1	Motorboat	13
11	Others	[

Source: Rengat city survey, 1990

Table V.99 Evaluation of Significant Impacts of Kuantan Dam Construction Works Area : Lower Kuantan dam

Activity Stage : Pre-Construction Stage

		PRE-CONSTRUCTION STAGE			
		1. Survey/ Investigation		2. Compensation/ Land release	
ENVIRONMENT COMPONENT	S Kinds of impact	Remark	Scale	Remark	Scale
GEOPHYSICS-CHMISTRY	· · · · · · · · · · · ·	Nothing		Nothing	
BIOLOGY	······	Nothing		Nothing	
	·		ļ		
SOCIDECONOMY AND CULT] .
1. Public Perception/	a. No.of people	7 desa:14.5%, 2 desa:2.2 %	1	7 desa:14.5%, 2 desa:2.2%	- 1
Attitude	b. Extent of area	2 provinces	3	2828/7100x100=40%	3
	c. Duration	Pre-construction	2	Pre-construction	1
	d. Intensity	can be controlled	2	little nuisance to public order	2
	e. No.of Components	1 component	1	4 components	1
	f. Period	cummulative, not long	3	cummulative but not too long	3
	g. Recoverage	possibly be restored	1	possibly be restored	1
· · · · · · · · · · · · · · · · · · ·	Average of scale		1.9		1.7
2. Livelihood/	a. No.of people			1539/1772=86.8%	5
Employment	b. Extent of area			2 regencies	4
	c. Duration			Pre- and under Construction	2
	d. Intensity				3
	e. No.of Components		· .	Only 4, but include Socioeconomy	3
	f. Period	and the second sec		cummulative but not too long	3
	g. Recoverage		· ·	possibly be restored	2
•	Average of scale		· · ·		3.1
3. Land ownership	a. No.of people	· · · · ·		8187/73462x100=11.1%	2
-	b. Extent of area			2 regencies	4
	c. Duration			Pre-construction	1
	d. Intensity			Small, but affect people	2
	e. No.of Components			Only 4	1
	f. Period			cummulative but not too long	3
	g. Recoverage			not restored	3
	Average of scale				2.3
4. Income	a. No.of people			8187/73462x100=11.1%	2
· · · · · ·	b. Extent of area			2 regencies	4
	c. Duration			Pre-construction	1
	d. Intensity			rre-construction	2
	e. No.of Components		(·	Only 4	2
н. Н	f. Period				
			·	cummulative but not too long	3
	g. Recoverage			not restored, but temporal income up	
5 Dublis facilities	Average of scale a. No.of people				2.1
5. Public facilities				8187/73462x100=11.1%	-2
	b. Extent of area		ŀ.	Very small	1
	c. Duration		1. * I	Pre-construction	1
	d. Intensity			light, but affect people	2
	e. No.of Components			Only 4	1
	f. Period			cummulative but not too long	3
	g. Recoverage			possibly restored	2
	Average of scale				1.7
			L -		۱ ^۰ .

Table V.99 Evaluation of Significant Impacts of Kuantan Dam Construction WorksArea : Lower Kuantan damActivity Stage : Construction Stage

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VIRONMENT COMPONENTS		CONSTRUCTION STAGE 1. Mobilization of heavy quipment	1	2. Recruitment of manpower		3. Land clearance		4. Construc	ction in	plementation	
	Kinds of impact		Scale	-	Scale		Scale	4-1.River improvement			Scale
PHYSICS-CHMISTRY	Kutoa wi unpave								-		
1. Air quality/ noise	a. Extent	2430/73462 (3.3%)				400 people, 0.5 %	· .	400 people, 0.5%	1.	400 people, 0.5 %	1
1. An quanty noise	b. Area	small, only around roads	1			small, only around the site		2 ha of the location	1	small	1
	c. Duration	construction stage	2			construction stage		construction stage	3	construction stage	3
and the second second second second second second second second second second second second second second second			2			increase	2	increase	2	increase	2
	d. Intensity	increase				3 components	1	S	2	1	1
	e. No.of components	3 components						neutralized	1	z neutralized	1
	f. Period	neutralized	1			neutralized					
	g. Recoverage	possibly climinated		1		possibly climinated		possibly eliminated	1	possibly eliminated	1
	Average of scale		1.3				1.3		1.57		1.43
2. Physiography/	a. Extent					No one is affected	1	No one is affected	1	No one is affected	1
geology	b. Area		1.1			small, only around the site	1	small		small	1
	c. Duration					construction stage	2	construction stage	3	construction stage	• 3
	d. Intensity					increase	2	low	1	increase	2
	c. No.of Components					3 components	1	5 components	2	2 components	1
	f. Period				l	neutralized	1	neutralized	1	neutralized	1
· · · · · · ·	g. Recoverage				.	possibly eliminated	1	possibly eliminated	1	not possible to eliminate	5
at New York	Average of scale				·		1.29		1.43		2
3. Water quality	a. Extent	1	·			1626/73462 (2.2 %)	1	1626/73462 x 100% = 2.2%	1		T
s, nao quany	b. Arca				· .	small, just one subdistrict	1	small	1		1 · ·
	c. Duration					construction stage	3	construction stage	3	I	
						increase	2	increase	2		1
	d. Intensity					7		5	2		
	e. No.of Components						2	o in a long time	2		
	f. Period				- · ·	neutralized	1				
	g. Recoverage				1 S 4	can not to be eliminated	1	can not to be eliminated	1		
	Average of scale		-				1.6		1.7		·
4. Land use system	a. No.of people		1.0			1626/73462 (2.2 %)	1		1.		
	b. Extent of area			and the second second second second second second second second second second second second second second second		small, just around the site	1	 A provide the second sec	1		
	c. Duration				1	construction stage	3				[·
	d. Intensity					significant	3				1
	c. No.of Components				1	7	2				1
	f. Period					neutralized	1				·
			1. 1			possible	1				
	g. Recoverage					hosmore	1.7				1
6 11 1 11 12	Average of scale		<u> </u>		.		1	No one is affected	1		1
5. River Flow Pattern	a. Extent										1.
	b. Area						1	small			
	c. Duration				1			construction stage	3		
	d. Intensity							low	2		
	c. No.of Components				1			5 components	2		
and the second second second second second second second second second second second second second second second		1 · · · · · · · · · · · · · · · · · · ·			1			cummulative, in a long time	2		1
	f. Period	and the second second second second second second second second second second second second second second second			1	1	i	impossible to eliminate	5		1
	g. Recoverage									91	
									2.2	9	
	g. Recoverage	Nothing		Nothiou						y	
	g. Recoverage Average of scale	Nothing		Nothing						y	-
OLOGY 6. Terrestrial Flora	g. Recoverage Average of scale a. Extent	Nothing		Nothing						y	
	g. Recoverage Average of scale a. Exient b. Area	Nothing		Nothing		small,	1			y	
	g. Recoverage Average of scale a. Extent b. Area c. Duration	Nothing		Nothing		construction + post- stage	4			y	
	g. Recoverage Average of scale a. Extent b. Area c. Duration d. Intensity	Nothing		Nothing			4			y	
	g. Recoverage Average of scale a. Extent b. Area c. Duration d. Intensity c. No.of Components	Nothing		Nothing		construction + post- stage low 7	4 2 2			y	
	g. Recoverage Average of scale a. Extent b. Area c. Duration d. Intensity	Nothing		Nothing		construction + post- stage low 7 neutralized	4			y	
	g. Recoverage Average of scale a. Extent b. Area c. Duration d. Intensity c. No.of Components	Nothing		Nothing		construction + post- stage low 7	4 2 2			y	

Table V.99 Evaluation of Significant Impacts of Kuantan Dam Construction WorksArea : Lower Kuantan damActivity Stage : Construction Stage

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nponents ge seale	CONSTRUCTION STAGE 1. Mobilization of heavy quipment Remark	Scale	2. Recruitment of manpower Remark	Sca		3. Land clearance <u>Remark</u> 5 small, construction + post- stage low 7 cummulative, for a long time can be eliminated	Scale 1 4 2 2 1	4. Cons 4-1.River improvement	1	nplementation e 4-2. Main ce			Scale
nponents 30		Scale	Remark	Sca	8 0 1	small, construction + post- stage low 7 cummulative, for a long time	1 4 2 2	4-1.River improvement	Scal	e 4-2. Main ce	onstruction	· ·	Scale
nponents 30					- 1 - 1	construction + post- stage low 7 cummulative, for a long time	.2 2					· ·	
jo					- 1 - 1	construction + post- stage low 7 cummulative, for a long time	.2 2				· .		
jo						low 7 cummulative, for a long time	.2 2		2		· .		
jo					.], ,	7 cummulative, for a long time	2 ·		*		· .		
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19 C								construction or post- stage	4	1			
							.	Diversity less decline	2				
nponents								5	2			:] .
прононо				1. -				neutralized	1	1			
								impossible to climinate	4				
				ļ					2				
SCALIC							<u> </u>			1			<u> </u>
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مام			Ku Mudik 282/73462 (0.3%)		1			Contraction of the second					
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			wider, but in Kab.Indr. Hulu		-		· ·		· · •		1.		
			construction stage		3								
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Hulu construction stage int of area wider, but in Kab.Indr. Hulu construction stage light but people are affected of people 400/22372 (1.8%) wider, but in Kab.Indr. Hulu construction stage light but people are affected 3 components, small of Components 3 components, small od cummulative, short time possibly eliminated, recover possibly eliminated, recover	verage ku.Mudik 282/73462 (0.3%) of area wider, 2 gegencies tion sity f components 3 components, small d cummulative, short time eliminated, recover eliminated, recover e of scale 400/22372 (1.8%) recopie very small and limited components components d very small and limited construction stage light on local community stity 5 components overage enge of scale f people 400/22372 (1.8%) wider, but in Kab.Indr. Hulu construction stage int of area wider, but in Kab.Indr. Hulu construction stage light but people are affected stity 5 components, small of people wider, but in Kab.Indr. Hulu insity 5 components, small of components 3 components, small od 3 components, small od but people are affected stor generation stor operation stor genenets, small cummulat	verage ku.Mudik 282/73462 (0.3%) 1 f people wider, 2 gegencies 3 ion construction stage 2 light, positive 2 3 components, small 1 d cummulative, short time 3 e of scale 200/22372 (1.8%) 1 nt of area vers mall and limited 1 components 2 2 e of scale 400/22372 (1.8%) 1 nt of area vers mall and limited 1 tion sity light on local community 2 f Components 5 components 2 2 overage possibly eliminated 1 1 construction stage 1 2 1 f Components 5 components 2 2 overage possibly eliminated 1 1 int of area indo area 10 1 int of area indo area 10 1 overage area 10 2 2 if people 400/22372 (1.8%) 1 <	verage ku.Mudik 282/73462 (0.3%) 1 f people ku.Mudik 282/73462 (0.3%) 1 nt of area wider, 2 gegencies 3 construction stage 2 light, positive 2 light, positive 2 components 3 components, small 1 d cumulative, short time 3 e of scale eliminated, recover 2 e of scale 2.0 2.0 f people 400/22372 (1.8%) 1 nt of area very small and limited 1 construction stage 2 2 sity light on local community 2 solty S components 2 worage possibly eliminated 1 od cummulative, long time 2 od cummulative, short time 3 od construction stage 1 od cumulative, short time 1 od cumulative, short time 2 of people not face 1.6 not area voof 2372 (1.8%)	verage ku.Mudik 282/73462 (0.3%) 1 f people Ku.Mudik 282/73462 (0.3%) 1 t of area wider, 2 gegencies 3 tion construction stage 2 light, positive 2 3 components 3 components, small 1 d cummulative, short time 3 d cummulative, short time 3 e of scale eliminated, recover 2 e of scale tory small and limited 1 rowrsge cummulative, short time 3 e of scale tory small and limited 1 rowrsge construction stage 2 sity light on local community 2 soft S components 2 od cumulative, long time 2 worage possibly eliminated 1 of people 400/22372 (1.8%) 1 nt of area wider, but in Kab.hder. 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Mudik 282/73462 (0.3%) 1 1 of area wider, 2 gegencies 3 1 of area construction stage 2 1 components 3 components, small 1 2 of scale

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Table V.99 Evaluation of Significant Impacts of Kuantan Dam Construction WorksArea : Lower Kuantan damActivity Stage : Construction Stage

		CONSTRUCTION STAGE						1
		1. Mobilization of heavy quipment		2. Recruitment of manpower		3. Land clearance		4. Const
UNVIRONMENT COMPONENTS	Kinds of impact	Remark	Scale	Remark	Seale	Remark	Scale	4-1. River improvement
12. People's income	a. No.of people			400/22372 (1.8%)	1	· · · ·		
	b. Extent of area			wider, but in Kab.Indr. Hulu	3			
	c. Duration			construction stage	3			
· · ·	d. Intensity			light	2			
	e. No.of Components			3 components, small	1	· · ·		
· · · · ·	f. Period		1	cummulative, short time	3			
	g. Recoverage	· · ·		possibly eliminated, recover	2		- A -	
	Average of scale				2.1			
13. Environment	a. No.of people	633/73462 (0.8%)	1			1626/73462 (2.2 %)	1	
aesthetics	b. Extent of area	very small, around works	-1			small, just around the site	1	
	c. Duration	construction stage	3			construction stage	2	· · · ·
	d. Intensity	very light	1		1	low	2	
	e. No.of Components	3 components	1			7.0	2	
	f. Period	cummulative, not quickly	1			cummulative, for a long time	2.	
	g. Recoverage	possibley eliminated	1		1	can be eliminated	1	
	Average of scale		1.3				1.6	
14. Public health	a. No.of people	2430/73462 (3.3%), less	1			2039/73462 (2.8 %)	1	2039/73462 x 100 % = 2.8 %
	b. Extent of area	wider	3			small	2	small, 9.28 ha
	c. Duration					construction stage	2	construction stage
	d. Intensity	disturbance is medium	3			medium	3	low
	e. No.of Components	3 components, less	1		1	7.0	2	8.0
	f. Period	cummulative, but short time	3	A second s	12.1	cummulative, in a short time	3	cummulative, in a short time
	g. Recoverage	eliminated and controlled	3			can be eliminated, controllable	1	can be eliminated
	Average of scale		2.3				2.0	i i
15. Public facilites	a. No.of people	2430/73462 (3.3%), less	1					
	b. Extent of area	relatively small	1.					
	c. Duration	construction stage	2				. .	
	d. Intensity	less significant	1					
	e. No.of Components	3 components	3		•			
	f. Period	eliminated and controled	2		1	Provide a state of the state of		
	g. Recoverage			1				
	Average of scale		1.7		· ·			
							ļ	

 ion im	plementation	
Scale	4-2. Main construction	Scale
1 2 3 2 1 3 2 2 2	400 people, 0.5 % small construction stage low 2 cummulative, in a short time can be eliminated	1 2 3 2 1 3 2 2 2

Table V.99Evaluation of Significant Impacts of Kuantan Dam Construction WorksArea : Lower Kuantan damActivity Stage : Post-Construction Stage

AND STAN

	······································	PROJECT ACTIVITY	[
		Dam operation /	
ENVIRONMENT COMPONENTS	Kinds of impact	maintenance	Scale
GEOPHYSICS-CHMISTRY			
1. Microclimate	a. No.of people	No one is affected	1
1. 11101001111110	b. Extent of area	7,100 ha, 6 % of the concerned area	1
	c. Duration	Post-construction stage	5
	d. Intensity	very low	1
	e. No.of Components	10	3
	f. Period	neutralizable	
		limpossible to eliminate	4
	g. Recoverage	1 • ·	17
	• • • • • • • • • • • • • • • • • • •	not any compound effect	2.42
	Average of scale	No one is affected	+
2. Erosion, sedimentaion	a. No.of people	1	
	b. Extent of area	7,100 ha, 6 % of the concerned area	
	c. Duration	Post-construction stage	5
	d. Intensity	low	2
	e. No.of Components	10	3
	f. Period	cummulative, takes a long time	2
	g. Recoverage	impossible to eliminate	5
		compound effect	
	Average of scale		2.86
3. Water quality	a. No.of people	all people is affected, 100 %	5
	b. Extent of area	relatively small	1
	c. Duration	Post-construction stage	5
	d. Intensity	meet the requirement oc Class-C	3
		decline of dissolved solid matters	
	e. No.of Components	10	3
	f. Period	cummulative, takes a long time	2
	g. Recoverage	impossible to eliminate	1
	Average of scale		3.14
4. Land use system	a. No.of people	No one is affected	1
4. Land use system	b. Extent of area	7,100 ha, 0.9 % of the concerned area	1
	c. Duration	Post-construction stage	5
	C. Duration	maintenance stage	
	d. Intensity	becomes a flood area	3
	e. No.of Components	10	4
	.	cummulative, takes a long time	2
	f. Period		
	g. Recoverage	possible to eliminate	
	Average of scale		2.5
BIOLOGY			
1. Terrestrial biota	a. No.of people	No one is affected	
	b. Extent of area	7,100 ha, 0.9 % of the concerned area	1
	c. Duration	Post-construction stage	5
	d. Intensity	Index value of plants is high	. 3
	e. No.of Components	10	4
	f. Period	cummulative, takes a long time	2
	g. Recoverage	impossible to eliminate	• 4
		compound effect	
	Average of scale		3.14

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Table V.99Evaluation of Significant Impacts of Kuantan Dam Construction WorksArea : Lower Kuantan damActivity Stage : Post-Construction Stage

······································		PROJECT ACTIVITY	
		Dam operation /	1
ENVIRONMENT COMPONENTS	Kinds of impact	maintenance	Scal
2. Aquatic biota	a. No.of people	No one is affected	1
	b. Extent of area	7,100 ha, 0.9 % of the concerned area	1
	c. Duration	Post-construction stage	5
	d. Intensity	Index value of plants is medium	2
	e. No.of Components	10	4
	f. Period	cummulative, takes a long time	2
	g. Recoverage	impossible to eliminate	2
		possible to control	
	Average of scale		2.57
SOCIOECONOMY AND CULTUR	E		
1. Livelihood/ Employ-	a. No.of people	73,492	4
ment opportunities	b. Extent of area	Indragiri Hulu regencies	3
	c. Duration	construction stage	- 5
	d. Intensity	high, 50-75 % are affected	4
	e. No.of Components	3	1
	f. Period	cummulative, in a short time	3
	g. Recoverage	impossible to eliminate	4
		no compound effect	
	Average of scale		3,42
2. Environmental	a. No.of people	73,492	4
aesthetics	b. Extent of area	Indragiri Hulu regencies	3
	c. Duration	construction stage	5
	d. Intensity	aesthetic value is low	2
	e. No.of Components	16	4
	f. Period	cummulative, in a short time	4
	g. Recoverage	impossible to eliminate	3
	Average of scale		3.0
3. Income	a. No.of people	73,492	. 4
	b. Extent of area	Indragiri Hulu regencies	- 3
	c. Duration	construction stage	5
	d. Intensity	high, 50-75 % are affected	4
	e. No.of Components	3	1
	f. Period	cummulative, in a short time	3
	g. Recoverage	impossible to eliminate	4
		no compound effect	
-	Average of scale		3.4
4. Public health	a. No.of people	No one is affected	2
	b. Extent of area	impact area is small	2
	c. Duration	Pre-construction	4
	d. Intensity		3
	e. No.of Components	10	4
	f. Period	cummulative, in a short time	3
	g. Recoverage	can be eliminated and controlled	2
	Average of scale		2.9

Table V.100 Evaluation of Significant Impacts of Lubukjambi Intake Weir and Irrigation System Construction Works

Area : Lubukjambi weir and irrigation channel Activity Stage : Pre-Construction Stage

1. 1. A.

	· · · · · · · · · · · · · · · · · · ·	PRE-CONSTRUCTION STAGE			· · · · · · · · · · · · · · · · · · ·
		1. Survey/ Investigation		2. Compensation/ Land release	
			Scale	1	Scale
ENVIRONMENT COMPONENTS	Kinds of impact				1
GEOPHYSICS-CHMISTRY					
BIOLOGY					
SOCIOECONOMY AND CULTUR	Ē				<u> </u>
1. Public Perception/	a. No.of people	833/59884x100=1.4%	1	833/59884x100=1.4%	1
Attitude	b. Extent of area	380/9376x100=4%	1	380/9376x100=4%	1
	c. Duration	[2	Pre-construction	1
	d. Intensity	can be controlled	2	little nuisance to public order	2
	e. No.of Components	1	1	4	1
	f. Period	not cummulative, not long	3	cummulative but not too long	3
	g. Recoverage	possibly be restored	1	possibly be restored	1
	Average of scale		1.6		1.4
2. Livelihood/	a. No.of people			181/9350x100=1.9%	1
Employment	b. Extent of area			very small area	1
-	c. Duration		1	Pre- and under Construction	2
	d. Intensity		ł		3
	e. No.of Components			Only 4, but include Socioeconomy	3
	f. Period			cummulative but not too long	3
	g. Recoverage			possibly be restored	.2
	Average of scale				2.1
3. Land ownership	a. No.of people			883/59744x100=1.4%	1
	b. Extent of area			wider	3
	c. Duration			Pre-construction	1
	d. Intensitý			Small, but affect people	2
	e. No.of Components			Only 4 .	1
	f. Period			cummulative but not too long	3
	g. Recoverage			not restored	3
	Average of scale		<u> </u>		2.0
4. Income	a. No.of people			883/59744x100=1.4%	1
	b. Extent of area			Very small	1
	c. Duration			Pre-construction	1
	d. Intensity			· · · · · · · · · · · · · · · · · · ·	2
	e. No.of Components			Only 4	1.
	f. Period		· .	cummulative but not too long	3
	g. Recoverage			not restored, but temporal income up	2
	Average of scale				1.6
5. Public facilities	a. No.of people			883/59744x100=1.4%	1
	b. Extent of area		•	Very small	1
	c. Duration			Pre-construction	1
	d. Intensity			light, but affect people	2
	e. No.of Components			Only 4	1
	f. Period			cummulative but not too long	· 3
	g. Recoverage			possibly restored	2
n de la companya de la companya de la companya de la companya de la companya de la companya de la companya de l Receptor de la companya de la companya de la companya de la companya de la companya de la companya de la company	Average of scale		. .		1.6
	e egenteget en anne en e		1		1

Table V.100 Evaluation of Significant Impacts of Lubukjambi Intake Weir and Irrigation System Construction WorksArea : Lubuk Jambi Weir and Irrigation ChannelActivity Stage : Construction Stage

	······································	CONSTRUCTION STAGE		· · · · · · · · · · · · · · · · · · ·	····			
		1. Mobilization of heavy quipment		2. Mobilization of manpower		3. Land clearance	Τ	
ENVIRONMENT COMPONENTS	Kinds of impact		Scale		Scale		Scale	4-1.River improvement
GEOPHYSICS-CHMISTRY	· .							
1. Alr quality/ noise	a. Extent	4788/59774x100=8%	1			1120/59774x100=1.8%	1	400, 0.5%
	b. Arca	small, only around roads	1			small, only around the site	1	2 ha of the location
	c. Duration	construction stage	2			construction stage	2	construction stage
	d. Intensity	increase	2.			increase	2	increase
	e. No.of components	3 components	1			3 components	1	5
	f. Period	neutralized	1			neutralized	1	neutralized
	g. Recoverage	possibly eliminated	1			possibly eliminated	1	possibly eliminated
	Average of scale		1.2	\$ 			1.3	
2. Physiography/	a. Extent		1			No one is affected	1	No one is affected
geology	b. Area	:				small, only around the location	1	small
B	c. Duration					construction stage	2	construction stage
	d. Intensity				· .	increase	2	low
	e. No.of Components					3 components	1	5 components
	f. Period					neutralized	1	neutralized
	g. Recoverage					possibly eliminated	1	possibly eliminated
	Average of scale						1.3	
3. Water quality	a. Extent					1453/59744 x 100% = 2.4 %	1	1626/73462 x 100% = 2.2%
o. to mor quanty	b. Area					small, just one subdistrict area	1	small
	c. Duration					construction stage	3	construction stage
	d. Intensity	· · · · · · · · · · · · · · · · · · ·			ł .	increase	2	increase
	c. No.of Components				[7	2	5
	f. Period		1		- · .	neutralized		in a long time
	g. Recoverage					can not to be eliminated	1	can not to be eliminated
	Average of scale						1.6	
4. Land use system	a. No.of people				·	1453, 2 % of the total people	1	
	b. Extent of area				· .	small, just around the site	1	
· · · · ·	c. Duration					construction stage	3	
	d. Intensity		1.			significant	3	
	e. No.of Components					7	2	
· · · · · · · · · · · · · · · · · · ·	f. Period					neutralized	1	
·	g. Recoverage		11		-	possible	1	
	Average of scale				1.1		1.7	
5. River Flow Pattern	a. Extent		1		1.1			No one is affected
J. MIVELING LUCK	b. Area							small
	c. Duration				ľ			construction stage
	d. Intensity							low
	e. No.of Components		1		1.1		1.1	5 components
	f. Period							cummulative, in a long time
	g. Recoverage				<u>ا</u> .		1.	impossible to eliminate
	Average of scale							
	retonage of some			and the second second second	1.1			
BIOLOGY							1	
6. Terrestrial Flora	a. Extent							
o, renestnar riora	b. Area					small,	1	
	c. Duration					construction + post- stage	4	
	d. Intensity	· · · · · · · · · · · · · · · · · · ·			[]	low	2	
	e. No.of Components					7	2	
	f. Period		1			neutralized	1	
	g. Recoverage					not possible to eliminate	· A	
	g. Recoverage Average of scale					Inor possion to emittingte	2.0	
L	Average of scale				نىرىكە		4,0	L

		struction implementation 4-2. Main construction	Scale	
	1 1 3	1120/59744 x 100 = 1.8 % small	1 1 3	
	3 2 2	construction stage . increase 2	。 2 1	
	1 1	neutralized possibly climinated	1	· · ·
	1.6 1 1	No one is affected small	1.4 1 1	·
	3 1 2	construction stage increase 2 components	3 2 1	
	1 1 1.4	neutralized not possible to eliminate	1 5 2	
	1 1		· 2	
	3 2 2			
	2 1 1.7			
	1.7			
-				
	1			
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Table V.100Evaluation of Significant Impacts of Lubukjambi Intake Weir and Irrigation System Construction WorksArea : Lubuk Jambi Weir and Irrigation ChannelActivity Stage : Construction Stage

		CONSTRUCTION STAGE	Г	2 Mubilization of management	·	3. Land clearance			10	naturation in-1	
N/ID ONDATI2N/D 20234 (D/23-D 25-29)	Vindo e Cimere -	1. Mobilization of heavy quipment	Scale	2. Mobilization of manpower Remark	Sen1.		Sual	4-1.River improvement		nstruction implementation	Scale
NVIRONMENT COMPONENTS	Kinds of impact	Remark	Scale	KUMAIK	Scale	KCMATK	Scate	4-1.KIVCI IMPIOYCHUM	Scale	4-2. Main construction	SCARE
7. Terrestrial Fauna	a. Extent b. Area	-				small,	,				{
			ł								
	c. Duration					construction + post- stage	4	1			
	d. Intensity					low	.2	1 - Contraction of the second s	1		
	e. No.of Components					7	2				
	f. Period		l I			cummulative, for a long time	1		1		
	g. Recoverage					can be eliminated	1		1	· · · · · · · · · · · · · · · · · · ·	
·	Average of scale	<u></u>					1.6			· · · · · · · · · · · · · · · · · · ·	
8. Aquatic Fauna	a. Extent			· · · · · · · · · · · · · · · · · · ·				1			
	b. Area							small	1.		
	c. Duration							construction or post stage	4		
· · ·	d. Intensity							Diversity less decline	2		
	c. No.of Components							5	2		
	f. Period		1 ·					neutralized	1	A second second second second second	
	g. Recoverage		. :				· ·	impossible to eliminate	4		
	Average of scale		· ·						2.0		
			L					la de la companya de	L		
CIOECONOMY AND CULTURE						· · · · · · · · · · · · · · · · · · ·			T	[
9. Public Perception/	a. No.of people		1.	435/59744 x 100 = 0.7%	1				1.		
Attitude	b. Extent of area		 .	2 regency	3		14	l de la companya de la companya de la companya de la companya de la companya de la companya de la companya de l	ľ.		
	c. Duration		ŀ	construction stage	3				1		
	d. Intensity		. ·	low	2				· ·		
	e. No.of components		ŀ	3	1				[
	f. Period		1 ·	cummulative, in a short time	3						
	g. Recoverage			eliminated, controlled	2				1		
	g. Recoverage Average of scale		1	chammated, controlled	2.1		<u>н</u>		1		
10. Custams/	a. No.of people		1	500/27482 x 100 = 1.8%	<u>1</u>		<u> </u>		+		<u> </u>
	b. Extent of area			$\frac{300/27482 \times 100}{100} = 1.8\%$	1						
traditions					^				· · ·		
	c. Duration			construction stage	2						
	d. Intensity			low	2						
	e. No.of Components		1.1	5	2						
	f. Period			cummulative, in a long time	2				1		
· 	g. Recoverage			eliminated, controlled	1				1.1		
	Average of scale		<u> </u>		1.6				· ·		
11. Livelihood/	a. No.of people			500/27482 x 100 = 1.8%	1		1		ļ	· •	
Employment	b. Extent of area			Indragiri Hulu regency	- 3						
	c. Duration			construction stage	3	1					
	d. Intensity			low	2						
	e. No.of Components		1 .	3	2	[1] A. S. A. S.			1		
	f. Period			cummulative, in a short time	3		÷.		1		
	g. Recoverage			eliminated, controlled	2						
	Average of scale				2.3						
12. People's income	a. No.of people			500/27482 x 100 = 1.8%	1						
	b. Extent of area			Indragiri Hulu regency	3						
	c. Duration		1.	construction stage	1		ľ		·		
	d. Intensity		1	low	2						
	e. No.of Components			3	.1			 A state of the sta			
	f. Period		1 3 3	cummulative, in a short time	3		1				
	g. Recoverage			eliminated, controlled	2						
	Average of scale				-1.9		l		1.		
· · · · · · · · · · · · · · · · · · ·	TET VINGO OF DORIG	Level and the second second second second second second second second second second second second second second					1 <u>, 1</u>	1. An and the second			-
	e a de la compañía de			사람 동네 문제에 가 관계 관람이			· · ·				· · · · ·
	and the second second				· · ·				· •		
					1					and the second second second second second second second second second second second second second second second	
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					n n Singa						
		방법한 문법은 총 신수님 옷을			n de la Geografia						V -
	이 지수는 것이 가지 않는 것이 같아.		$\{ e_i, e_j \} \in \mathbb{R}$	영상은 승규는 것은 동안을 가운 한 것 같아요.	- 1945 1947 - 1947						1

 Table V.100
 Evaluation of Significant Impacts of Lubukjambi Intake Weir and Irrigation System Construction Works

 Area : Lubuk Jambi Weir and Irrigation Channel
 Activity Stage : Construction Stage

	· · · · · · · · · · · · · · · · · · ·	CONSTRUCTION STAGE				· · · · · · · · · · · · · · · · · · ·					
		1. Mobilization of heavy quipment		2. Mobilization of manpower		3. Land clearance				nstruction implementation	
ENVIRONMENT COMPONENTS	Kinds of impact	Remark	Scale	Remark	Scale	Remark	Scale	4-1.River improvement	Scale	4-2. Main construction	Scale
13. Environment	a. No.of people	2348/73462 x100=2%	1			1453, 2 % of the total people	1	l.			
aesthetics	b. Extent of area	very small, regional	1			small, just around the location	1	and the second second second second second second second second second second second second second second second	1		
	c. Duration	construction stage	3			construction stage	2				
	d. Intensity	very low	1		ľ	low	2				
	c. No.of Components	3 components	1		[7.0	2.				
	f. Period	cummulative, not quickly seen	1			cummulative, for a long time	2			1	/
· · ·	g. Recoverage	possibley eliminated	1	•		can be eliminated	1				
	Average of scale		1.3	·	<u> </u>		1.6				'
14. Public health	a. No.of people	4788/59774x100=8%	1			620/59744 x 100 % = 2.5 %	.1	2039/73462 x 100 % = 2.8 %	1	1120/59744 x 100 = 1.8 %	
	b. Extent of area	Indragiri Hulu Regency	3			small	2	small, 9.28 ha	2	small	2
	c. Duration					construction stage	2	construction stage	3	construction stage	3
	d. Intensity	disturbance is medium	3		ľ	medium	3	low	2	low	2
	c. No.of Components	3 components	1			7.0	2	8.0	1	2	1
	f. Period	cummulative, but short time	3		1	cummulative, in a short time	3	cummulative, in a short time	3	cummulative, in a short time	. 3
	g. Recoverage	eliminated and controlled	3	· · · · · · · · · · · · · · · · · · ·	ļ	can be eliminated, controllable	1	can be eliminated	2	can be eliminated	2
	Average of scale		2.3		<u> </u>		2.3		2.0		2.0
15. Public facilites	a. No.of people	4788/59774x100=8%	1								
	b. Extent of area	relatively small	1	· · · · · ·							
	c. Duration	construction stage	2						1 .		
	d. Intensity	low	1				· .				
	e. No.of Components	3	1								
	f. Period	cummulative, in a short time	3		·		[
1	g. Recoverage	eliminated, controlled	2								ľ
l	Average of scale	<u> </u>	1.6	· · ·	<u> </u>	<u>l'</u>	<u> </u>	L	<u>. L</u>	L	

Table V.100Evaluation of Significant Impacts of Lubukjambi Intake Weir and IrrigationSystem Construction WorksArea : Lubukjambi weir and irrigation channelActivity Stage : Post-Construction Stage

PROJECT ACTIVITY Weir and irrigation channel operation / maintenance ENVIRONMENT COMPONENTS Kinds of impact Scale GEOPHYSICS-CHMISTRY No one is affected a. No.of people 1 1. physiography and geology Indragiri Hulu regencies 2 b. Extent of area 5 c. Duration Post-construction stage 3 geometrical changes to river body d. Intensity 1 e. No.of Components 3 cumulative, effects are long 1 f. Period 5 g. Recoverage impossible to eliminate compound effect Average of scale 2.7 SOCIOECONOMY AND CULTURE 34,733 3 1. Means of Livelihood/ Employ- a. No.of people b. Extent of area Indragiri Hulu regencies 3 ment opportunities 5 construction stage c. Duration 4 d. Intensity high e. No.of Components 3 1 cummulative, in a short time 3 f. Period impossible to eliminate 4 g. Recoverage no compound effect Average of scale 3.4 34,733 4 a. No.of people 2. Income Indragiri Hulu regencies 3 b. Extent of area 5 c. Duration construction stage high, 50-75 % of people are affected 4 d. Intensity 1 e. No.of Components 3 3 f. Period cummulative, in a short time impossible to eliminate 4 g. Recoverage no compound effect 3.4 Average of scale 2 a. No.of people 34.733 3. Public health b. Extent of area wider area than the planned area 2 construction stage 4 c. Duration 3 medium d. Intensity 3 e. No.of Components 3 3 f, Period cummulative, in a short time can be eliminated and controlled 2 g. Recoverage 2.9 Average of scale

Table V.101 Evaluation of Significant Impacts of Rengat Area Flood Protection WorksArea : Rengat Ring DikeActivity Stage : Pre-Construction Stage

	and the second second	PROJECT ACTIVITY			
	н	1. Survey/ Investigation	Γ	2. Compensation/ Land release	1
		Remark	Scale		Scal
Environmental Components	Kinds of impact		Juan	Remaix	Scal
GEOPHYSICS-CHMISTRY	runds of impact	Nothing	<u>-</u>	N	┼───
SLOT IT I SICO-CHIMIST KT		rooming		Nothing	
BIOLOGY		Nothing		Nothing	<u> </u>
SOCIOECONOMY AND CU	LTURE			······································	
1. Public Perception/	a. No.of people	1757/17705x100=9.9%	1	1757/17705x100=9,9%	1
Attitude	b. Extent of area	84.5/2110x100=4%	1	84.5/2110x100=4%	1
	c. Duration		2	Pre-construction	1
	d. Intensity	can be controlled	2	little nuisance to public order	2
	e. No.of Components		1	4	
	f. Period	not cummulative, not long	3	cummulative but not too long	3
	g. Recoverage	possibly be restored	1	possibly be restored	
	Average of scale	possiony of reacted	1.6	possioly be restored	
2. Livelihood/	a. No.of people		1.0	40/2928x100=1.4%	1.4
Employment	b. Extent of area				1
Lanpioyment	c. Duration			Only 1 district	2
•	d. Intensity			Pre- and under Construction	2
					3
	e. No.of Components			Only 4, but include Socioeconomy	3
	f. Period			cummulative but not too long	3
· · ·	g. Recoverage			possibly be restored	2
<u> </u>	Average of scale				2.3
3. Land ownership	a. No.of people			1757/15423x100=11.4%	2
	b. Extent of area			1 subdistrict	2
	c. Duration			Pre-construction	1
	d. Intensity			Small, but affect people	2
	e. No.of Components			Only 4	1
	f. Period			cummulative but not too long	3
	g. Recoverage			not restored	3
·	Average of scale				2.0
4. Income	a. No.of people			1757/15423x100=11.4%	2
	b. Extent of area			1 subdistrict	2
	c. Duration			Pre-construction	1
	d. Intensity				2
	e. No.of Components			Only 4	1
	f, Period			cummulative but not too long	1 .
	g. Recoverage			not restored, but temporal income up	3
	Average of scale			not restored, out temporal income up	
5. Public facilities	a. No.of people			7494/17705-100 40:00	1.9
5. I done mennies	b. Extent of area			7484/17705x100=40.3%	-4
	c. Duration		· · · · · · · · · · · · · · · · · · ·	Very small	1
				Pre-construction	1
	d. Intensity			light, but affect people	2
	e. No.of Components			Only 4	1
	a m				
	f. Period			cummulative but not too long	3
	f. Period g. Recoverage Average of scale			cummulative but not too long possibly restored	2

Table V.101 Evaluation of Significant Impacts of Rengat Area Flood Protection WorksArea : Rengat Ring DikcActivity Stage : Construction Stage

		CONSTRUCTION STAGE 1. Mobilization of heavy quipment	T	2. Mobilization of manpower	l	3. Land clearance			4. Co	nstruction implementation	
VIRONMENT COMPONENTS	Kinds of impact		Scale		Scale		Scale	4-1.River improvement		4-2. Main construction	Scale
OPHYSICS-CHMISTRY	minus or mipaci		(CCall								1
	n 11	1757/17705x100=10%	2			1857/17705x100=10.4%	2	400, 0.5%	1	1857/17705 x 100 = 10.4 %	2
I. Air quality/ noise	a, Extent					small, only around the location		2 ha of the location	Î	small	
	b. Area	small, only around roads						construction stage	3	construction stage	3
	c. Duration	construction stage	2			construction stage		_			1
	d. Intensity	increase	2	· ·	1	increase		increase	2	increase	2
	e. No.of components	3 components	1			3 components	-	5	2	2	1
	f. Period	neutralized	1			neutralized		neutralized	1	neutralized	1.1
1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 -	g. Recoverage	possibly eliminated	1		1	possibly eliminated	1	possibly eliminated	L	possibly climinated	1 . F
	Average of scale		1.4		1		1.4		1.6		1.6
2. Physiography/	a. Extent					No one is affected	1	No one is affected	1	No one is affected	1
	b. Area					small, only around the location	1	small	1	small	1
geology				· · · ·	· ·	construction stage	2	construction stage	3	construction stage	3
	c. Duration			· · ·		increase	2	low	1	increase	2
	d. Intensity					L	1		2		1
	e. No.of Components					3 components	-	5 components		2 components	
	f. Period					neutralized	1	neutralized		neutralized	
	g. Recoverage		1		1	possibly eliminated	1	possibly eliminated	1	not possible to eliminate	5
	Average of scale						1.29		1.4	· · · · · · · · · · · · · · · · · · ·	2.0
3. Water quality	a. Extent					No one is affected		1626/73462 x 100% = 2.2%	1		
· · · · · · · · · · · · · · · · · · ·	b. Area		1	1	1	small, just one subdistrict area	1	small	1	ľ ·	
	c. Duration		1		1	construction stage	3	construction stage	3		
•	d. Intensity		1			increase	2	increase	2		
					1.	7	2	5	2		
	e. No of Components					ncutralized		in a long time	2		
· · · · · · · · · · · · · · · · · · ·	f. Period										
	g. Recoverage				1	can not to be eliminated	1	can not to be eliminated			
	Average of scale	· · · · · · · · · · · · · · · · · · ·			_		1.67		17		
4. Land use system	a. No.of people					1757 people, 9.9 %	1		· .		
	b. Extent of area					small, just around the location	1				
· 	c. Duration					construction stage	3	All and the second second second second second second second second second second second second second second s			
	d. Intensity					significant	3		1		1
			·] .		1	7	2		× 1		
· · ·	c. No.of Components		Į.,			neutralized	1	and the second second second second second second second second second second second second second second second			
	f. Period		1				. 1				
	g. Recoverage				1	possible	1				
	Average of scale		<u> </u>		<u> </u>		1.71		–		_
5. River Flow Pattern	a. Extent		· ·					No one is affected	11		
	b. Area		1				÷.,	small	1 1		1
	c. Duration				1.			construction stage	3		
	d. Intensity				1			low	2		
	e. No.of Components							5 components	2		
			1					cummulative, in a long time	2		
· .	f. Period		· ·		1		÷.,	impossible to eliminate	5		
	g. Recoverage				1			unpossible to chiminate			
	Average of scale				1				2.3		- I
			· ·		<u> </u>						<u> </u>
IOLOGY											
6. Terrestrial Flora	a. Extent		1		- ·	No one is affected	1		1		
	b. Area					small,	1		1.		
	c. Duration		1 ·			construction + post- stage	4		1.		
					1.0	low	2				
	d. Intensity				1	17 T			1		
	e. No.of Components						2		1		1 .
	f. Period					neutralized	1	📕 - Ala The geology - Ala Te	1: -		
	g. Recoverage				1	not possible to eliminate	4	A CONTRACTOR OF A CONTRACTOR	1 ·		1
	Average of scale	1	1 .	e fe	1		2.1	The second State State of the second state	1	9. gi	1 1

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Table V.101 Evaluation of Significant Impacts of Rengat Area Flood Protection WorksArea : Rengat Ring DikeActivity Stage : Construction Stage

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		CONSTRUCTION STAGE	· · · · ·		· · · ·								
		1. Mobilization of heavy quipment		2. Mobilization of manpower	1	3. Land clearance					struction implementation		
WIRONMENT COMPONENTS	Kinds of impact	Remark	Scale	Remark	Scal	e Remark	Scal	e 4-1. River improvement	5	Scale	4-2. Main construction		Scale
7. Terrestrial Pauna	a. Extent					No one is affected	1						
7. Jenostiai Faana	b. Area					small,	1		. [
						construction + post- stage	4						
	c. Duration								÷	1	£ .		
	d Intensity		ĺ.			low	2		1		1		
	e. No.of Components					7	2		ļ		1		
	f. Period					cummulative, for a long time	1	1		. 1	t.		
	g. Recoverage					can be eliminated	1			1	1		
	Average of scale					· · ·	1.7			. '	1 .		ŀ
							1	No one is affected		1	· · · · · · · · · · · · · · · · · · ·		
8. Aquatic Fauna	a. Extent				1 ·					1	P		· ·
	b. Area			· · · · · · · · · · · · · · · · · · ·			i .	small			1		
and the second second second second second second second second second second second second second second second	e. Duration							construction or post- stage		4	1		
. ·	d. Intensity						· ·	Diversity less decline		2	1	· .	
	e. No.of Components							5		2	1.5.11		
· .	f. Period						{	neutralized	i	1	1 · · · · · · · · · · · · · · · · · · ·		
					1.			impossible to eliminate		4	1		
	g. Recoverage						1.	Treboostore to ormitmuto	I	2.1	1	1	1
	Average of scale				ł				·	2.1	1		
· · · · · · · · · · · · · · · · · · ·	·			<u> </u>	<u> </u>		┥		ļ.		ţ	. <u></u>	<u> </u>
OCIOECONOMY AND CULTURE				the second second second second second second second second second second second second second second second se				A REAL PROPERTY OF			1 5 1 5		I .
9. Public Perception/	a. No.of people			432/17705 x 100 = 2.4%	1								1.
Attitude	b. Extent of area			2 regency	3					1	1.		
Annuac			·	construction stage	3		1.	and the second second		i			1
	c. Duration								1	1			1 × 1
	d. Intensity	and the second second second second second second second second second second second second second second second		low	2				- 				
	c. No.of components			3	1		1.		1. T	1			
	f. Period	and the second second second second second second second second second second second second second second second		cummulative, in a short time	3	and the second second second	1			ľ.	1 2		ľ
	g. Recoverage	 A state of the sta		eliminated and controlled	2			· · ·	· · · ·	1			
	Average of scale				2.1		1			ł			
H-11-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-				100/9861 x 100 = 1.0%	1		1			í			1
10. Custams/	a. No.of people		- 1							É			1
traditions	b. Extent of area			limited area	11		1.1			i .			I.
	c. Duration			construction stage	2				1.11	I	1		
	d. Intensity			low	2				· .	I	· ·		
	c. No.of Components			5	2					İ. :	1		1
	f. Period		8 - 8	cummulative, in a long time	2				· · · · ·	i .			
·				climinated and controlled	1		1.		1	11 - 1			
,	g. Recoverage			climinated and controlled						1			
	Average of scale				1.6)	<u> </u>			<u> </u>	<u> </u>		
11. Livelihood/	a. No.of people			100/9861 x 100 = 1.0%	1				. :				.
Employment	b. Extent of area			Indragiri Hulu regency	3		1		·	1 .			
	c. Duration			construction stage	3				1	1			
	d. Intensity			low	2				- 1	10.5			1.
				3	2					1 · ·			
	c. No.of Components			F						1.1			
	f. Period	 A specific to the big state 		cummulative, in a short time	3	[1] A. Martin and A. Ma And A. Martin and A Martin and A. Martin and				1			
	g. Recoverage			eliminated and controlled	2				1				
	Average of scale		·		2.	3							
12. People's income	a. No.of people			100/9861 x 100 = 1.0%	1							$f_{\rm eff} = - f_{\rm eff} + f_{\rm eff}$	
12. I copie s meonie	b. Extent of area			Indragiri Hulu regency	3				1	1			
			1 1 1						1.1				
	e, Duration			construction stage						ļ			
	d. Intensity		at at	low	2								
	c. No.of Components	and the second second second second second second second second second second second second second second second	· :	3	1					1			
	f. Period			cummulative, in a short time	3				1				
	g, Recoverage		- 1	eliminated and controlled	2					1.1			
and the second second second second second second second second second second second second second second second	Average of scale				1.								
					1.	7	_ <u></u>		ل سرور من خر م	1			

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Table V.101 Evaluation of Significant Impacts of Rengat Area Flood Protection WorksArea : Rengat Ring DikeActivity Stage : Construction Stage

· · · · · ·		CONSTRUCTION STAGE			······			· · · · · · · · · · · · · · · · · · ·				
		1. Mobilization of heavy quipment	1	2. Mobilization of manpower			3. Land clearance				astruction implementation	
INVIRONMENT COMPONENTS	Kinds of impact	Remark	Scale	Remark		Scale		Scale	4-1.River improvement	Scale	4-2. Main construction	Sea
13. Environment	a. No.of people	2419/17705 x100=13.6%	2				1757 people, 9.9 %	1.0		1.1		
aesthetics	b. Extent of area	very small, regional	.1				small, just around the location	1.0				
	c. Duration	construction stage	3				construction stage	2.0				
	d. Intensity	very low	1				low	2.0				
· .	c. No.of Components	3 components	1				7.0	2.0	· · · · · · · · · · · · · · · · · · ·			
	f. Perlod	cummulative, not quickly	1		•		cummulative, for a long time	2.0				
· · · ·	g. Recoverage	possibley eliminated	1				can be eliminated	1.0			· · · · ·	- 1 ·
	Average of scale		1.4					1.6				
14. Public health	a. No.of people	4788/59774x100=8%	1	· · · ·			1857/17705 x 100 = 10.4 %	2.0	2039/73462 x 100 % = 2.8 %	1	1857/17705 x 100 = 10.4 %	2
	b. Extent of area	Indragiri Hulu Regency	3	· · · ·	х. — ¹ .		small	2.0	small, 9.28 ha	2	small	. 2
	c. Duration				· .				construction stage	3	construction stage	-3
	d. Intensity	disturbance is medium	3		· .		medium	3.0	low	2	low	2
	c. No.of Components	3 components,	1				7.0	2,0	8.0	1	2	1
	f. Period	cummulative, but short time	3				cummulative, in a short time	3.0	cummulative, in a short time	. 3	cummulative, in a short time	3
	g. Recoverage	eliminated and controlled	3	and the second second second second second second second second second second second second second second second			can be eliminated, controllable		can be eliminated		can be eliminated	2
	Average of scale		2.3					2.2		2.0		2.
15. Public facilities	a. No.of people	1757/17705x100=10%	2									-
· · · ·	b. Extent of area	relatively small	1									
	c. Duration	construction stage	2	· · · · · · · · · · · · · · · · · · ·								
· ·	d. Intensity	low	- 1		·							
	e. No.of Components	3	· 1		1							
	f. Period	cummulative, in a short time	3			· .					· · ·	
	g. Recoverage	eliminated and controlled	2		<u>.</u>					1		
	Average of scale		1.7					I		1		

Table V.101 Evaluation of Significant Impacts of Rengat Area Flood Protection WorksArea : Rengat Ring DikeActivity Stage : Post-Construction Stage

		PROJECT ACTIVITY	
	1.	Ring Dike operation /	7
ENVIRONMENT COMPONENT	S Kinds of impact	maintenance	Scal
GEOPHYSICS-CHEMISTRY	· · · · · · · · · · · · · · · · · · ·		
		· · · · · · · · · · · · · · · · · · ·	
BIOLOGY			
SOCIOECONOMY AND CULT	JRE		
1. Income	a. No.of people	15,423	4
	b. Extent of area	Rengat Regency	. 3
	c. Duration	construction stage	5
	d. Intensity	high, 50-75 % of people are affected	4
	e. No.of Components	3	1
	f. Period	cummulative, in a short time	3
	g. Recoverage	impossible to eliminate	- 4
		no compound effect	
	Average of scale		3.3
2. Public health	a. No.of people	15,423	2
	b. Extent of area	wider area than the planned area	2
	c. Duration	post-construction stage	4
- · ·	d. Intensity	medium	3
	e. No.of Components	3	4
	f. Period	cummulative, in a short time	4
	g. Recoverage	cannot be eliminated	2
		intensity is high	
	Average of scale		2.9
3. Environment	a. No.of people	15,423	2
aesthetics	b. Extent of area	wider area than the planned area	1
	c. Duration	post-construction stage	5
	d. Intensity	environmental aesthetic value is small	2
	e. No.of Components	3	4
	f. Period	cummulative, in a short time	4
	g. Recoverage	cannot be eliminated	2
	Average of scale		3