

図・表類

表1 リアウ州水産開発プロジェクトの概要

Project Type	No. of Project	Total Fund (Rp. 1000,000)	Fund Source
1. Production Increase	17	689.2	APBN
1) Administration	1	85.0	
2) Fishing	7	239.5	
3) Aquaculture	8	293.5	
4) Processing	1	71.7	
2. Batam Station Sea Farming	4	391.0	APBN
1) Administration	1	306.6	
2) Aquaculture	3	84.4	
3. Tarempa Fishery Harbour	3	1,986.0	APBN
1) Administration	1	20.1	
2) Facilities	2	1,965.9	
4. Natua Is. Development	2	135.0	APBN
1) Administration	1	35.0	
2) Fishing	1	100.0	
Sub total	26	3,201.2	APBN
5. Administration	2	32.5	APBD
6. Fishing	3	105.0	APBD
7. Aquaculture	20	66.5	APBD
8. Processing	2	45.0	APBD
9. Marketing	1	7.5	APBD
10. Female	1	18.0	APBD
Sub total	29	674.5	APBD
Grand total	55	3,875.7	

Sources : Evaluasi Perkembangan Riau Pada Repelita V S/D Tahun 1991/1992 dan Usulan Program/Proyek 1992/1993

表2 州別人口及び成長率

Province	Population (x 1000)			Growth Rate	
	1971	1980	1990	1971-80	1980-90
1 DI Aceh	2,009	2,611	3,416	3.0%	2.7%
2 Sumatera Utara	6,622	8,361	10,256	2.6%	2.1%
3 Sumatera Barat	2,793	3,407	4,000	2.2%	1.6%
4 Riau	1,642	2,169	3,304	3.1%	4.3%
5 Jambi	1,006	1,446	2,021	4.1%	3.4%
6 Sumatera Selatan	3,441	4,630	6,313	3.4%	3.1%
7 Bengkulu	519	768	1,179	4.5%	4.4%
8 Lampung	2,777	4,625	6,018	5.8%	2.7%
9 DKI Jakarta	4,579	6,503	8,254	4.0%	2.4%
10 Jawa Barat	21,624	27,454	35,381	2.7%	2.6%
11 Jawa Tengah	21,877	25,373	28,522	1.7%	1.2%
12 DI Yogyakarta	2,489	2,751	2,913	1.1%	0.6%
13 Jawa Timur	25,517	29,189	32,504	1.5%	1.1%
14 Bali	2,120	2,470	2,778	1.7%	1.2%
15 Nusa Tenggara Barat	2,204	2,725	3,370	2.4%	2.1%
16 Nusa Tenggara Timur	2,295	2,737	3,269	2.0%	1.8%
17 Timor-timur	-	555	748	-	3.0%
18 Kalimantan Barat	2,020	2,486	3,239	2.3%	2.7%
19 Kalimantan Tengah	702	954	1,396	3.5%	3.9%
20 Kalimantan Selatan	1,699	2,065	2,598	2.2%	2.3%
21 Kalimantan Timur	734	1,218	1,877	5.8%	4.4%
22 Sulawesi Utara	1,719	2,115	2,479	2.3%	1.6%
23 Sulawesi Tengah	914	1,289	1,711	3.9%	2.9%
24 Sulawesi Selatan	5,181	6,062	6,982	1.8%	1.4%
25 Sulawesi Tenggara	714	942	1,350	3.1%	3.7%
26 Maluku	1,090	1,411	1,856	2.9%	2.8%
27 Irian Jaya	923	1,174	1,641	2.7%	3.4%
Grand total	119,210	147,490	179,375	2.4%	2.0%

Sources : Central Bureau of Statistics.

表3 スマトラにおける人口密度

Province	Density (persons/km ²)		
	1971	1980	1990
1 DI Aceh	36	47	62
2 Sumatera Utara	94	118	145
3 Sumatera Barat	56	68	80
4 Riau	17	23	35
5 Jambi	22	32	45
6 Sumatera Selatan	33	45	59
7 Bengkulu	24	36	55
8 Lampung	83	139	180
Sumatera	44	59	77
Indonesia	62	77	93

Sources : Central Bureau of Statistics.

表4 石油、ガスおよびその生産物を含んだ州別名目GRDP

Province	GRDP (× Billion Rupiah)					Growth Rate	
	1984	1985	1986	1987	1988		1989
1 DI Aceh	4,224	4,251	5,208	5,201	6,067	7,232	11.3%
2 Sumatera Utara	4,362	4,702	5,182	6,440	7,907	9,476	17.5%
3 Sumatera Barat	1,442	1,616	1,847	2,205	2,556	2,899	15.5%
4 Riau	7,616	7,433	7,539	9,393	9,225	11,635	8.9%
5 Jambi	624	704	771	944	1,140	1,352	17.1%
6 Sumatera Selatan	4,112	4,557	4,614	5,531	6,175	7,180	11.7%
7 Bengkulu	301	360	448	535	623	682	18.4%
8 Lampung	1,236	1,354	1,805	2,177	2,566	2,839	19.6%
9 DKI Jakarta	9,611	10,519	11,745	13,730	16,001	18,771	14.6%
10 Jawa Barat	13,144	14,635	15,716	18,618	22,357	26,032	14.9%
11 Jawa Tengah	8,829	10,124	11,492	13,594	16,423	18,782	16.7%
12 DI Yogyakarta	894	994	1,162	1,300	1,487	1,651	13.4%
13 Jawa Timur	12,695	14,017	15,842	18,086	20,921	24,661	14.2%
14 Kalimantan Barat	982	1,091	1,302	1,575	2,032	2,287	19.7%
15 Kalimantan Tengah	552	636	742	880	1,057	1,272	18.3%
16 Kalimantan Selatan	1,048	1,143	1,238	1,475	1,732	1,975	14.0%
17 Kalimantan Timur	5,575	5,962	5,502	7,218	7,927	8,884	10.4%
18 Sulawesi Utara	745	811	875	1,018	1,141	1,287	11.8%
19 Sulawesi Tengah	426	480	535	617	718	863	15.0%
20 Sulawesi Selatan	2,012	2,323	2,609	2,871	3,299	3,736	12.9%
21 Sulawesi Tenggara	361	373	419	482	630	723	16.0%
22 Bali	1,092	1,440	1,693	1,954	2,234	2,593	18.0%
23 Nusa Tenggara Barat	635	709	771	853	951	1,098	11.2%
24 Nusa Tenggara Timur	594	659	737	849	938	1,040	12.1%
25 Maluku	581	637	728	940	1,130	1,332	19.1%
26 Irian Jaya	887	933	1,079	1,143	1,300	1,624	12.4%
27 Timor-timur	97	112	133	167	200	231	19.7%
Total of 27 Provinces	84,677	92,575	101,734	119,796	138,737	162,137	14.1%
Indonesia *)	89,885	96,997	102,683	124,817	142,020	166,330	13.4%

*) National Income of Indonesia/1984-1989

Remarks : The difference between the total and National Income of Indonesia is due to the statistical discrepancies.

Sources : Central Bureau of Statistics.

表5 石油、ガスおよびその生産物を除いた州別名目GRDP

Province	Per Capita GRDP (x Rp. 1,000)						Growth Rate
	1984	1985	1986	1987	1988	1989	
1 DI Aceh	465	523	567	635	722	785	11.1%
2 Sumatera Utara	446	475	520	634	766	899	15.8%
3 Sumatera Barat	398	439	494	580	662	740	13.7%
4 Riau	479	523	568	650	735	834	11.9%
5 Jambi	339	370	394	446	503	561	10.7%
6 Sumatera Selatan	544	585	634	738	836	927	11.7%
7 Bengkulu	338	388	464	532	596	626	13.7%
8 Lampung	224	234	297	340	382	402	13.8%
9 DKI Jakarta	1,286	1,355	1,456	1,639	1,840	2,098	10.5%
10 Jawa Barat	358	406	456	527	626	654	13.6%
11 Jawa Tengah	308	345	387	442	532	603	14.7%
12 DI Yogyakarta	310	340	393	434	491	539	12.0%
13 Jawa Timur	413	449	501	565	645	751	12.7%
14 Kalimantan Barat	362	392	456	538	673	736	16.5%
15 Kalimantan Tengah	516	576	651	749	872	1,018	14.6%
16 Kalimantan Selatan	444	478	523	608	714	799	13.0%
17 Kalimantan Timur	973	1,044	1,183	1,495	1,776	2,114	17.7%
18 Sulawesi Utara	326	347	369	422	464	515	9.9%
19 Sulawesi Tengah	295	321	348	389	438	511	11.4%
20 Sulawesi Selatan	298	342	382	418	478	538	12.3%
21 Sulawesi Tenggara	338	337	366	408	515	572	12.1%
22 Bali	419	546	633	721	813	932	16.4%
23 Nusa Tenggara Barat	214	233	248	269	294	332	8.9%
24 Nusa Tenggara Timur	200	217	237	268	289	314	9.7%
25 Maluku	370	394	443	556	691	748	16.8%
26 Irian Jaya	407	445	533	594	632	866	15.1%
27 Timor-timur	159	180	207	255	297	335	16.8%
Indonesia *)	441	492	531	618	701	799	12.7%

*) National Income of Indonesia/1984-1989

Remarks: Oil, gas, and their products consist of crude petroleum, natural gas, LNG and refined petroleum

Sources: Central Bureau of Statistics

表6 石油を除いたリアウ州の産業別名目GRDP

Industrial Origin	GRDP (x Rp. 1,000,000,000)					Growth Rate	Share (%)				
	1985	1986	1987	1988	1989		1985	1986	1987	1988	1989
1 Agriculture	350	375	439	504	595	14.5%	27.7	26.8	26.9	26.2	26.2
2 Mining and quarrying	78	84	102	117	137	15.7%	6.2	6.0	6.3	6.1	6.0
3 Manufacture	97	107	134	164	215	22.3%	7.7	7.7	8.2	8.5	9.5
4 Electricity and water	10	12	17	25	33	36.8%	0.8	0.9	1.0	1.3	1.4
5 Construction	26	29	33	37	45	14.2%	2.1	2.1	2.0	1.9	2.0
6 Trade, hotel and restaurants	336	369	409	478	537	12.7%	26.6	26.4	25.1	24.9	23.6
7 Transportation and communications	148	163	193	224	260	15.5%	11.7	11.7	11.8	11.7	11.4
8 Banking & Other financial intermediaries	25	35	47	60	75	31.4%	2.0	2.5	2.9	3.1	3.3
9 Ownership of dwellings	87	100	108	117	126	9.4%	6.9	7.1	6.6	6.1	5.6
10 Government and Defence	89	102	120	166	212	25.0%	7.0	7.3	7.4	8.6	9.3
11 Services	20	23	27	32	37	16.6%	1.6	1.7	1.7	1.7	1.6
Gross Regional Domestic Products	1,266	1,399	1,628	1,924	2,272	16.0%	100.0	100.0	100.0	100.0	100.0

Remarks: Preliminary figures

Sources: Statistical Office, Riau Province

表7 仕向け国別輸出

Country of Destination	Weight (1,000ton)	Value F.O.B(million US\$)
1 Singapore	10,690	366
2 Taiwan	1,086	133
3 China	982	211
4 South Korea	863	158
5 Japan	21,513	3,352
6 USA	4,075	569
7 Australia	650	129
8 Others	772	266
Total	40,631	5,186

Sources : Statistical Office, Riau Province

表8 リアウ州におけるKabupaten別人口

Kabupaten	Population(X 1000)			Growth Rate		Density (person/km ²)		
	1971	1980	1990	1971-80	1980-90	1971	1980	1990
1 Pekanbaru	145	186	399	2.8%	7.9%	2,314	2,958	893
2 Kampar	259	363	570	3.8%	4.6%	9	11	20
3 Indragiri Hulu	197	229	368	1.7%	4.9%	12	14	23
4 Indragiri Hilir	286	398	478	3.7%	1.8%	25	34	41
5 Bengkalis	424	567	904	3.3%	4.8%	14	18	30
6 Kep. Riau	331	386	479	1.7%	2.2%	44	52	64
7 Batam	-	39	108	-	10.7%	-	64	176
Total	1,642	2,169	3,306	3.1%	4.3%	17	23	35

Sources : Statistical Office, Pekanbaru

表9 リアウ州におけるKabupaten別一人当たりGRDP

Kabupaten	Per Capita GRDP (x 1000)			Growth Rate	
	1983	1986	1989	1983-86	1986-89
1 Pekanbaru	483	701	775	13.2%	3.4%
2 Kampar	358	374	422	1.5%	4.1%
3 Indragiri Hulu	262	277	331	1.8%	6.1%
4 Indragiri Hilir	292	326	378	3.7%	5.1%
5 Bengkalis	485	493	565	0.5%	4.7%
6 Kep. Riau	439	493	570	4.0%	4.9%
7 Batam	602	649	647	2.5%	-0.1%

Sources : Statistical Office, Province Riau, 1989

表10 リアウ州におけるKabupaten別GRDPの産業構成比

Industry	PBR	KMR	INHU	INHIL	BKLS	KEPRI	BTM
1 Agriculture	0.97	53.73	42.49	39.31	25.88	18.74	0.81
2 Mining and quarrying	0.01	0.93	5.27	0.07	10.89	14.31	7.86
3 Manufacture	9.79	7.68	4.92	4.60	13.32	8.57	34.41
4 Electricity, gas and water	6.07	0.12	0.70	0.32	0.56	1.75	0.78
5 Construction	1.67	2.54	2.51	2.21	1.32	1.97	1.87
6 Trade, hotel and restaurant	36.68	13.38	14.57	25.41	28.10	27.36	19.05
7 Transportation and communication	20.20	6.95	7.51	11.15	8.83	11.84	16.33
8 Banking & other financial intermediari	11.29	0.37	3.89	2.10	1.42	1.50	7.27
9 Ownership of dwellings	6.38	5.28	6.17	6.78	4.55	6.30	4.88
10 Government and defence	4.29	7.13	9.60	6.28	4.55	5.84	5.61
11 Services	2.66	1.88	2.38	1.77	1.18	1.82	1.14
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Sources : Statistic Office, Province Riau, 1989

表11 1991年におけるベンガリス県内の村 (DESA) の社会経済指標

(1/6)

Kecamatan / Desa	Population	Number of households	Density (p/km ²)	Ratio of 10-55	Total Paddy			Work Force by Industry			Trade Type	Net Production				
					Area (ha)	Yield (kg/ha)	Production (kg)	Live-stock	Fish-ery	Small Indus.		Total amount (x Rp. 1000)	Per capita (Rp.)			
I Bengkulu																
1 Bengkulu Kota	6,569	1,196	3,285	76.9%	-	-	-	10	-	-	6	-	1,221	Trade	3,429,320	522,046
2 Demon	5,193	969	2,597	68.1%	-	-	-	-	-	-	5	-	1,465	Trade	2,829,480	544,864
3 Rimba Sokampung	3,918	729	1,567	73.5%	-	-	-	-	-	-	-	-	864	Trade	1,995,638	509,351
4 Senggoro	2,398	448	218	68.9%	-	-	-	-	-	-	-	-	602	Trade	1,226,400	511,426
5 Kelapa pati	4,114	765	411	76.0%	-	-	30	5	15	9	-	-	757	Trade	2,094,188	509,039
6 Pedekik	1,642	314	82	71.1%	-	-	258	322	18	4	3	-	113	Estate	830,923	506,043
7 Pangkalan Batang	2,412	409	73	64.2%	-	-	170	225	-	11	2	-	110	Estate	1,007,674	417,775
8 Wonosari	3,129	605	156	77.1%	-	-	450	525	-	-	-	-	416	Estate	1,435,363	458,729
9 Penebel	1,187	211	54	72.2%	-	-	115	220	21	27	7	-	37	Estate	365,821	308,190
10 Air Putih	1,284	240	86	65.9%	-	-	-	300	-	-	-	-	147	Estate	481,800	375,234
11 Ketam Putih	1,931	340	84	68.0%	-	-	-	600	15	50	-	-	46	Estate	682,550	353,470
12 Sebauk	1,544	254	62	76.3%	-	-	-	280	-	30	30	-	76	Estate	472,821	306,231
13 Teluk Latak	2,070	378	129	66.4%	-	-	74	349	49	71	11	-	107	Estate	758,835	366,587
14 Penampi	1,486	291	106	65.8%	-	-	-	240	-	86	-	-	98	Estate	531,075	357,386
15 Pematang Duku	2,433	471	61	66.3%	283	-	-	458	7	-	3	-	110	Estate	1,031,490	423,958
16 Bentan Air	4,689	890	120	71.2%	1,358	321	-	556	-	150	47	-	284	Estate	1,949,100	415,675
17 Tameran	2,076	362	173	70.7%	450	-	-	222	29	26	5	-	93	Estate	528,520	254,586
18 Jangkang	2,151	391	80	72.4%	731	-	-	300	67	160	30	-	74	Estate	570,860	265,393
19 Teluk Pambang	4,548	958	49	72.4%	2,059	-	-	1,834	-	100	2	-	123	Estate	2,098,020	461,306
20 Muntai	1,686	305	80	65.0%	311	-	-	218	-	57	-	-	36	Estate	500,962	297,130
21 Meskom	2,871	514	106	73.2%	683	-	-	150	-	460	13	-	60	Fishery	844,245	294,060
22 Bantan Tua	2,105	355	105	77.2%	583	-	-	349	22	20	10	-	107	Estate	647,875	307,779
23 Sungari Alam	2,791	483	164	69.7%	522	-	-	330	75	40	12	-	110	Estate	969,622	347,410
24 Kelemantan	1,384	267	58	69.9%	433	-	-	250	140	20	7	-	16	Estate	389,820	281,662
25 Sekodi	1,856	335	93	68.1%	365	-	-	298	20	298	30	-	17	Estate	550,238	296,464
26 Selat Baru	5,314	1,080	133	73.3%	1,698	-	-	961	200	961	65	-	374	Estate	2,759,400	519,270
27 Kembung Luar	2,908	521	145	69.9%	824	-	-	685	45	-	30	-	64	Estate	760,660	261,575
28 Teluk Lancar	1,382	242	69	64.4%	614	-	-	479	-	45	-	-	47	Estate	353,320	255,658
29 Bantan Tengah	4,249	867	104	74.2%	1,010	-	-	723	42	15	19	-	86	Estate	1,898,730	446,865

Remarks: (*) Fishermen in the Desa were 30 and over.

(#) Per Capita Net Production of desa was lower than the poverty line (US\$ 160).

Sources: Desa Reconstruction Office of Kabupaten Bengkulu

表11 1991年におけるベンガリス県内の村 (DESA) の社会経済指標 (2/6)

Kecamatan / Desa	Popu- Number of		Inhbt. Ratio of		Work Force by Industry				Desa		Net Production			
	litation	house- holds	Density (p/km ²)	Age 10 - 55	Paddy	Farm- ing	Live- stock	Fish- ery	Small Indus.	Large Indus.	Trade	Type	Total amount (x Rp. 1000)	Per capita (Rp.)
2 Tebing Tinggi	11,490	2,203	2,873	74.5%	2,674	-	1	-	10	-	2,663	Trade	7,236,855	629,839
1 Slt. Panjang Kota	8,992	1,591	8,992	71.5%	2,495	-	61	87	33	3	2,311	Trade	5,226,435	581,232 (*)
3 Slt. Panjang Barat	11,683	2,214	2,124	80.8%	2,316	120	23	5	219	6	1,942	Trade	7,272,990	622,528
4 Slt. Panjang Timur	7,370	1,427	4,913	75.5%	2,713	-	-	-	-	-	2,713	Trade	4,687,695	636,051
5 Sokop	841	180	42	67.7%	238	-	-	-	-	-	70	Estate	262,800	312,485
6 Kedabu Rapat	3,979	743	111	69.7%	538	80	54	358	-	-	46	Estate	1,423,774	357,822
7 Tanjung	2,031	370	23	71.0%	831	-	331	361	19	16	58	Estate	709,013	349,096
8 Insit	3,080	596	308	71.4%	875	-	85	636	8	18	76	Estate	1,142,085	370,807
9 Bungur	3,302	654	94	64.9%	1,920	-	225	235	400	93	177	Estate	1,253,228	379,536 (*)
10 Tik. Buntal	1,652	300	75	65.7%	562	-	-	-	27	-	75	Estate	574,875	347,987
11 Lemang	3,936	759	123	74.3%	675	-	-	506	-	-	169	Estate	1,454,434	369,521
12 Repan	1,906	371	159	66.5%	470	-	-	378	-	-	67	Estate	541,660	284,187
13 Sungai Cina	2,603	494	186	70.6%	1,125	583	-	415	-	-	87	Paddy	946,628	363,668
14 Tenan	682	136	85	62.2%	283	-	-	180	25	-	63	Estate	198,560	291,144
15 Tg. Meliang	2,308	425	96	66.3%	574	-	-	235	30	7	122	Estate	814,406	352,862 (*)
16 Melai	3,204	625	169	71.0%	1,470	747	-	604	26	5	88	Paddy	1,197,656	373,800
17 Tg. Gadai	1,285	246	214	68.1%	255	-	-	224	-	-	19	Estate	471,398	366,847
18 Sonde	1,712	321	90	63.7%	504	-	-	315	-	-	74	Estate	468,660	273,750 (*)
19 Lukun	1,944	391	108	73.2%	490	-	-	450	25	-	15	Estate	606,539	312,006
20 Sungai Tohor	2,916	559	81	68.5%	1,106	-	275	650	20	50	86	Estate	1,081,386	370,846
21 Anak Setatah	1,070	220	129	65.0%	559	245	45	106	25	60	63	Paddy	321,200	300,187 (*)
22 Alai	4,480	881	118	75.6%	1,554	-	250	1,085	20	-	199	Estate	1,768,608	394,779
23 Penyagun	1,465	301	133	66.4%	325	-	-	298	-	-	27	Estate	494,393	337,470
24 Kayu Ara	864	188	51	69.8%	297	-	-	120	64	30	15	Estate	274,480	317,685 (*)
25 Tg. Sari	762	139	191	70.7%	306	-	92	201	-	3	10	Estate	202,940	266,325
26 Bangluis	6,067	1,136	202	75.4%	2,782	-	-	1,625	80	262	803	Estate	2,487,840	410,061 (*)
27 Bokor	2,629	558	263	72.3%	1,220	-	48	648	6	78	440	Estate	1,120,185	426,088
28 Sesap	350	66	88	63.7%	107	-	-	95	-	-	12	Estate	84,315	240,900
29 Segomeng	1,037	213	130	72.3%	369	75	-	219	-	-	75	Estate	330,416	318,627
30 Topang	2,486	455	166	65.3%	508	-	-	422	-	-	86	Estate	871,894	350,722
31 Alah Air	5,520	998	690	72.2%	999	-	69	220	30	60	620	Trade	2,003,485	362,950 (*)
32 Bantar	2,569	479	257	67.5%	563	-	30	360	78	-	95	Estate	961,593	374,306 (*)
33 Tg. Peranap	1,408	277	64	66.5%	356	25	-	250	28	-	53	Estate	556,078	394,942
34 Tg. Samak	6,405	1,181	97	64.9%	1,380	-	-	975	50	30	325	Estate	2,694,156	420,633 (*)
35 Bebing	990	202	124	75.4%	514	-	161	227	27	40	57	Estate	221,190	223,424 (*)
36 Tg. Kedabu	3,402	538	43	67.8%	717	-	60	355	50	70	67	Estate	1,030,943	303,040 (*)

Remarks: (*) Fishermen in the Desa were 30 and over. (R) Per Capita Net Production of desa was lower than the poverty line (US\$ 160).

Sources: Desa Reconstruction Office of Kabupaten Bengkalis

表11 1991年におけるベンガリス県内の村 (DESA) の社会経済指標

(3/6)

Kecamatan / Desa	Popu- lation	Number of house- holds	Inhbl. Density (p/km ²)	Ratio of Age 10 - 55	Work Force by Industry				Desa		Net Production			
					Total Paddy Farm- ing	Estate Live- stock	Fish- ery	Small Indus.	Large Indus.	Trade	Type	Total amount (x Rp. 1000)	Per capita (Rp.)	
3 Merbau														
1 Teluk Belitung	3,808	784	190	69.0%	-	281	15	51	37	-	438	Trade	1,638,120	430,179 (*)
2 Mengkirau	1,624	298	62	72.7%	-	334	23	43	23	1	112	Estate	598,235	368,371 (*)
3 Mengkopot	1,589	336	41	65.9%	-	185	-	13	-	-	27	Estate	521,220	328,018
4 Bاندول	2,795	526	233	67.5%	-	125	43	28	30	1	77	Estate	1,439,925	515,179
5 Kudap	2,380	398	190	78.6%	-	-	84	92	15	4	96	Estate	871,620	366,227 (*)
6 Dedap	2,011	442	201	73.7%	-	-	-	613	-	-	17	Estate	806,650	401,119
7 Tanjung Padang	1,829	259	61	83.5%	-	150	-	398	-	-	24	Estate	458,623	250,751 (#)
8 Baran Melintang	1,881	341	188	65.7%	-	112	34	14	-	-	13	Estate	622,325	330,848
9 Semukut	2,255	409	282	71.6%	-	65	-	527	-	5	33	Estate	746,425	331,009
10 Centai	2,342	437	260	73.3%	1,076	45	98	36	-	-	48	Estate	638,020	272,425 (*)
11 Lukit	1,341	249	42	64.4%	333	47	15	10	11	-	59	Estate	363,540	271,096 (#)
12 Pelantai	2,540	438	254	79.3%	555	-	26	50	-	-	101	Estate	719,415	283,234 (*)
13 Bagan Melibur	1,940	392	41	62.5%	376	-	-	250	-	-	25	Estate	500,780	258,134 (*)
14 Renak Dungen	1,341	253	84	79.0%	393	-	55	-	-	-	53	Estate	332,442	247,906 (#)
15 Kuala Merbau	2,520	438	140	73.4%	525	-	-	118	-	-	31	Estate	959,220	380,643 (*)
16 Meranti Bunting	1,512	303	126	61.6%	566	-	-	376	-	-	23	Estate	497,678	329,152 (*)
17 Selat Akar	1,965	319	58	67.4%	694	-	63	187	37	11	15	Estate	465,740	237,018 (*)
18 Teluk Kelapang	1,443	295	80	66.9%	819	-	79	40	22	-	77	Farming	430,700	298,475 (*)

Remarks : (*) Fishermen in the Desa were 30 and over. (#) Per Capita Net Production of desa was lower than the poverty line (US\$ 160).

Sources : Desa Reconstruction Office of Kabupaten Bengkalis

表11 1991年におけるベンガリス県内の村 (DESA) の社会経済指標 (4/6)

Kecamatan / Desa	Popu- lation	Number of house- holds	Inhbt. Density (p/km ²)	Ratio of		Work force by industry					Desa		Net Production			
				Age 10 - 55	Age 10 - 55	Farm- ing	Estate	Live- stock	Fish- ery	Small Indus.	Large Indus.	Trade	Type	Total amount (xRp. 1000)	Per capita (Rp.)	
4 Bukit Batu	5,529	1,097	569	70.7%	1,208	-	-	-	-	35	175	-	998	Trade	3,603,385	651,725 (*)
1 Sungai Pakning	3,041	581	127	70.8%	744	-	227	321	-	25	15	-	156	Estate	1,366,358	449,312
2 Lubuk Muda	909	163	45	71.1%	305	-	59	164	-	-	38	-	44	Estate	258,233	284,085 (#)
3 Bukit Batu	791	135	99	67.3%	207	-	-	140	-	30	8	-	29	Estate	247,100	312,389 (*)
4 Buruk Bakul	1,525	291	76	69.6%	372	-	19	287	-	12	-	-	54	Estate	477,768	313,290 (#)
5 Tenggaraun	762	148	127	68.1%	188	-	-	148	-	11	-	-	29	Estate	243,090	319,016 (#)
6 Dompas	502	107	20	69.1%	188	61	-	96	-	-	-	-	31	Estate	124,693	248,392 (#)
7 Sukajadi	874	164	146	67.2%	202	-	-	135	-	27	15	-	25	Estate	188,559	215,743 (#)
8 Sepahat	1,645	347	46	69.2%	600	425	67	30	-	-	-	-	78	Paddy	469,948	285,683 (#)
9 Langkat	2,909	498	145	71.3%	621	-	88	295	-	-	18	-	220	Estate	1,508,850	518,683 (#)
10 Sungai Selari	1,712	311	68	73.4%	437	280	40	75	-	-	-	-	42	Paddy	597,575	349,051 (#)
11 Tanjung Belit	922	175	115	69.1%	302	-	56	186	-	-	-	-	60	Estate	223,563	242,476 (#)
12 Temiang	1,921	388	192	73.5%	608	-	148	365	-	-	20	-	75	Estate	609,241	317,148 (#)
13 Sepotong	777	149	97	72.2%	228	-	55	145	-	-	-	-	28	Estate	247,114	318,036 (#)
14 Pangkalan Jambi	546	105	30	66.8%	245	107	81	40	-	-	-	-	17	Paddy	133,719	244,907 (#)
15 Sungai Siput	3,449	652	172	70.8%	833	85	498	120	-	-	-	-	130	Farming	1,070,910	310,499 (#)
16 Sejangat	2,729	620	61	71.6%	929	582	120	145	-	-	-	-	82	Paddy	892,925	327,199 (#)
17 Lubuk Gaung	1,049	207	105	72.1%	313	-	72	198	-	15	7	-	21	Estate	283,331	270,096 (#)
18 Api-Api	260	51	65	68.5%	79	-	50	17	-	-	-	-	12	Farming	58,637	225,527 (#)
19 Parit Api-Api																

Remarks : (*) Fishermen in the Desa were 30 and over. (#) Per Capita Net Production of desa was lower than the poverty line (US\$ 160).

Sources : Desa Reconstruction Office of Kabupaten Bengkalis

表11 1991年におけるベンガリス県内の村 (DESA) の社会経済指標

(5/6)

Kecamatan / Desa	Popu- lation	Number of house- holds	Inhbt. Density (p/km2)	Ratio of		Work Force by Industry				Desa		Net Production				
				Age 10 - 55	Age 10 - 55	Farm- ing	Live- stock	Fish- ery	Small Indus.	Large Indus.	Trade	Type	Total amount (x Rp. 1000)	Per capita (Rp.)		
5 Sungai Apit	4,475	936	172	76.4%	1,847	61	484	296	10	20	172	-	804	Trade	2,220,660	496,237
1 Sungai Kayu Ara	2,211	403	221	77.1%	551	-	-	451	-	40	-	-	60	Estate	882,570	399,172 (*)
3 Tanjung Kurus	2,096	426	116	70.8%	433	20	-	225	-	52	-	-	136	Estate	870,744	415,431 (*)
4 Rempak	3,131	622	78	71.5%	1,166	844	-	172	-	13	-	-	137	Paddy	1,396,235	445,939
5 Parit III	1,018	177	170	67.2%	531	-	217	268	-	-	-	-	46	Estate	355,328	349,045
6 Pebadaran	275	34	46	63.6%	223	75	45	94	-	-	-	-	9	Estate	62,050	225,636
7 Sungai Berbari	566	90	103	64.5%	245	109	-	120	-	-	-	-	16	Estate	139,613	246,666
8 Perincit	680	147	57	70.7%	411	75	50	175	-	48	-	-	63	Estate	201,206	295,891 (*)
9 Benayah	982	218	98	72.3%	416	150	-	210	-	30	-	-	26	Estate	278,495	283,600 (*)
10 Tebuk Lanus	309	66	39	67.6%	89	-	75	-	-	6	-	-	8	Farming	72,270	233,883
11 Bandar Sungai	2,680	532	61	75.1%	1,023	334	-	525	-	-	14	-	150	Estate	1,067,990	398,504
12 Sungai Limau	479	97	68	67.0%	163	-	70	80	-	-	-	-	13	Estate	123,917	258,699
13 Sungai Rawa	1,068	214	107	70.0%	260	-	-	157	-	17	-	-	86	Estate	312,440	292,547
14 Penyengat	689	128	172	73.9%	250	-	-	160	-	-	-	-	90	Estate	140,160	203,425
15 Mengkapan	894	184	56	67.0%	563	-	73	430	-	-	-	-	60	Estate	302,220	338,054
16 Tebuk Mesjid	3,566	677	137	79.5%	930	465	-	240	-	53	36	-	136	Paddy	1,111,993	311,832 (*)
17 Dosan	450	113	75	66.7%	109	-	-	92	-	-	-	-	17	Estate	113,424	252,053
18 Lalang	2,211	436	92	77.8%	484	15	-	338	-	-	-	-	131	Estate	755,915	341,888
19 Dusun Pusaka	304	58	61	69.4%	204	30	10	150	-	7	-	-	7	Estate	68,803	226,326
20 Bunga Raya	2,900	595	207	64.6%	1,150	665	67	-	18	10	15	-	375	Paddy	1,085,875	374,440
21 Jaya Pura	2,826	659	202	76.4%	836	685	8	-	-	-	25	-	118	Paddy	1,082,407	383,017
22 Jati Baru	2,678	551	191	68.5%	810	527	65	-	-	131	-	-	87	Paddy	1,005,575	375,495 (*)

Remarks: (*) Fishermen in the Desa were 30 and over.

Sources: Desa Reconstruction Office of Kabupaten Bengkalis. (#) Per Capita Net Production of desa was lower than the poverty line (US\$ 160).

表11 1991年におけるベンガリス県内の村 (DESA) の社会経済指標

(6/6)

Kecamatan / Desa	Popu- Number of		inhab. Density (p/km ²)	Ratio of		Work Force by Industry				Desa		Net Production		
	house- holds	lotion		Age 10 - 55	Age 10 - 55	Farm- ing	Estate	Live- stock	Fish- ery	Small Indus.	Large Indus.	Type	Total amount (x Rp. 1000)	Per capita (Rp.)
6 Rupal														
1 Batu Panjang	2,803	540	280	68.7%	25	333	50	-	31	4	-	235 Farming	886,950	316,429 (*) (#)
2 Tanjung Kapal	3,283	570	109	68.1%	-	175	256	-	-	15	-	59 Estate	936,225	285,174 (#)
3 Terkul	2,655	483	156	73.1%	75	-	389	-	56	-	-	65 Estate	793,328	298,805 (*) (#)
4 Pergam	1,821	305	52	70.7%	-	291	373	-	61	15	-	106 Estate	500,963	275,103 (*) (#)
5 Teluk Lecah	2,998	507	73	68.8%	32	-	395	40	76	76	-	82 Estate	832,748	277,768 (*) (#)
6 Hutan Panjang	1,790	281	149	65.6%	-	240	-	-	25	-	-	26 Farming	358,978	200,546 (#)
7 Teluk Rhu	1,391	230	139	67.9%	-	-	-	18	220	10	-	41 Fishery	335,800	241,409 (*) (#)
8 Tanjung Medang	1,579	237	197	70.0%	-	49	160	-	212	9	-	62 Fishery	405,062	256,531 (*) (#)
9 Pkl.Nyirih	3,078	520	154	73.6%	-	495	-	-	31	-	-	160 Farming	949,000	308,317 (*) (#)
10 Sungai Cingam	1,948	355	162	67.0%	675	348	-	86	135	32	-	74 Farming	534,497	274,382 (*) (#)
11 Makeruh	1,453	224	85	67.7%	300	88	-	-	186	-	-	26 Fishery	327,040	225,079 (*) (#)
12 Tanjung Punak	491	85	82	67.4%	146	-	75	-	48	12	-	11 Estate	108,588	221,157 (*) (#)
13 Kador	2,075	313	130	65.3%	431	75	119	-	190	-	-	47 Fishery	514,103	247,760 (*) (#)
14 Tit.Akar	3,781	611	56	70.0%	648	-	267	-	325	-	-	56 Fishery	1,003,568	265,424 (*) (#)
7 Dumai Barat														
1 Laksamana	3,178	596	2,119	69.3%	638	-	-	-	-	-	-	638 Trade	2,175,400	684,519
2 Bukit Timah	4,807	836	240	73.6%	1,360	-	942	-	-	-	-	418 Farming	3,051,400	634,783
3 Purnama	5,443	1,106	170	80.8%	2,247	-	2,019	4	116	-	4	104 Farming	3,229,520	593,335 (*)
4 Rimba Sekampung	10,233	1,664	2,274	81.3%	2,623	-	-	-	-	74	-	2,549 Trade	6,377,280	623,207
5 Bukit Datak	13,237	2,559	509	78.5%	5,105	-	10	-	-	-	-	5,095 Trade	10,274,385	776,187
6 Pangkalan Sesai	14,234	2,586	791	68.6%	2,411	-	912	-	-	-	-	1,499 Trade	9,910,845	696,280
8 Dumai Timur														
1 Dumai Kota	8,294	1,734	1,885	75.7%	1,167	-	-	-	-	15	-	1,152 Trade	6,329,100	763,094
2 Sukajadi	14,589	2,830	5,611	75.9%	6,994	-	-	-	-	10	10	6,974 Trade	10,845,955	743,434
3 Tanjung Palas	3,165	599	144	72.8%	685	-	196	-	74	63	-	352 Trade	1,749,086	552,634 (*)
4 Buiuh Kasab	8,363	1,687	1,858	73.2%	2,747	-	-	-	-	55	8	2,684 Trade	6,157,550	736,285
5 Teluk Binjai	10,436	2,062	745	69.2%	2,327	-	-	-	-	-	10	2,317 Trade	7,526,300	721,186
6 Jaya Mukti	8,989	1,789	1,798	74.3%	3,960	-	736	-	89	5	-	3,130 Trade	6,529,850	726,427
9 Bukit Kapur														
1 Bagan Besar	4,761	961	298	69.0%	1,247	-	263	199	-	30	-	755 Trade	2,455,355	515,723
2 Bukit Kapur	5,670	1,110	95	68.1%	1,149	-	929	-	4	1	-	215 Farming	2,633,475	464,458
3 Teluk Makmur	1,446	287	72	76.9%	449	-	305	75	30	-	-	39 Farming	477,398	330,151 (*)
4 Guntung	577	104	58	70.0%	303	-	210	69	-	-	-	24 Farming	132,860	230,260 (#)
5 Mundam	837	154	105	73.1%	304	-	222	51	5	-	-	26 Farming	196,735	235,048 (#)
9 Pelintung	1,768	341	111	68.0%	819	-	235	455	-	-	-	129 Estate	520,673	294,498 (#)

Remarks: (*) Fishermen in the Desa were 30 and over. (#) Per Capita Net Production of desa was lower than the poverty line (US\$ 160).

Sources: Desa Reconstruction Office of Kabupaten Bengkalis

表12 マラッカ海峡の底棲魚年間漁獲量及びCPUE(1969~1975)

	1969	1970	1971	1972	1973	1974	1975
Total demarsal landings (ton)	56,651	63,243	60,259	74,138	88,059	89,405	82,623
Total fishing effort (days)	307,585	438,240	535,311	581,061	502,044	527,948	562,256
CPUE (kg/day)	184	144	113	128	175	169	147

Sources : Report of the Workshop on the Fishery Resources of the Malacca Strait, South China Sea Fisheries Development and Coordinating Programme, 1976

表13 マラッカ海峡漁業資源及び漁獲可能量

	Unit : ton/year	
	Resources	Potential
Demarsal fish	235,800	116,900
Pelagic fish*1	216,000	108,000
Coral Fish	13,053	6,526
Penaeid Shrimps	45,800	22,900
Lobster	856	428
Squid	16,500	8,250

Remarks : *1 ; Figure of pelagic fish doesn't include Tuna.

Sources : Potensi dan Penyebaran Sumberdaya Ikan Laut di Perairan Indonesia, DGF 1989

表14 マラッカ海峡浮魚のCPUE(1969~1990)

Year	Total catch (ton)	Fishing effort (days)	CPUE (kg/day)
1969 ^{*1}	40,102	151,248	265
1970 ^{*1}	44,831	163,153	275
1971 ^{*1}	49,632	174,001	285
1972 ^{*1}	57,473	203,005	283
1973 ^{*1}	59,750	213,371	280
1974 ^{*1}	66,027	317,804	208
1975 ^{*1}	32,597	(285,868)	(114)
1976 ^{*2}	47,671	116,000	411
1977 ^{*2}	47,758	153,900	310
1978 ^{*2}	42,193	166,400	254
1979 ^{*2}	41,343	212,700	194
1980 ^{*2}	47,277	485,000	98
1981 ^{*2}	38,598	585,200	66
1982 ^{*2}	45,521	873,400	52
1983 ^{*2}			
1984 ^{*2}	42,466	309,900	137
1985 ^{*2}	67,875	407,000	162
1986 ^{*2}	79,993	416,900	192
1987 ^{*2}	88,668	672,700	132
1988 ^{*2}	78,227	932,400	84
1989 ^{*2}	87,315	636,000	137
1990 ^{*2}	97,274	543,700	179

Remarks : Figures in brackets are estimates

Sources : *1; Report of the Workshop on the Fishery Resources of the Malacca Strait, SCS, 1976

*2; Studi Penyeunan dan Penataan Zona Penangkapan Ikan di Perairan Selat Malaka, DGF, 1993

表15 ベンガリス県海面漁業生産量の推移(1987~1991)

	Unit : Ton					Growth ratio
	1987	1988	1989	1990	1991	
Kubu						
Fishing	51,563.6	53,573.4	48,837.0	48,516.0	48,448.0	-2.2%
Aquaculture	-	-	-	-	-	-
Bangko						
Fishing	16,630.8	15,192.1	20,766.2	21,242.6	21,964.8	9.3%
Aquaculture	-	-	-	-	-	-
Dumai/Rupat						
Fishing	1,558.6	1,164.4	1,772.7	1,825.2	1,715.4	6.6%
Aquaculture	-	0.8	10.0	20.6	1.5	-
Bengkalis/B.Batu						
Fishing	1,765.8	1,597.6	1,941.6	1,526.4	1,528.4	-3.3%
Aquaculture	1.4	3.9	5.8	3.5	4.9	27.1%
T.Tinggi/Merbau						
Fishing	10,737.6	11,701.9	11,142.8	11,470.5	10,796.1	-0.1%
Aquaculture	-	0.6	20.0	7.5	2.3	-
Mandau/T. Puteh						
Fishing	-	-	-	-	-	-
Aquaculture	-	-	-	-	-	-
Siak/Sei Apit						
Fishing	-	-	-	-	114.8	-
Aquaculture	-	-	-	-	-	-
Fishing sub total	82,256.4	83,229.4	84,460.3	84,580.7	84,567.5	0.7%
Aq. sub total	1.4	5.3	35.8	31.6	8.7	72.3%
Total	82,257.8	83,234.7	84,496.1	84,612.3	84,576.2	0.7%

Sources : Laporan Tahunan 1987 - 1991, Cabang Dinas Perikanan, Kabupaten Bengkalis

表16 魚種名リスト

(1/2)

Local name	Scientific name	English name
Ikan		Fishes
Ikan Sebelah	<i>Psettodidae</i>	Indian halibuts
Ikan Lidah	<i>Cynoglossus spp.</i>	Flat fishes
Ikan Nomei	<i>Harpodon nehereus</i>	Bombay duck
Ikan Peperek	<i>Leiognathidae</i>	Pony fishes/Slip mouth
Manyung	<i>Tachyurus spp.</i>	Sea catfishes
Beloso	<i>Saurida spp.</i>	Lizard fishes
Biji nangka	<i>Upeneus spp.</i>	Goat fishes
Ikan Gerot-gerot	<i>Pomadasyus spp.</i>	Grunters/Sweetlips
Ikan Merah/Bambangan	<i>Lutjanus spp.</i>	Red snappers
Kerapu	<i>Epinepheius spp.</i>	Groupers
Lencam	<i>Lethrinus spp.</i>	Emperors
Kakap	<i>Lates calcarifer</i>	Giant sea perch/Baramundi
Kurisi	<i>Nemipterus spp.</i>	Threadfin breams
Swanggi	<i>Priacanthus spp.</i>	Big eyes
Ekor kuning/Pisang-pisang	<i>Caesio spp.</i>	Yellow tail/Fusiliers
Gulamah/Tigs waja	<i>Sciaenidae</i>	Croakers, drums
Cucut	<i>Carcharhinidae, Sphyrinidae</i>	Shark
Pari	<i>Trigonidae</i>	Rays
Bawal hitam	<i>Formio niger</i>	Black pomfret
Bawal putih	<i>Pampus argenteus</i>	Silver pomfret
Alu-alu	<i>Sphyaena spp.</i>	Baracudas
Ikan Layang	<i>Decapterus spp.</i>	Scads
Selar	<i>Selar spp., Selaroides spp.</i>	Trevallies
Kuwe	<i>Caranx spp.</i>	Jack crevallies
Tetengkek	<i>Megalaspis cordyla</i>	Hardtail scads
Daun bambu/Talang-talang	<i>Chorinemus spp.</i>	Queen fishes
Sunglir	<i>Elagatis bipinnulatus</i>	Rainbow runner
Ikan terbang	<i>Cypselurus spp.</i>	Flying fishes
Belanak	<i>Mugil spp.</i>	Mulletts
Kuro/Senangin	<i>Polynemus spp.</i>	Threadfins
Julung-julung	<i>Tyiosurus spp., Hemirhamphus spp.</i>	Needle fishes
Teri	<i>Stolephorus spp.</i>	Anchovies
Japuh	<i>Dussumieria spp.</i>	Rainbow sardine
Tembang	<i>Sardinella fimbriata</i>	Fringescale sardinella
Lemuru	<i>Sardinella longiceps</i>	Indian oil sardinella
Golok-golok/Parang-parang	<i>Chirocentrus spp.</i>	Wolf herrings
Terubuk	<i>Clupea(Alosa) toli</i>	Tolishad(Chinese herring)
Kembung	<i>Rastrelliger spp.</i>	Indian mackerels
Tenggiri papan	<i>Scomberomorus guttatus</i>	Indo pacific king mackerels
Tenggiri	<i>Scomberomorus commersoni</i>	Narrow bared king mackerels
Layur	<i>Trichiurus spp.</i>	Hairhails, cuttlass fishes
Cakalang	<i>Katsuwonus pelamis</i>	Skipjack tuna
Tongkol	<i>Euthynnus spp.</i>	Eastern little tunas
Bandeng	<i>Chanos chanos</i>	Milk fish
Biang biang	<i>Setipinna breviceps</i>	(Setipinna breviceps)
Kelampai	<i>Otolithoides biauritus</i>	Bronze croaker
Puput	<i>Pellona sp</i>	(Pellona sp)
Ikan ikan lain		

表16 魚種名リスト

(2/2)

Local name	Scientific name	English name
Bintan Berkulit Kerau		Crustacean
Rajungan	<i>Portunus spp.</i>	Swim crab
Kepiting	<i>Scylla serrata</i>	Mud crab
Udang barong	<i>Panulirus spp.</i>	Panulirid spiny lobsters
Udang windu	<i>Penaeus monodon, P. semisulcatus</i>	Giant tiger prawn
Udang putih/Jrebung	<i>Penaeus merguensis, P. indicus</i>	Banana prawn
Udang dogol	<i>Metapenaeus spp.</i>	Metapenaeus shrimps
Udang lainnya	-	Other shrimps
Udang Rebon	-	Mysid
Lainnya	-	Others
Binatang Lunak		Molluscs
Tiram	<i>Crassostrea spp.</i>	Cupped oyster
Simping	<i>Amusium spp.</i>	Scalops
Remis	<i>Meretrix spp.</i>	Hard clams
Kerang darah	<i>Anadara spp.</i>	Blood cockles
Cumi-cumi	<i>Loligo spp.</i>	Common squids
Sotong	<i>Sepia spp.</i>	Cuttle fishes
Gurita	<i>Octopus spp.</i>	Octopuses
Lainnya	-	Others
Binatang Air Lainnya		Others
Penyu	<i>Chelonia mydas</i>	Marine turtles
Teripang	<i>Stichopus spp.</i>	Sea cucumbers
Ubur-ubur	<i>Rhopilema spp.</i>	Jelly fishes
Lainnya	-	Others
Rumput laut	<i>Euchema spp., Gracillaria spp.</i>	Sea weeds

表17 リアウ州水産物生産量の推移(1980~1991)

	Unit : Ton											
	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Fishery Sector	159,119	144,499	128,549	153,032	156,099	160,761	163,114	170,026	172,198	176,592	181,445	188,282
Aquaculture	210	174	213	211	271	385	439	546	577	675	876	945
Brackish Water	64	35	49	64	58	47	33	90	93	139	188	221
Fresh Water	145	139	165	147	213	338	405	456	484	536	688	723

Sources : Buku Tahunan Statistik Perikanan Tingkat Propinsi 1980-1991

表18 州別水産物供給バランス(1990)

Province	Fish Supply			Fish Demand			Balance
	Sub-total	Production	Import	Sub-total	Consumption	Export	
Whole Country	3,235,754	3,162,469	73,285	3,235,754	2,915,514	320,240	0
a. Sumatera	862,451	855,849	6,602	907,230	823,929	83,301	-44,779
1 DI Aceh	111,476	111,290	186	110,575	110,497	78	901
2 Sumatera Utara	231,695	226,481	5,214	303,613	273,444	30,169	-71,918
3 Sumatera Barat	69,169	69,169	0	68,662	68,592	70	507
4 Riau	182,055	181,418	637	143,299	92,614	50,685	38,756
5 Jambi	22,490	22,490	0	49,664	49,006	658	-27,174
6 Sumatera Selatan	132,994	132,994	0	130,993	129,643	1,350	2,001
7 Bengkulu	14,890	14,890	0	19,698	19,698	0	-4,808
8 Lampung	97,682	97,117	565	80,726	80,435	291	16,956
b. Jawa	967,621	901,186	66,435	1,353,940	1,239,101	114,839	-386,319
9 DKI Jakarta	64,893	30,196	34,697	157,024	110,129	46,895	-92,131
10 Jawa Barat	300,648	300,648	0	550,066	550,066	0	-249,418
11 Jawa Tengah	257,339	254,404	2,935	224,231	221,053	3,178	33,108
12 DI Yogyakarta	3,216	3,216	0	9,396	9,396	0	-6,180
13 Jawa Timur	341,525	312,722	28,803	413,223	348,457	64,766	-71,698
c. Nusa Tenggara	264,188	264,167	21	141,136	133,226	7,910	123,052
14 Bali	143,455	143,452	3	43,181	36,292	6,889	100,274
15 Nusa Tenggara Barat	65,736	65,719	17	56,381	56,381	0	9,355
16 Nusa Tenggara Timur	54,180	54,180	0	37,355	36,335	1,020	16,825
17 Timor-timur	817	816	1	4,219	4,218	1	-3,402
d. Kalimantan	384,804	384,798	6	257,806	248,877	8,929	126,998
18 Kalimantan Barat	87,614	87,613	1	75,147	72,754	2,393	12,467
19 Kalimantan Tengah	85,426	85,426	0	38,409	38,095	314	47,017
20 Kalimantan Selatan	124,999	124,994	5	84,345	82,410	1,935	40,654
21 Kalimantan Timur	86,765	86,765	0	59,906	55,619	4,287	26,859
e. Sulawesi	533,343	533,339	4	395,814	358,851	36,963	137,529
22 Sulawesi Utara	81,658	81,657	1	78,995	68,051	10,944	2,663
23 Sulawesi Tengah	38,718	38,718	0	43,753	43,633	120	-5,035
24 Sulawesi Selatan	318,263	318,260	3	223,688	203,812	19,876	94,575
25 Sulawesi Tenggara	94,704	94,704	0	49,378	43,355	6,023	45,326
f. Maluku & Irian Jaya	223,347	223,130	217	179,827	111,529	68,298	43,520
26 Maluku	154,494	154,291	203	113,532	75,583	37,949	40,962
27 Irian Jaya	68,853	68,839	14	66,295	35,946	30,349	2,558

Sources: 1) Population : Central Bureau of Statistics.

2) Consumption of Calorie & Protein of Indonesia and Province, 1990
Central Bureau of Statistics

3) International Trade Statistics of Fishery Commodities, 1990, DGF

4) Fish Production : Fishery Statistics of Indonesia, 1990, DGF

表19 州別水産物輸出量

	Unit : ton					
Province	1986	1987	1988	1989	1990	1991
Whole Country	107,445	140,378	181,217	228,594	320,240	411,586
a. Sumatera	24,755	31,471	37,400	43,307	83,301	114,641
1 DI Aceh	283	667	519	274	78	58
2 Sumatera Uatara	13,043	17,269	23,522	27,493	30,169	39,569
3 Sumatera Barat	63	34	58	74	70	58
4 Riau	9,407	11,566	11,203	13,694	50,685	70,950
5 Jambi	0	5	205	2	658	1,002
6 Sumatera Selatan	1,950	1,929	1,877	1,719	1,350	1,828
7 Bengkulu	3	1	0	0	0	0
8 Lampung	6	0	16	51	291	1,176
b. Jawa	35,904	47,136	72,705	104,073	114,839	153,669
9 DKI Jakarta	13,021	18,292	33,398	43,398	46,895	48,436
10 Jawa Barat	10	24	1,001	7	0	0
11 Jawa Tengah	3,109	3,092	3,807	6,343	3,178	2,663
12 DI Yogyakarta	0	0	0	0	0	175
13 Jawa Timur	19,764	25,728	34,499	54,325	64,766	102,395
c. Nusa Tenggara	340	1,644	3,253	7,837	7,910	8,752
14 Bali	189	1,464	2,936	7,590	6,889	7,985
15 Nusa Tenggara Barat	128	80	175	88	0	0
16 Nusa Tenggara Timur	23	100	142	159	1,020	767
17 Timor-timur	0	0	0	0	1	0
d. Kalimantan	5,206	7,847	8,714	8,411	8,929	9,288
18 Kalimantan Barat	962	2,181	2,421	1,974	2,393	1,892
19 Kalimantan Tengah	330	320	387	256	314	300
20 Kalimantan Selatan	1,213	2,115	2,134	2,225	1,935	1,855
21 Kalimantan Timur	2,701	3,231	3,772	3,956	4,287	5,241
e. Sulawesi	15,076	20,548	23,038	21,281	36,963	25,326
22 Sulawesi Utara	655	3,188	3,720	3,848	10,944	13,026
23 Sulawesi Tengah	394	187	120	98	120	202
24 Sulawesi Selatan	10,432	12,391	13,655	14,027	19,876	7,852
25 Sulawesi Tenggara	3,595	4,782	5,543	3,308	6,023	4,246
f. Maluku & Irian Jaya	26,164	31,732	36,107	43,685	68,298	99,910
26 Maluku	6,688	12,166	12,330	24,372	37,949	40,339
27 Irian Jaya	19,476	19,566	23,777	19,313	30,349	59,571

Sources : International Trade Statistics of Fishery Commodities, 1990, DGF

表20 州別水産物輸出額

Unit : FOB US\$ 1,000

Province	1986	1987	1988	1989	1990	1991
Whole Country	374,116	475,526	712,205	822,747	1,039,681	3,765
a. Sumatera	71,818	96,356	144,166	161,898	209,893	700
1 DI Aceh	3,041	8,054	6,401	520	545	0
2 Sumatera Utara	48,597	66,038	116,637	138,659	152,784	38
3 Sumatera Barat	124	82	92	114	105	0
4 Riau	4,240	5,754	5,954	10,098	43,509	662
5 Jambi	0	3	210	92	1,385	0
6 Sumatera Selatan	15,811	16,423	14,868	12,356	9,748	0
7 Bengkulu	5	2	0	0	0	0
8 Lampung	0	0	4	59	1,817	0
b. Jawa	157,401	186,661	332,631	446,228	582,120	2,531
9 DKI Jakarta	54,007	65,251	142,929	201,278	236,385	838
10 Jawa Barat	1	4	848	3	0	0
11 Jawa Tengah	25,895	24,728	29,597	30,572	21,839	1,109
12 DI Yogyakarta	0	0	0	0	0	0
13 Jawa Timur	77,498	96,678	159,257	214,375	323,896	584
c. Nusa Tenggara	2,680	5,484	13,702	21,411	25,463	7
14 Bali	2,027	5,028	12,651	20,533	24,401	7
15 Nusa Tenggara Barat	646	434	813	413	0	0
16 Nusa Tenggara Timur	7	22	234	406	1,050	0
17 Timor-timur	0	0	4	59	12	0
d. Kalimantan	28,768	44,173	53,466	44,723	43,787	3
18 Kalimantan Barat	3,653	10,506	13,449	10,031	10,287	3
19 Kalimantan Tengah	2,742	2,335	3,090	1,584	2,187	0
20 Kalimantan Selatan	6,090	11,591	12,870	12,361	9,026	0
21 Kalimantan Timur	16,283	19,741	24,057	20,747	22,287	0
e. Surawesi	49,673	65,436	88,147	84,019	91,224	6
22 Sulawesi Utara	416	2,326	4,456	4,454	13,280	0
23 Sulawesi Tengah	293	495	332	308	480	0
24 Sulawesi Selatan	45,660	58,287	77,880	76,263	71,510	6
25 Sulawesi Tenggara	3,304	4,328	5,479	2,994	5,954	0
f. Maluku & Irian Jaya	63,776	77,416	80,093	64,468	87,194	518
26 Maluku	33,388	42,912	38,823	34,991	47,608	293
27 Irian Jaya	30,388	34,504	41,270	29,477	39,586	225

Sources : International Trade Statistics of Fishery Commodities, 1990, DGF

表21 ベンガリス県の水産物輸出货量

Unit : Ton

Kecamatan	1987	1988	1989	1990	1991
1 Kubu	215	1,838	1,369	443	226
2 Bangko	1,893	813	1,240	549	486
3 Dumai/Rupat/Bukit Kapur	63	54	101	73	237
4 Bengkalis/Bukit Batu	-	38	276	89	193
5 Tebing Tinggi/Merbau	-	-	-	-	23
6 Mandau/Tanah Putih	-	-	31	3	-
7 Siak/Sungai Apit	-	-	-	-	-
Total	1,956	906	1,648	714	938

Remarks : Export consist of fresh fish and dried/salted fish.

Dried/salted fish volume converted into weight of fresh fish.

Sources : Laporan Tahunan 1987-1991, Cabang Dinas Perikanan, Kabupaten Bengkalis

表22 ベンガリス県の水産物輸出額

Kecamatan	Unit : US\$				
	1987	1988	1989	1990	1991
1 Kubu	124,115	666,725	532,054	633,646	428,450
2 Bangko	1,970,485	1,814,565	1,935,908	1,034,297	923,909
3 Dumai/Rupat/Bukit Kapur	28,830	17,550	167,992	138,243	449,730
4 Bengkalis/Bukit Batu	-	15,238	458,567	167,712	365,750
5 Tebing Tinggi/Merbau	-	-	-	-	28,927
6 Mandau/Tanah Putih	-	-	50,811	4,752	228
7 Siak/Sungai Apit	-	-	-	-	-
Total	2,123,430	2,514,078	3,145,332	1,978,650	2,196,994

Sources : Laporan Tahunan 1987-1991, Cabang Dinas Perikanan, Kabupaten Bengkalis

表23 リアウ州における水産物輸出(1990)

Fishery Commodities	Net Weight (ton)	Value of FOB (US\$)
1 Other marine ornamental fish	3.6	9,128
2 Fresh water ornamental fish, bettas	7.4	88,121
3 Fresh water ornamental fish, gurami	12.6	51,942
4 Other fresh water ornamental fish	3.4	11,008
5 Other live fish	112.5	307,525
6 Trout other than fry	0.3	813
7 Other fish, fresh or chilled	1,377.7	516,161
8 Other flat fish, fresh or frozen	295.3	177,138
9 Marine fish, fresh or chilled	42,146.3	36,052,962
10 Other marine fish, fresh or chilled	5.7	2,671
11 Other salmonidae, frozen	1,477.4	1,032,205
12 Teri fish, dried	248.9	238,407
13 Shark fins, dried	13.7	72,515
14 Other than marine fish, dried	14.0	6,836
15 Teri fish, salted	9.5	2,862
16 Other fish, salted but not dried or smoked	7.1	2,529
17 Shrimps and prawns, frozen	620.9	2,556,023
18 Other than cray fish, frozen	190.7	639,265
19 Rock lobster & other sea craw fish other than in airtight container	139.5	445,879
20 Lobster, other than in airtight container	0.5	400
21 Shrimps and prawns, other than in airtight container	2,133.3	694,894
22 Crabs, other than in airtight container	135.8	93,163
23 Cuttlefish, other than frozen	3.2	2,464
24 Cray Fish, in airtight container	334.2	272,864
25 Other cray fish	1.9	7,221
26 Other crustaceanous, other than in airtight container	195.4	32,554
27 Jellyfish, live, fresh, chilled	14.5	9,975
28 Jellyfish, frozen	107.6	16,142
Total	49,612.8	43,343,667

Remarks : Volume was converted into weight of fresh whole fish.

Sources : Statistical Office in Riau Province

表24 マラッカおよびシンガポールにおけるリアウ/スマトラ産鮮魚卸売り価格

Species	Unit : Rp / kg	
	Malacca*1	Singapore*2
Wolf herring		
Big	7,200	10,800
Medium	6,400	-
Small	4,800	8,400
Narrow barred king mackerel		
Big	7,200	10800
Medium	6,400	-
Small	4,800	8400
Treadfin		
Big	7,280	24600
Medium	4,960	-
Small	4,640	19200
Silver pomfret		
Big	9,600	22800
Medium	8,000	-
Small	6,400	18000

Notes : *1 ; Result of field survey on 11, Sept. 1993

*2 ; Result of field survey on 11, Sept. 1993

Exchange rate ; Rp.800/M\$, Rp.1,200/S\$

Sources : Result of field survey

表25 ベンガリス県における加工形態別生産量

Description	Unit : ton				
	1987	1988	1989	1990	1991
a. Marine Products					
1 Fresh	50,881	46,195	48,690	55,296	62,155
2 Dried	73,913	73,875	74,818	69,983	69,324
3 Terasi	32,203	39,220	39,714	42,300	40,896
4 Others	469	209	304	283	1,462
Total	157,466	159,499	163,526	167,863	173,837
b. Inland /Aquaculture Products					
1 Fresh	8,068	8,117	8,294	8,583	8,860
2 Dried	3,038	3,235	3,146	3,169	3,335
3 Terasi	196	192	206	212	206
4 Fumigation	721	577	747	742	1,037
Total	12,022	12,122	12,392	12,706	13,438

(Composition of Production)

Description	1987	1988	1989	1990	1991
a. Marine Products					
1 Fresh	32.3%	29.0%	29.8%	32.9%	35.8%
2 Dried	46.9%	46.3%	45.8%	41.7%	39.9%
3 Terasi	20.5%	24.6%	24.3%	25.2%	23.5%
4 Others	0.3%	0.1%	0.2%	0.2%	0.8%
Total	100.0%	100.0%	100.0%	100.0%	100.0%
b. Inland /Aquaculture Products					
1 Fresh	67.1%	67.0%	66.9%	67.5%	65.9%
2 Dried	25.3%	26.7%	25.4%	24.9%	24.8%
3 Terasi	1.6%	1.6%	1.7%	1.7%	1.5%
4 Fumigation	6.0%	4.8%	6.0%	5.8%	7.7%
Total	100.0%	100.0%	100.0%	100.0%	100.0%

Sources : Laporan Tahunan 1987 - 1991, CabangDinas Perikanan, Kabupaten Bengkalis

表26 ベンガリス県郡別KUD組合員数

Kecamat	Name of KUD	Member of KUD			Unit : Person
		Fisherman	Fish Farmer	Others	Total
Kubu	KUD Minabaakti	-	-	-	-
	KUD Mina Jaya	-	-	-	-
Bangko	KUD Bagan	72	-	-	72
Dumai/Rupat	KUD Medel Rupat	254	-	-	254
	KUD Dumai Barat	33	-	110	143
Bengkalis/B.Batu	KUD Bengkalis	110	20	2	132
Tibing Tinggi/Merbau	KUD Selat Hitam	27	-	238	265
	KUD Sukajaya	42	-	113	155
	KUD Kec. Merbau	52	-	477	529
Duri	KUD Mandau	-	1	65	66
	KUD Misayamina	10	-	15	25
	KUD Karya Usaba	-	13	10	23
Siak/Sei Apit					

Sources : Laporan Tahunan 1991, Cabang Dinas Perikanan, Kabupaten Bengkalis

表27 1991年ベンガリス県郡別クロンボックおよび組合員数

	Kelompok (Unit)			Member (Person)		
	Fisherman	Fish Farmer	Total	Fisherman	Fish Farmer	Total
Kubu	16	-	16	1,163	-	1,163
Bangko	10	6	16	414	-	414
Dumai/Rupat	10	14	24	188	173	361
Bengkalis/B.Batu	16	-	16	1,163	-	1,163
Tebin Tinggi/ Merbau	8	2	10	209	93	302
			0			0
Mandau/T.Putih	3	5	8	67	98	165
Sei.Apit/Siak	19	11	30	303	147	450
Total	82	38	120	3,507	511	4,018

Sources : Laporan Tahunan 1991, Cabang Dinas Perikanan, Kabupaten Bengkalis

表28 インドネシア国森林利用別林面積(1984年)

Forest use category	(Unit : ha)	
	Area (x1,000ha)	(%)
Protection Forest	30,316	21
Production Forest	64,391	44
Reserve Forest	19,725	13
Convertible Forest	30,537	22
Total forest land area	144,969	100
Total land area	193,072	

Sources : Statistik Kehutanan Indonesia 1989/1990

表29 調査対象地域のマングローブ林面積 (推定)

Island	Classification of forests (Class)								Total	
	1		2		3		4		D	E
	D	E	D	E	D	E	D	E		
Bengkalis	350	300	480	1,260	460	7,550	-	1,890	1,290	11,000
Padang	1,810	1,250	3,070	3,960	-	1,070	-	220	4,880	6,500
Merbau	-	230	2,060	3,950	-	-	-	80	2,060	4,260
Ransang	2,010	1,790	-	-	1,040	6,680	180	2,290	3,230	10,760
Tebing Tinggi	3,490	540	150	140	510	9,940	70	3,310	4,220	13,930
Rupat	3,150	1,100	-	-	2,320	13,290	170	3,310	5,640	17,700
Sumatera	2,550	750	-	-	210	2,230	-	2,610	2,760	5,590
Others	1,360	30	-	-	-	650	-	-	1,360	680
Total	14,720	5,990	5,760	9,310	4,540	41,410	420	13,710	25,440	70,420

Remarks : 1) D :Estimated area of diminished mangrove forests during 1975 upto 1991

2) E :Estimated area of existing mangrove forests in 1990

3) These figures are based on the values by the conventional area measurement of the attached Distribution Map of Mangrove Forests(1:100,000) using the JAFTA (Japan Forest Technical Association) type area-scale.

表30 森林調査地点の概況

Sampling	Sample		Regeneration → Forest		Forest description	Site description	Island	Remarks
	plot	Sub plot		type				
B-1-1 (100m) 1)	100 m ²	100 m ²		LRh	R.apiculata including Xylocarpus spp. stand (About 5 years after felling.	Some 175m landward from S.Bantantengah (near a chacoal kiln)	Bengkalis	L,A
B-1-2	100 m ²	100 m ²		LRh-S	Strongly cutted stand R.apiculata About 3 months after felling	Some 150m landward from S.Bantantengah (near a chacoal kiln)	"	L,A
B-1-3	100 m ²	50 m ²		LRh	R.apiculata stand	Some 100m landward from S.Bantantengah (near a chacoal kiln)	"	L,A
B-2-4 (18m)	25 m ²	25 m ²		LRh	Along the river (Greenbelts)	Along S.Bantantengah (near a chacoal kiln)	"	L,A
B-3-5 (61m)	100 m ²	50 m ²		LRh-S	Near the boundary to another vegetation (Near settlements)	Some 1 km landward from S.Bantantengah(Some 30 minutes by boat from the nearest chacoal kiln)		
T-4-1 (100m)	100 m ²	25 m ²		LRh	Sparce of higher B.parviflora	Some 100m landward from S.Suir (Some 15 minutes by boat from the nearest chacoal kiln)	Tebing tinggi	
T-4-2	100 m ²	a. 13 m ² b. 13 m ²		LRh	Dense of higher B.parviflora	Some 150m landward from S.Suir (Some 15 minutes by boat from the nearest chacoal kiln)	"	
T-5-1 (0m)	100 m ²			HRh	Conserved(tended) (natural regenerated R.apiculata)	Some 10m landward from S.Suir(around a chacoal kiln)	"	A
T-6-1 (0m)	25 m ²	25 m ²		LRh-S	Along the Morong Strait(Greenbelts)	In front of a chacoal kiln	Rupat	
T-7-1 (240m)	A: 4,800 m ² B: 2,400 m ²	a: 600 m ² b: 20 m ²		MRh (60m) LRh (170m) HRh (10m)	Midium-high Rhizophora spp, dominant stands Low Rhizophora spp, dominant stands High Rhizophora spp, dominant stands	Along Sei Bagiharus which flows into Rengit Channel. about 20 minutes by pompon from the nearest site of kilns	Tebing tinggi	
T-8-1 (50m)	A: 1,000 m ² B: 1,000 m ²	a: 125 m ² b: 20 m ²		LRh-S	Low Rhizophora spp, dominant stands	Near S.Cingam River about 10 minutes by pompon from the nearest site of kilns	Rupat	
T-9-1 (50m)	A: 1,000 m ² B: 1,000 m ²	a: 125 m ² b: 20 m ²		LRh	Low Rhizophora spp, dominant stands	Near Pelabuhan Sei Cingam about 5 minutes by pompon from the nearest site of kilns	Rupat	
T-10-1 (0m)	B: 225 m ²	b: 4 m ²		Av	Avicennia spp, dominant stands	10km westword from the central village of Desa Muntai about 30 minutes on foot	Bengkalis	

Remarks 1) Length of sampling line

2) Size of plot

3) Size of plot

4) L: Litter trap(0.785m²x5traps/plot)

A: Additional surveyed

A: Sample plot for trees (D \geq 10cm)

B: Sample plot for trees (D \geq 4cm)

a: Regeneration sub-plot for saplings (D< 4cm, H \geq 1.3m)

b: Regeneration sub-plot for seedlings (D< 4cm, H< 1.3m)

表31 林況の概要

	Forest types						
	Av	HRh	MRh	LRH		LRH-S	
				P.Rupat	Except P.Rupat	P.Rupat	Except P.Rupat
Ind./ha ^{b)}							
D < 4cm ²⁾	55,000 (0)	3,680 (3,580)	43,294 (33,127)	11,320 (6,080)	89,460 (46,840)	11,320 (6,080)	9,800 (8,800)
4 ≤ D < 10cm	-	1,000 (800)	2,017 (1,700)	690 (500)	1,318 (1,053)	720 (440)	700 (600)
10 ≤ D	400 (0)	350 (150)	212 (81)	110 (80)	177 (77)	160 (50)	100 (100)
Total(4 ≤ D)	400 (0)	1,350 (950)	2,229 (1,781)	800 (580)	1,495 (1,130)	880 (490)	900 (700)
Average							
D (cm) 4 ≤ D	16 (0)	9 (8.3)	7 (5.7)	7 (7.5)	7 (6.6)	7 (6.5)	7 (6.4)
H (m) 4 ≤ D	6 (0)	10 (11.8)	10 (10.1)	6 (5.7)	9 (9.0)	6 (5.6)	5 (5.0)

Remarks 1) Tree species for charcoal in parentheses.
 2) Numbers of actual seedlings are expected to be less than the values because seedlings exist on gaps of tree crowns.

表32 ha当たりのマングローブ林資源量 (推定値)

	Forest types						
	Av	HRh	MRh	LRh		LRh-S	
				Rupat	Except Rupat	Rupat	Except Rupat
Effective volume1) for charcoal(m3/ha)							
4 ≤ D < 10cm	0.00	7.40	11.42	4.73	8.41	3.36	4.30
10 ≤ D	0.00	19.25	7.43	6.30	10.88	3.53	3.80
Total(4 ≤ D)	0.00	26.65	18.85	10.92	19.29	6.89	8.10
Above ground biomass 2) (t/ha) 4 ≤ D < 10cm							
Ws	0.00 (0.00)	8.65 (7.02)	14.39 (10.88)	3.47 (3.38)	10.21 (7.64)	2.88 (1.91)	2.32 (2.15)
Wl	0.00 (0.00)	1.19 (1.01)	1.79 (1.43)	0.56 (0.47)	1.44 (1.17)	0.47 (0.34)	0.44 (0.41)
Wb	0.00 (0.00)	3.64 (2.90)	6.36 (4.85)	1.51 (1.13)	4.29 (3.17)	1.30 (0.81)	1.04 (0.94)
Wr	0.00 (0.00)	(1.33)	(1.06)	(0.56)	(1.46)	(0.40)	(0.43)
Wt	0.00 (0.00)	14.81 (12.26)	23.59 (18.2)	6.11 (4.86)	17.39 (13.43)	5.04 (3.46)	4.23 (3.93)
10 ≤ D							
Ws	18.35 (0.00)	26.73 (20.1)	20.88 (5.81)	5.53 (2.98)	15.11 (10.61)	7.14 (1.84)	2.99 (2.12)
Wl	1.53 (0.00)	2.18 (1.62)	1.64 (0.74)	0.51 (0.33)	1.27 (0.85)	0.54 (0.20)	0.37 (0.27)
Wb	6.85 (0.00)	8.79 (6.33)	6.28 (1.96)	1.87 (1.05)	3.33 (2.58)	2.47 (0.64)	1.19 (0.80)
Wr	(0.00)	(7.48)	(1.49)	(0.89)	(1.67)	(0.47)	(0.56)
Wt	26.72 (0.00)	45.17 (35.52)	53.94 (28.28)	8.78 (5.24)	28.10 (20.01)	10.69 (3.15)	5.11 (3.75)
Ground total							
Ws	18.35 (0.00)	35.38 (27.12)	35.27 (16.69)	9.00 (5.68)	25.32 (18.25)	10.02 (3.75)	5.31 (4.27)
Wl	1.53 (0.00)	3.37 (2.63)	3.43 (2.17)	1.07 (0.80)	2.71 (2.02)	1.01 (0.54)	0.81 (0.68)
Wb	6.85 (0.00)	12.43 (9.23)	12.64 (6.81)	3.38 (2.18)	7.62 (5.75)	3.77 (1.45)	2.23 (1.74)
Wr	(0.00)	(8.81)	(2.55)	(1.45)	(3.13)	(0.87)	(0.99)
Wt	26.72 (0.00)	59.98 (47.78)	53.94 (28.28)	14.89 (10.10)	45.49 (33.44)	15.73 (6.61)	9.34 (7.68)

Remarks ;

- 1) Tree species for charcoal. Calculated using $V=0.6534 + 2.2490 \times \text{Log } D$
- 2) Values are oven-dried weights Calculated using Komiyama's equations
Tree species for charcoal in parentheses.

表33 マングローブ林資源の年間成長量 (推定値)

	Forest types						
	Av	HRh	MRh	LRh		LRh-S	
				P.Rupat	Except P.Rupat	P.Rupat	Except P.Rupat
Effective volume for charcoal(m ³ /ha) ¹							
4 ≤ D < 10cm	0	3.2	6.8	2	4.2	1.8	2.4
10 ≤ D	0	0.6	0.3	0.3	0.3	0.2	0.4
Total(4 ≤ D)	0	3.8	7.1	2.3	4.5	2	2.8
Above ground biomass 2) (t/ha)							
4 ≤ D < 10cm							
Ws 3)	0	3.2	6.8	2	4.2	1.8	2.8
Wt 4)	0	6.7	13.5	4.6	8.8	4.8	4.7
10 ≤ D							
Ws	1.6	0.6	0.3	0.3	0.3	0.2	0.4
Wt	2.7	2.3	1.4	0.7	1.2	1.1	0.7
Ground total							
Ws	1.6	3.8	7.1	2.3	4.5	2	3.2
Wt	2.7	9	14.9	5.4	10	5.9	5.4

Remarks;

- 1) Approximate mode of individual V increment (V:0.004m³/ind. yr, Fig.6.1.5) x Number of ind./ha of trees. Oven-dried weight.
- 2) Approximate mode of individual W increment x Number of ind./ha of trees (Ws 4kg /ind yr, Wt 6.7 kg /ind yr, Fig 6.1.6, 6.1.7). Oven-dried weight.
- 3) Only trees for charcoals
- 4) All trees

表34 葉分析結果

Collected date	Na(mg/g) ¹⁾	K(mg/g)	P(mg/g)	N(%)	Ashes(%) ²⁾
19/2/93	13.3	10.5	29.4	0.6	18.4
04/03/93	10	12.8	22.5	7	12.3
19/03/93	8.9	9.4	21.7	6.1	9.3
03/04/93	10.2	10.5	18.7	5.9	7.3
04/05/93	11.9	6.9	29.2	0.7	9.4
19/05/93	9.3	9.2	28.7	6	11.6
Average	9.5	10.3	23.4	6.2	10.3

Remarks

- 1) oven-dried weight
- 2) in weight

表35 燃料消費量(1987年)

	Unit: million ³		
	Household	Industry	Total Consumption
Java			
fuelwood	56.4	10.3	66.7
charcoal ¹⁾	1.6	-	1.6
Sub-total	58	10.3	68.3
Outer Islands			
fuelwood	42.7	3.1	45.8
charcoal ¹⁾	1	-	1
Sub-total	43.7	3.1	46.8
Indonesia			
fuelwood	99.1	13.4	112.5
charcoal ¹⁾	2.6	-	2.6
Sub-total	101.7	13.4	115.1

Remarks : 1) fuelwood equivalent

Sources : Indonesia forestry action programme, 1991

表36 1987年国内消費用燃材源の推定比率

Sources	%
Natural forests	15
Agricultural crop land	22
Home gardens	63
Total	100

Sources : Indonesia forestry action programme, 1991

表37 リアウ州の製炭用HPHH件数と計画伐採量(1991年3月)

CDK/KPH	Planned Volume (m ³)	Number of HPHH	Remarks
1. Dumai	22100	73	
2. Bengkalis	9850	34	
3. Tg. Pinang	46901	138	
4. Selatpanjang	23700	67	
5. Tembilahan	11000	14	
6. Rekgat	-	-	Rotan, Getah Jelutung
7. Bangkinang	-	-	Gaharu / kemedangan
Sub total(1+2+4)	55650	174	
Total	113.551	326	

Sources: Keadaan penerbitan mengambil hasil hutan (non kayu) di Propinsi Riau, Dinas Kehutanan 1991 (Extracted, Unpublished)

表38 調査対象地域のHPHHの伐採実績(1991年4月~1992年3月)

CDK	CDK Dumai	CDK Bengkalis	CDK Selatpanjang	Total	Unit:m ³
Volume	2080	4477	23124	29683	
Volume/No.of HPHH	28.49	131.7	345.1	170.6	

Sources: Produksi dan export arang bakau 1991 s/d 1992, CDK Dumai (Unpublished)
Realisasi produksi kayu bakau, 1992 CDK Bengkalis, (Unpublished)

表39 調査対象地域の製炭窯数

	Number of sites of kilns	Number of kilns	Remarks
CDK Dumai	62	-	1992/1993
CDK Bengkalis	-	80	1992/1993
CDK Selatpanjang	-	191	1991/1992

Sources : Peta penyebaran industri dapur arang pada CDK/KPH Dumai(Unpublished)
Jumlah dapur dan lokasi, 1992 CDK Bengkalis,(Unpublished)
Laporan tahunan 1991/1992, CDK Selatpanjang

表40 調査対象地域の伝統式・マレーシア式窯の標準的な製炭行程

Process	Days
Purchase, yarding, and selection of woods and cutting woods into certain size fitted to a kiln	7
Loading and stacking of wood into kiln	3
Burning	30
Cooling	10
Unloading of charcoal from kiln, selection and packaging	10
Total	60

Remarks : Expected by results of interviewings in sites of kilns

表41 リアウ州のマンガローブ炭輸出量と輸出額

Year	Export		Difference (%)	
	Volume(MT)	Value US\$(x1,000)	Volume	Value
1985	15,983	1009	-	-
1986	28,306	1938	+ 77.1	+ 92.1
1987	26,135	1580	- 7.7	- 4.5
1988	23,601	1631	- 9.7	- 11.8
1989	24,923	1804	+ 5.6	+ 10.6
1990	16,600	1557	- 33.4	- 13.8
1991	12,257	1127	- 26.2	- 27.6

Sources : Profile dan pengembangan "Eksport arang bakau Propinsi Riau".
Kanwil Perdagangan Riau. 1991

表42 調査対象地域でのマンガローブ炭輸出量(1991年4月～1992年3月)

Unit: MT			
CDK Dumai	CDK Bengkalis	CDK Selatpanjang	Total
2,943	2,150	8,728	13,821

Sources : Daftar : produksi panglong arang dan eksport arang CDK/KPH
Bengkalis, Laporan tahunan 1991/1992 CDK Selatpanjang,
Produksi dan export arang bakau 1991 s/d 1992, Dumai

表43 漁民30人以上の漁村における分野別選定基準
(1/2)

Desa	Type of Fishing Village					Aqua.	F-M	F-O	M-M	M-E	E-M	Poverty Line
	A1	A2	B1	B2	B3							
1 Bengkalis												
11 Ketam Putih					○	3	△	△	○	○	○	
12 Sebauk		○				3	○	△		○	○	(#)
13 Teluk Latak		○				3	○	△		○	○	
14 Penampi					○	3	○	○		○	○	
16 Bentan Air		○					○	△		○	○	
18 Jangkang			○			1	○	○	○	○	○	(#)
19 Teluk Pambang	○					3	○	○	○	○	○	
20 Muntai	○						○	○		○	○	(#)
21 Meskom					○	2	○	○		○	○	(#)
23 Sungari Alam					○	3	○	○		○	○	
26 Selat Baru	○					3	○	△	○	○	○	
28 Teluk Lancar		○				1	○	△	○	○	○	(#)
2 Tebing Tinggi												
2 Selat Panjang	○						○	△		○	○	
9 Bungur				○		1	○	△		○	○	
15 Tg.Medang				○		1	○	△	○	○	○	
18 Sonde		○				1	△	△		○	○	(#)
21 Anak Setatah					○	1	○	○	○	○	○	(#)
24 Kayu Ara					○	3	○	△	○	○	○	(#)
26 Banglas					○	3	○	○	○	○	○	
31 Alah Air					○	3	○	○		○	○	
32 Bantar					○	2	○	○		○	○	
34 Tg.Samak					○	3	○	△		○	○	
35 Beting					○	3	○	△	○	○	○	(#)
36 Tg.Kedabu			○			1	○	△		○	○	(#)
3 Merbau												
1 Teluk Belitung					○	3	△	△		○	○	
2 Mengkirau					○	3	△	△		○	○	
5 Kudap		○				2	△	△		○	○	
10 Centai					○	3	○	△		○	○	(#)
12 Pelantai					○	3	△	△		○	○	(#)
13 Bagan Melibur					○	3	△	△		○	○	(#)
15 Kuala Merbau					○	1	△	△		○	○	
16 Meranti Bunting					○	3	△	△		○	○	
17 Selat Akar					○	3	△	△		○	○	(#)
18 Teluk Ketapang					○	3	△	△		○	○	(#)

Remarks

- A1 ; Gill net, Bottom longline etc and Distribution Center
A2 ; Gill net, Bottom longline etc but Not Distribution Center
B1 ; Gombang, Ambai etc for Shrimp and Distribution Center
B2 ; Gombang, Ambai etc for Shrimp but Not Distribution Center
B3 ; Gombang, Ambai etc for Trash Fish and Not Distribution Center
Aqc.(Aquaculture) : 1; Appropriate area for pond culture, 2; Appropriate for cage culture
3; Appropriate for both culture
F-M (Fish Marketing) : ○; Near by fish export/transportation base, △; Bit far way from the base
F-O (Fisherman Organization):○; Fisherman organization is existed,△; Not sure in this Survey
M-M (Mangrove Management) :○; Mangrove forest management is necessary
M-E (Mangrove Ecology) :○; Mangrove forest is not in the conservation area
E-M (Environment matters) :○; Not necessary to be care the environmental matters
(#) ; Per Capita Net Production <= Poverty Line (Rp. 320,000)

表43 漁民30人以上の漁村における分野別選定基準
(2/2)

Desa	Type of Fishing Village					Aqua.	F-M	F-O	M-M	M-E	E-M	Poverty Line
	A1	A2	B1	B2	B3							
4 Bukit Batu												
1 Sungai Pakring					○	2	△	△		○	○	
4 Buruk Bakul		○					△	△		○	○	(#)
5 Sungai Apit												
2 Sungai Kayu Ara					○	2	△	△	○	○	○	
3 Tanjung Kuras					○	3	△	△	○	○	○	
6 Rupat												
1 Batu Panjang		○					○	△		○	○	(#)
3 Terkul		○					○	△		○	○	(#)
4 Pergam		○					△	△		○	○	(#)
5 Teluk Lecah		○					△	△		○	○	(#)
7 Teluk Rhu		○					○	○	○	○	○	(#)
8 Tanjung Medang	○						○	○	○	○	○	(#)
9 Pkl.Nyirih					○		△	△	○	○	○	(#)
10 Sungai Cingam		○				1	△	○	○	○	○	(#)
11 Makeruh		○				1	○	○	○	○	○	(#)
12 Tanjung Punak		○					○	○	○	○	○	(#)
13 Kador		○				1	○	△	○	○	○	(#)
14 Titi Akar		○					○	△	○	○	○	(#)
7 Dumai Barat												
3 Purnama		○					○	○		○	○	
8 Dumai Timur												
3 Tanjung Palas		○					○	○		○	○	
9 Bukit Kapur												
3 Teluk Makmur		○					○	○		○	○	

Remarks

A1 ; Gill net, Bottom longline etc and Distribution Center
A2 ; Gill net, Bottom longline etc but Not Distribution Center
B1 ; Gombang, Ambai etc for Shrimp and Distribution Center
B2 ; Gombang, Ambai etc for Shrimp but Not Distribution Center
B3 ; Gombang, Ambai etc for Trash Fish and Not Distribution Center
Aqc.(Aquaculture) : 1; Appropriate area for pond culture, 2; Appropriate for cage culture
3; Appropriate for both culture

F-M (Fish Marketing) : ○; Near by fish export/transportation base, △; Bit far way from the base
F-O (Fisherman Organization): ○; Fisherman organization is existed, △; Not sure in this Survey
M-M (Mangrove Management) : ○; Mangrove forest management is necessary
M-E (Mangrove Ecology) : ○; Mangrove forest is not in the conservation area
E-M (Environment matters) : ○; Not neseccary to be care the environmental matters
(#); Per Capita Net Production <= Poverty Line (Rp. 320,000)

表44 モデルマングローブ林域の林相区分・土地利用・植生区分別面積

	Forest type and landuse Vegetation type		Simbol	Area					
				Muntai	Sei Cingam	Pelantai/ Tlk.Ketapang	Total		
Mangrove	Mangrove forests	Avicennia spp.dominant forest		Av	93.5	5.7	0.4	99.6	
		Rhizophora spp. dominant forest	High Rhizophora spp. stands		HRh	-	7.3	28.7	36.0
			Medium-high Rhizophora spp. stands		MRh	-	123.0	355.6	478.6
			Low Rhizophora spp. stands		LRh	-	877.7	1,493.6	2,371.3
			Sparse low Rhizophora spp. stands		LRh-S	-	134.8	17.5	152.3
			Subtotal (Rhizophora spp.)			-	1,142.8	1,895.4	3,038.2
	Total (Mangrove forests)			93.5	1,148.5	1,895.8	3,137.8		
	Marshland	Marshlands (Non-low vegetation cover)		M1	120.1	6.4	-	126.5	
		Marshlands with low vegetation cover		M2	95.9	133.7	62.5	292.1	
		Subtotal (Marshlands)			216.0	140.1	62.5	418.6	
Total (Mangrove forests)			309.5	1,288.6	1,958.3	3,556.4			
Non-mangrove	Fores	Non-mangrove forests		NM	72.8	250.5	724.0	1,047.3	
		Total (Foersts)			166.3	1,399.0	2,619.8	4,185.1	
	Tree crops	Rubber trees		R	437.8	665.1	758.9	1,861.8	
		Coconut trees		C	1,133.9	215.6	512.7	1,862.2	
		Sago trees		S	-	-	597.0	597.0	
		Subtotal (Tree crops)			1,571.7	880.7	1,868.6	4,321.0	
	Others	Agricultural lands		A	475.6	341.8	189.3	1,006.7	
		Grasslands		G	911.4	689.6	507.7	2,108.7	
		Site of chacoal kilns		K	-	2.6	2.6	5.2	
		Settlements and facilities		.	55.3	20.8	72.3	148.4	
Ground total					3,396.3	3,474.6	5,322.8	12,193.7	

表45 Desa Muntai 漁民・漁船隻数

Dusun	Number of Fishermen	Number of Fishing Boat			Jetty
		Non-powered	Out-board	In-board	
Kelapa Sari	27	0	1	13	0
Pusaka	193	20	4	31	0
Total	220	20	5	44	0

Sources : Result of field survey

表46 Desa Muntai 動力刺網漁船の漁獲努力

	Fishing Season / Mid season	Lean season
Powered boat		
Trips/month	16.1	-
Days/trip	1.1	-
Non powered boat		
Trips/month	17.5	-
Days/trip	1.0	-

Sources : Result of field survey

表47 Desa Muntai 日平均刺網漁獲量

	Unit : kg/dav/boat		
	Fishing season	Mid season	Lean season
Powered boat	13.1	6.0	-
Non powered boat	5.0	3.3	-

Sources : Result of field survey

表48 Desa Muntai 日平均水揚量

	Unit : kg/day		
	Fishing season	Mid season	Lean season
Powered boat	641.9	294.0	0.0
Non powered boat	100.0	66.0	-
Total	741.9	360.0	0.0

Sources : Result of field survey

表49 Desa Muntai 鮮魚生産者価格

	Unit : Rp./kg			
	Present Tauke*1	Batang Tengah*1	KUD Bengkalis*1	Statistical Data*2
Narrow barred king mackerel				
Big size	2,500	3,600	3,200	3,500
Small size	1,500	-	2,500	-
Wolf herring				
Big size		3,600	3,200	2,500
Small size	1,000	-	2,500	1,750

Sources : *1; Result of field survey on August 1993.

*2 ; Laporan Informasi Harga dan Kebutuhan Pokok Nelayan. Juli, 1993

表50 Desa Sei Cingam 漁民・漁船隻数

Dusun	Number of Fishermen	Number of Fishing Boat			Jetty
		Non-powered	Out-board	In-board	
Serimenanti	15	9	0	1	0
Serimakmur	39	10	3	7	1
Pangkalah Buah	22	1	0	8	1
Total	76	20	3	16	2

Sources : Result of field survey

表51 Desa Sei Cingam 動力刺網漁船の漁獲努力

	Fishing Season / Mid season	Lean season
Powered boat		
Trips/month	10.2	15.8
Days/trip	1.5	1.0
Non powered boat		
Trips/month	17.0	14.0
Days/trip	1.0	1.0

Sources : Result of field survey

表52 Desa Sei Cingam 日平均刺網漁獲量

	Unit : kg/day/boat		
	Fishing season	Mid season	Lean season
Powered boat	16.3	7.0	4.1
Non powered boat	9.6	5.8	3.0

Sources : Result of field survey

表53 Desa Sei Cingam 日平均水揚量

	Unit : kg/day		
	Fishing season	Mid season	Lean season
Powered boat	0.0	193.8	0.0
Non powered boat	0.0	29.4	0.0
Total	0.0	223.2	0.0

Sources : Result of field survey

表54 Desa Sei Cingam 鮮魚生産者価格

	Tauke*1	KUD Rupal*1	Unit : Rp./kg
			Statistical Data*2
Narrow barred king mackerel			
Big size	3,200	3,200	3,300
Small size		2,000	
Wolf herring			
Big size	3,200	3,200	3,300
Small size		2,000	

Sources : *1; Result of field survey on August 1993.

*2 ; Laporan Informasi Harga BAP Dumai/Rupal Mai 1993

表55 Desa Pelantai 漁民・漁船数

Dusun	Number of Fishermen	Number of Fishing Boat			Jetty
		Non-powered	Out-board	In-board	
Pelantai	87	86	-	-	1
S. Kamal	-	-	-	-	-
Wonosari	-	-	-	-	-
Kengkam	62	62	-	2	1
Total	149	148	-	2	2

Sources : Result of field survey

表56 Desa Pelantai 無動力刺網漁船漁獲努力

	Fishing Season/Mid season
Trips/month	14.1
Davs/trip	1.0

Sources : Result of Field Survey

表57 Desa Pelantai 日平均刺網漁獲量

	Unit : kg/dav/boat	
	Fishing season	Mid season
Non powered boat	9.3	4.4

Sources : Result of Field Survey

表58 Asam 水道における Gombang 生産量

	Unit : kg/set/dav			
	Fishing season	Mid season	Lean season	Average
Day time ^{*1}				
Anchovies	16.8	8.0	2.8	9.2
Mysids	6.0	3.6	3.2	4.3
Others	0.4	0.4	-	0.3
	23.2	12.0	6.0	13.7
Night time(Estimated) ^{*2}				
Mysids	10.3	10.3	10.3	10.3
Shrimps	0.5	0.5	0.5	0.5
Others	1.9	1.9	1.9	1.9
Sub total	12.8	12.8	12.8	12.8
Total				
Anchovies	16.8	8.0	2.8	9.2
Mysids	16.3	13.9	13.5	14.6
Shrimps	0.5	0.5	0.5	0.5
Others	1.9	1.9	1.9	1.9
Total	35.6	24.4	18.8	26.2

Sources : *1 ; Result of field survey

*2 ; Estimated based on the result of test operation in Sep. 1993

表59 Asam 水道水質環境

	Water condition of Asam Channel	Optimum condition for Giant Sea Perch	Optimum condition for Mud Crab	Optimum condition for Giant tiger prawn
Salinity	31 ppt *1	0 - 35 ppt *2	10 - 25 ppt *3	5 - 34 ppt
DO	5 ppm *1	> 4 ppm *2	> 4 ppm *3	> 5 ppm
Tidal range	3 m *1	1 - 2 m *2	- *3	
Tidal current	Max. 0.7 m/sec *1	< 0.5 m/sec *2	- *3	

Sources : *1 ; Result of Natural Condition Survey

*2 ; Jothy, 1968; Ho, MS; Lai and Chua, MS

*3 ; Status of Mud Crab (Scylla spp) Fishery and culture in Indonesia

表60 Desa Pelantai 鮮魚消費者價格

Type of Fish	Pelantai	Unit : Rp./kg Tlk.Ketapang
Black pomfret	2,000	-
Sea catfish	2,000	2,200
Shrimps (Small size)	1,500	1,500
Rays	1,500	-
Biang biang	1,500	1,500
Bombay duck	500	400

Sources : *1; Result of field survey on August 1993.

表61 Desa Tlk. Ketapang 漁民・漁船数

Dusun	Number of Fishermen	Number of Fishing Boat			Jetty
		Non-powered	Out-board	In-board	
Terus	57	57	1	2	2
Ketapang Hulu	80	80	-	-	-
Ketapang Hilir	104	104	-	-	1
Piskul	15	15	-	-	-
Total	256	256	1	2	3

Sources : Result of field survey

表62 Desa Tlk. Ketapang 日平均 Gombang 漁獲量

	Fishing season	Mid season	Lean season
Daily average catch (kg/unit/day)			
Anchovies	16.8	8.0	2.8
Mysids	6.0	3.6	3.2
Others	0.4	0.4	-
Number of Fishing gear	87	87	87
Daily average catch (kg/day)			
Anchovies	-	-	-
Mysids	-	-	-
Others	-	-	-

Sources : Result of field survey

表63 モデル開発漁村地区における水産資源管理強化方針

Description	Muntai	Sei Cingam	Pelantai	Tlk. Ketapang
a. Resource Management Policy based on fisheries concerned with resources on the higher rank of the food chain (wolf herrings, narrow bared king mackerels, etc.)				
a-1 Strengthening fishing license and monitoring system	(*)	(*)	---	---
a-2 Monitoring the movement of fishery resources/improving means of analysis	(*)	(*)	---	---
b. Resource Management Policy based on fisheries concerned with resources on the lower rank of the food chain (mysids, shrimps, anchovies, etc.)				
b-1 Establishing, preserving and managing coastal green belt areas	---	---	(*)	(*)
b-2 Restricting bag net fishing such as Gombang, etc.	---	---	(*)	(*)
b-3 Monitoring the recovery of fishery resources / analysing the fluctuations of fishery resources	---	---	(*)	(*)
c. Planning new ways to increase fishermen income through effective use of existing resources and fishermen organization				
c-1 Organizing fishermen	(*)	(*)	(*)	(*)
c-2 Increasing in fishermen income due to effective use of existing resources	(*)	(*)	(*)	(*)
	Export value added fish through quality control by sufficient ice supply without much increasing of fishing efforts.	Export value added fish through quality control by sufficient ice supply without much increasing of fishing efforts.	Introduce aquaculture of Mud crab / Giant sea perch to part-time fishermen cutting mangrove trees as their main income sources.	Upgrade the quality of processed fish caught by Gombang through standardizing processing procedure
	Trap fishing in shallow waters / intr oduce shellfish propagation.			

Remarks : (*) ; applicable, ---- ; not applicable

表64 森林区分

Utilization classification		Symbol	Description
Coastal protective forest land	Coastal protection land	G- I	Protection zones according to mangrove greenbelt concept. All felling is prohibited except for daily life consumption of inhabitants.
	Mangrove ecosystem protection land	G- II	Nature protection zones according to mangrove greenbelt concept. Only selective cutting for selling to charcoal manufacturer or HPHH is accepted within the limits of allowable volume except for daily life consumption of inhabitants.
Productive forest land		P	All felling is accepted within the restriction of Limited Production Forests (TGHK).

表65 主な樹種の適地

Name. classes.	Watson's inundation Classes	Soil and position.
<i>Acanthus ebracteatus</i> <i>A. ilicifolius</i>	4.5	Loam or clay on river banks and clearings.
<i>Acrostichum aureum</i>	3.4.5.	Almost everywhere if light.
<i>Avicennia alba</i>	2.	Deep mud within the influence of rivers.
<i>A. intermedia</i>	2.3.	Firm mud on sea face.
<i>A. lanata</i>	2.3.	Sandy mud not far from sea; Singapore and E. Coas
<i>A. officinalis</i>	3.4.	Stiff soil on river banks.
<i>Bruguiera caryophylloides</i>	4.	New clay deposits near sea face.
<i>B. eriopetala</i>	3.4.	Loam ; often associated with <i>B. caryophylloides</i> & <i>B. parviflora</i> . Usually sporadic.
<i>B. gymnorhiza</i>	3.4.5.	Loam or sandy mud. Gregarious in dryer areas.
<i>B. parviflora</i>	3.4.	Will grow almost anywhere in mangrove if well drained.
<i>Ceriops candolleana</i>	3.4.	Loam near river mouths.
<i>Excoecaria agallocha</i>	4.5.	Clay ; often behind <i>B. caryophylloides</i> .
<i>Lumnitzera coccinea</i>	4.5.	Loam. Inland edge of mangrove. Sometimes near se
<i>L. racemosa</i>	4.5.	Clay. Sometimes behind <i>B. caryophylloides</i> .
<i>Nipa fruticans</i>	3.4.5.	River banks within the influence of fresh water.
<i>Rhizophora conjugata</i>	3.4.	Loamy mud everywhere, but not on sea face.
<i>R. mucronata</i>	2.3.	Deep mud within the influence of rivers. Not on sea face.
<i>Scyphiphora hydrophyllacea</i>	3.4.	Loam or sandy mud on river banks and open spaces
<i>Sonneratia alba</i>	3.4.	Loam ; often some distance from river banks.
<i>S. acida</i>	4.5.	Loam ; within the influence of river water.
<i>S. griffithii</i>	2.3.	Rich mud on sea-face or river banks ; often with <i>R. mucronata</i> .

Sources: Mangrove Forests of the Malay Peninsula, J. G. Watson, 1928

表66 モデルマングローブ林域の森林区分面積

Model mangrove area	Forest type	Forest management land (FML)				Sub Total	Non-FML	Total
		Coastal protective forest land		Productive forest land				
		G-I	G-II	P				
Muntai	Av	93.5	0.0	0.0	93.5	0.0	93.5	
	HRh	0.0	0.0	0.0	0.0	0.0	0.0	
	MRh	0.0	0.0	0.0	0.0	0.0	0.0	
	LRh	0.0	0.0	0.0	0.0	0.0	0.0	
	Sub total(Rh)	0.0	0.0	0.0	0.0	0.0	0.0	
	LRh-S	0.0	0.0	0.0	0.0	0.0	0.0	
	M1	120.1	0.0	0.0	120.1	0.0	120.1	
	M2	77.5	0.0	0.0	77.5	0.0	77.5	
	Others	0.0	0.0	0.0	0.0	3,105.2	3,105.2	
Total		291.1	0.0	0.0	291.1	3,105.2	3,396.3	
Cingam	Av	5.7	0.0	0.0	5.7	0.0	5.7	
	HRh	3.5	3.8	0.0	7.3	0.0	7.3	
	MRh	11.7	32.4	78.9	123.0	0.0	123.0	
	LRh	376.5	476.9	24.3	877.7	0.0	877.7	
	Sub total(Rh)	391.7	513.1	103.2	1,008.0	0.0	1,008.0	
	LRh-S	30.2	93.5	11.1	134.8	0.0	134.8	
	M1	6.4	0.0	0.0	6.4	0.0	6.4	
	M2	0.0	45.1	88.6	133.7	0.0	133.7	
	Others	0.0	0.0	0.0	0.0	2,186.0	2,186.0	
Total		434.0	651.7	202.9	1,288.6	2,186.0	3,474.6	
Pelantai/ Tk. Ketapang	Av	0.4	0.0	0.0	0.4	0.0	0.4	
	HRh	0.0	0.0	28.7	28.7	0.0	28.7	
	MRh	139.1	207.0	4.2	350.3	5.3	355.6	
	LRh	904.0	575.3	0.0	1,479.3	14.3	1,493.6	
	Sub total(Rh)	1,043.1	782.3	32.9	1,858.3	19.6	1,877.9	
	LRh-S	7.5	10.0	0.0	17.5	0.0	17.5	
	M1	0.0	0.0	0.0	0.0	0.0	0.0	
	M2	2.3	5.5	0.0	7.8	54.7	62.5	
	Others	0.0	0.0	0.0	0.0	3,364.5	3,364.5	
Total		1,053.3	797.8	32.9	1,884.0	3,438.8	5,322.8	

表67 1 窯当たりの1回の炭化生産物(推定)

(Unit:t)			
Marketable charcoal (lump)	Non-marketable charcoal (fines)	Non-carbonized woods (brands)	Ashes
12	6.7	2.7	
(45) 2)	(25)	(10)	(20)

Remarks: 1) Actual marketable charcoals are expected to be more than the above mentioned values.
2) Percentage

Sources: Interviewed results

表68 調査対象地域の許容伐採量、許容炭窯数、許容製炭量

	Dumai	Bengkalis	Selatpanjang	Total
Present				
Number of Kilns	1) 186 2)	80	191	457
Number of HPHH	3) 73	34	67	174
Total area for allowed HPHH(ha) (Mar. 1991)	4) 7,300	3,400	6,700	17,400
Total permitted Volume (m3)	5) 22,100	9,850	23,700	29,683
Felled volume (m3)	6) 2,080	4,477	23,124	29,681
Charcoal export (ton)	7) 2,943	2,150	8,728	13,821
Sustainable potential				
Annual allowable volume (m3)	10,950	5,100	10,050	26,100
Allowable number of kilns	25	12	23	60
Allowable annual charcoal production (ton)	1,200	576	1,104	2,880

Remarks : 1), 3), 5), 6), 7) See tables in sector report.

2) Number of kilns in CDK Dumai, Number of sites of kilns/mode of Number of kilns per site = 3

4) Calculated as 100ha x Number of HPHH, Mar. 1991

8) Without designation of mangrove greenbelt

表69 モデルマングローブ林域の許容伐採量、許容炭窯数、許容製炭量

	Muntai	Sei Cingam	Pelantai/ Tlk. Ketapang	Total
Present				
Number of kilns	0.0	2.5	2.8	5.3
Number of HPHH	0	4	6	10.0
Without designation of mangrove greenbelt				
Allowable area (ha)	0.0	1,142.8	1,875.8	3,018.6
Annual allowable cut volume (m3)	0.0	1,714.2	2,813.7	4,527.9
Allowable number of kilns	0.0	3.9	6.4	10.3
Annual allowable charcoal production (t)	0	187	307	494.0
Annual production of non-marketable charcoal (t)	0	42	69	111.0
With designation of mangrove greenbelt				
Allowable area (ha)	0.0	720.9	825.2	1,546.1
Annual allowable cut volume (m3)	0.0	1,081.4	1,237.8	2,319.2
Allowable number of kilns	0.0	2.5	2.8	5.3
Annual allowable charcoal production (t)	0	120	134	254.0
Annual production of non-marketable charcoal (t)	0	27	30	57.0

表70 モデルマングローブ林域造成面積・育苗本数

	Muntai	Sei Cingam	Pelantai/	Total
Area (ha) LRh-S ¹⁾	0.0	67.4 (134.8)	2.9 (5.7)	70.3 (140.5)
M1	120.1	6.4	0.0	126.5
M2 ¹⁾	48.0 (95.9)	18.0 (36)	23.0 (46.0)	89.0 (177.9)
Total	168.1 (216)	91.8 (177.2)	25.9 (51.7)	285.8 (444.9)
Planting volume (ind.)				
LRh-S R. spp	0.0	337,000.0	14,500.0	351,500.0
Others	0.0	337,000.0	14,500.0	351,500.0
M1 Av. spp	600,500.0	32,000.0	0.0	632,500.0
R. m.	600,500.0	32,000.0	0.0	632,500.0
M2 R. spp	240,000.0	90,000.0	115,000.0	445,000.0
Others	240,000.0	90,000.0	115,000.0	445,000.0
Annual planting volume (ind.)				
1	560,300.0	306,000.0	259,000.0	1,125,300.0
2	560,300.0	306,000.0	-	866,300.0
3	560,400.0	306,000.0	-	866,400.0
4	-	-	-	-
5	-	-	-	-
Annual nursery production volume(ind.)				
1	280,150.0	24,000.0	-	304,150.0
2	308,165.0	26,400.0	-	334,565.0
3	308,215.0	2,400.0	-	310,615.0
4	28,020.0	-	-	28,020.0
5	-	-	-	-

Remarks 1) Planting area in parentheses.
 2) S: For silvofishery.
 3) Including the compensatory planting

表71 Desa Muntai 施設・機材規模

Item	Specification		
a. Facilities			
1 Wharf	L		340 m
2 Building	L		295 m ²
- Market hall			40 m ²
- Office			30 m ²
- Meeting room			60 m ²
- Ice plant			40 m ²
- Insulated storage		3,000kg/day	20 m ²
- Shop			20 m ²
- Storage			50 m ²
- Work shop			20 m ²
3 Rain water supply facilities	L		30 m ³
4 Access jetty	L		900 m
5 Breakwater	L		300 m
6 Road & bridge construction	L		500 m
7 Road construction	L		2,000 m
8 Land reclamation	L		4,000 m ³
2) Equipment			
9 Powered fishing boat	L	1GT, 8HP	20
10 Transportation vessel	L	5GT, 40HP	1
11 Insulated box	I		110
12 SSB	I		1 set
13 Solar system	I		660 m ²
- Solar panel			1 set
- Battery			1 set
- Stand-by generator			1 set
14 Ice making machine	I	1,000kg/day	1 set
15 Workshop equipment	L		1 set

Remarks : I ; Imported, L ; Local

表72 マングローブ林保全・管理改善計画の事業規模

Item	Muntai	Sei Cingam	Pelantai	Tlk. Ketapang
1 Land preparation	48 ha	18 ha	19 ha	-
2 Raceway	-	3,750m x 4.0m x 0.5m	-	-
2 Nursery establishment	50m x 200m	25m x 30m	-	-
3 Potbed (Seed bed)	3,000 m ²	220 m ²	-	-
4 Office	50 m ²	-	-	-
5 Workshop	200 m ²	-	-	100 m ²
6 Afforestation				
- Seed collection	1,848 x 1000	1010 x 1000	286 x 1000	-
- Nursery practices	930 x 1000	53 x 1000	- x -	-
- Out planting (Pot planting)	930 x 1000	53 x 1000	- x -	-
- Out planting (Direct planting)	760 x 1000	867 x 1000	259 x 1000	-
- Inspection	168 ha	92 ha	26 ha	-
- Replanting (Pot planting)	90 x 1000	5 x 1000	- x -	-
- Replanting (Direct planting)	78 x 1000	87 x 1000	26 x 1000	-
- Tending	1 set	1 set	1 set	-
7 Experiment				
- Apiculture	-	1	-	339 set
- Soil improvement using charcoal	-	set	-	1 set
8 Seed of Telapia, etc.,	-	1 set	-	-

表73 Desa Sei Cingam 施設・機材規模

Item	Specification		
a. Facilities			
1 Wharf	L		130 m
2 Building	L		280 m ²
- Market hall			30 m ²
- Office			30 m ²
- Meeting room			40 m ²
- Ice plant			40 m ²
- Insulated		3,000kg/day	20 m ²
- Shop			20 m ²
- Storage			40 m ²
- Workshop			20 m ²
- Rest house			40 m ²
3 Rain water supply facilities	L		30 m ³
4 Canal, etc construction	L		500 m
5 Road construction	L		9,000 m
6 Land reclamation	L		5,000 m ³
b. Equipment			
7 Powered fishing boat	L	1GT, 8HP	20
8 Transportation vessel	L	5GT, 40HP	1
9 Insulated box	I		80
10 SSB	I		1 set
11 Solar system	I		480 m ²
- Solar panel			1 set
- Battery			1 set
- Stand-by generator			1 set
12 Ice making machine	I	700kg/day	1 set
13 Workshop equipment	L		1 set

Remark : I ; Imported, L ; Local

表74 Desa Pelantai 施設・機材規模

Item	Specification		
a. Facilities			
1 Culture pond	L	3,000m ² /pond	12
2 Building in Pelantai	L		120 m ²
- Office			30 m ²
- Meeting room			50 m ²
- Cold storage for mud crab feed			20 m ²
- Storage			20 m ²
3 Building in Kengkam	L		70 m ²
- Office			30 m ²
- Cold storage		3 ton	20 m ²
- Storage for giant sea perch			20 m ²
4 Road & bridge construction	L		400 m
5 Canal construction	L		650 m
b. Equipment			
6 Powered fishing boat	L	1GT, 8HP	
- in Pelantai			4
- in Kengkam			4
7 Gombang	L		
- in Pelantai			21 Unit
- in Kengkam			24 Unit
8 Floating cage	L		46 Unit
9 SSB	I		2
10 Solar system	I		180 m ² x2
- Solar panel			2 set
- Battery			2 set
- Stand-by generator			2 set
11 Refrigerator			2 set

Remark : I ; Imported, L ; Local

表75 スラットパンジャン種苗センター施設・機材規模

Item	Specification	
a. Facilities		
1	Sea water intake	2,200ton/day
2	Fry production building	230 m ²
	- Wet lab.	70 m ²
	- Dry Lab.	20 m ²
	- Administration office	40 m ²
	- Storage	30 m ²
	- Cold storage	3 ton 20 m ²
	- Reservoir	100ton 50 m ²
3	Green water culture pond	300ton 150 m ²
4	Rotifer culture pond	150ton 75 m ²
5	Spawning pond	Concrete 30 t 10 m ²
6	Nursery pond	3,500 m ²
7	Broodstock pond	600 m ²
b. Equipment		
8	Transportation boat	1
9	Floating cage (Broodstock)	10 x 10 x 2m 2 unit
10	Pump & other equipment for sea water intake	1 set
11	Refrigerator	1 set

Remark : I ; Imported, L ; Local

表76 Desa Tik. Ketapang 施設・機材規模

Item	Specification	
a. Facilities		
1	Dry facilities	L 1,100 m ²
	with transparent roof	
	- Dry area for Mysids	1,000 m ²
	- Dry area for Anchovies	60 m ²
	- Insulated Storage (15□ □)	40 m ²
2	Building	L 70 m ²
	- Office	30 m ²
	- Meeting room	40 m ²
3	Landing jetty	20 m
b. Equipment		
4	Cooking machine	I 1 set
5	Tunnel dryer	I 1 set
6	Tentacle remover for mysids	I 1 set
7	SSB	I 1 set
8	Solar system	I 100 m ²
	- Solar panel	1 set
	- Battery	1 set
	- Stand-by generator	1 set
9	Refrigerator	1 set

Remark : I ; Imported, L ; Local

表77 Desa Muntai 小規模漁業改善計画事業費

Item		Const. Cost (Rp.1,000)
a. Facilities		
1 Wharf	340 m	2,210
2 Building	295 m ²	259,461
3 Rain water supply facilities	30 m ³	26,813
4 Access jetty	900 m	476,190
5 Breakwater	300 m	609,570
6 Road & bridge construction	500 m	137,150
7 Road construction	2,000 m	494,000
8 Land reclamation	4,000 m ³	68,900
Sub-total		2,074,293
2) Equipment		
9 Powered fishing boat	20	78,000
10 Transportation vessel	1	6,760
11 Insulated box	110	76,230
12 SSB	1 set	5,940
13 Solar system	660 m ²	
- Solar panel	1 set	980,100
- Battery	1 set	100,624
- Stand-by generator	1 set	62,726
14 Ice making machine	1 set	158,400
15 Workshop equipment	1 set	9,900
Sub-total		1,478,680
3) Total		3,552,973
4) Consultant Fee		284,238
5) Contingency		355,297
Grand-total		4,192,508

表78 Desa Sei Cingam 小規模漁業改善計画事業費

Item		Const. Cost (Rp.1,000)
a. Facilities		
1 Wharf	130 m	73,938
2 Building	280 m ²	247,507
3 Rain water supply facilities	30 m ³	26,813
4 Canal construction	500 m	39,000
5 Road construction	9,000 m	702,000
6 Land reclamation	5,000 m ³	91,325
Sub-total		1,180,582
b. Equipment		
7 Powered fishing boat	20	78,000
8 Transportation vessel	1	6,760
9 Insulated box	80	55,440
10 SSB	1 set	5,940
11 Solar system	480 m ²	
- Solar panel	1 set	712,800
- Battery	1 set	73,181
- Stand-by generator	1 set	45,619
12 Ice making machine	1 set	158,400
13 Workshop equipment	1 set	9,900
Sub-total		1,146,040
3) Total		2,326,622
4) Consultant Fee		186,130
5) Contingency		232,662
Grand-total		2,745,414

表79 Desa Pelantai 小規模漁業改善計画事業費

Item		Const. Cost (Rp.1,000)
a. Facilities		
1	Culture pond	12 587,730
2	Building in Pelantai	120 m ² 120,003
3	Building in Kengkam	70 m ² 80,158
4	Road & bridge construction	400 m 18,525
5	Canal construction	650 m 4,225
	Sub-total	810,641
b. Equipment		
6	Powered fishing boat	
	- in Pelantai	4 15,600
	- in Kengkam	4 15,600
7	Gombang	
	- in Pelantai	21 Unit 29,531
	- in Kengkam	24 Unit 33,750
8	Floating cage	46 Unit 103,500
9	SSB	2 11,880
10	Solar system	180 m ² x2
	- Solar panel	2 set 534,600
	- Battery	2 set 54,886
	- Stand-by generator	2 set 34,214
11	Refrigerator	2 set 79,200
	Sub-total	912,761
3)	Total	1,738,027
4)	Consultant Fee	139,042
5)	Contingency	173,803
	Grand-total	2,050,872

表80 スラットパンジャン種苗センター事業費

Item		Const. Cost (Rp.1,000)
a. Facilities		
1	Sea water intake	396,000
2	Fry production building	230 m ² 299,306
3	Green water culture pond	150 m ² 2,449
4	Rotifer culture pond	75 m ² 1,224
5	Spawning pond	10 m ² 163
6	Nursery pond	3,500 m ² 57,140
7	Broodstock pond	600 m ² 9,796
	Sub-total	766,078
b. Equipment		
8	Transportation boat	1 6,760
9	Floating cage (Broodstock)	2 unit 14,063
10	Pump & other equipment for sea water intake	1 set 118,800
11	Refrigerator	1 set 39,600
	Sub-total	179,223
3)	Total	945,300
4)	Consultant Fee	75,624
5)	Contingency	94,530
	Grand-total	1,115,455

表81 Desa Tlk. Ketapang 小規模漁業開発計画事業費

Item		Const. Cost (Rp.1,000)
a. Facilities		
1 Dry facilities	1,100 m ²	488,288
2 Building	70 m ²	80,158
3 Landing jetty	20 m	10,582
Sub-total		579,028
b. Equipment		
4 Cooling machine	1 set	17,820
5 Tunnel dryer	1 set	59,400
6 Tentacle remover for mysid	1 set	33,660
7 SSB	1 set	5,940
8 Solar system	100 m ²	
- Solar panel	1 set	148,500
- Battery	1 set	15,246
- Stand-by generator	1 set	9,504
9 Refrigerator	1 set	39,600
Sub-total		290,070
3) Total		869,098
4) Consultant Fee		69,528
5) Contingency		86,910
Grand-total		1,025,535

表82 マングローブ林保全・管理改善計画の事業費

Item	Unit : Rp.1000				
	Total	Muntai	Sei Cingam	Pelantai	Tlk. Ketapang
1 Land preparation	2,295,000	1,080,000	787,500	427,500	-
2 Raceway	56,250	-	56,250	-	-
2 Nursery establishment	55,440	52,500	2,940	-	-
3 Potbed (Seed bed)	52,595	47,814	1,594	3,188	-
4 Office	39,845	39,845	-	-	-
5 Workshop	15,938	-	-	-	15,938
6 Afforestation	893,835	692,982	155,316	45,537	-
- Seed collection	172,296	133,056	18,648	20,592	-
- Nursery practices	200,532	189,720	10,812	-	-
- Out planting (Pot)	212,328	200,880	11,448	-	-
- Out planting (Direct)	105,780	65,360	18,060	22,360	-
- Inspection	6,416	4,687	1,004	725	-
- Replanting (Pot)	21,168	20,088	1,080	-	-
- Replanting (Direct)	14,719	9,120	2,479	3,120	-
- Tending	73,324	62,291	6,353	4,680	-
7 Experiment	806,563	685,202	69,884	51,477	17,967
- Apiculture	17,967	-	-	-	4,800
- Soil improvement	8,960	-	4,160	-	-
8 Seed of Tilapia, etc.,	3,000	-	3,000	-	-
Total	3,511,563	1,904,913	1,099,640	468,306	38,705
Consultant Fee	280,924	152,393	87,971	37,464	3,096
Contingency	351,157	190,491	109,964	46,831	3,871
Grand-total	4,143,644	2,247,797	1,297,575	552,601	45,672

表83 施設の耐用年数

Item	Unit : years	
	Life span	
1 Building		25
2 Dry facilities		25
3 Rain water supply facilities		30
4 Wooden jetty		10
5 Wooden breakwater		10
6 Powered fishing boat		7
7 Transportation vessel		7
8 Gombang		5
9 Floating cage		4
10 Insulated box		5
11 SSB		10
12 Solar system		
- Solar panel		20
- Battery		5
- Stand-by generator		10
13 Ice making machine		15
14 Refrigerator		15
15 Pump & other equipment for sea water intake		10
16 Cooking machine		15
17 Tunnel dryer		15
18 Tentacle remover for mysid		15
19 Workshop equipment		10

表84 Desa Muntai における小規模漁業開発計画の収支

	Unit : Rp.1000					
	1997	1998	1999	2000	2001	On and after 2002
1. Revenue	500,248	554,234	621,591	692,776	767,784	846,613
a. Exports of fresh fish	477,747	531,733	599,090	670,275	745,283	824,112
b. Sales of ice	4,121	4,121	4,121	4,121	4,121	4,121
c. Charterage of fishing boats	18,380	18,380	18,380	18,380	18,380	18,380
2. Expenditure	595,459	618,548	647,814	678,339	710,117	743,149
a. Operation cost	255,339	278,427	307,694	338,218	369,996	403,029
- Personnel expense	9,000	9,000	9,000	9,000	9,000	9,000
- Purchase of fresh fish	238,874	261,119	289,333	318,745	349,351	381,152
- Fish transportation	7,465	8,308	9,361	10,473	11,645	12,877
b. Maintenance cost	105,372	105,372	105,372	105,372	105,372	105,372
c. Depreciation	234,749	234,749	234,749	234,749	234,749	234,749
3. Profit before depreciation	139,538	170,435	208,526	249,186	292,416	338,213
4. Net profit	-95,211	-64,314	-26,223	14,437	57,667	103,464

表85 Desa Sei Cingam における小規模漁業開発計画の収支

	Unit : Rp.1000					On and after 2002
	1998	1999	2000	2001	2002	
1. Revenue	322,772	349,194	376,692	417,681	460,817	506,109
a. Exports of fresh fish	301,965	328,387	355,885	396,874	440,010	485,302
b. Sales of ice	2,427	2,427	2,427	2,427	2,427	2,427
c. Charterage of fishing boats	18,380	18,380	18,380	18,380	18,380	18,380
2. Expenditure	342,029	353,454	365,283	383,688	402,897	422,915
a. Operation cost	164,700	176,125	187,954	206,359	225,568	245,586
- Personnel expense	9,000	9,000	9,000	9,000	9,000	9,000
- Purchase of fresh fish	150,982	161,261	171,877	188,731	206,255	224,453
- Fish transportation	4,718	5,864	7,077	8,628	10,313	12,133
b. Maintenance cost	59,261	59,261	59,261	59,261	59,261	59,261
c. Depreciation	118,068	118,068	118,068	118,068	118,068	118,068
3. Profit before depreciation	98,811	113,808	129,477	152,062	175,989	201,263
4. Net profit	-19,257	-4,260	11,409	33,993	57,920	83,194

表86 Desa Pelantai における小規模漁業開発計画の収支

	Unit : Rp.1000
1. Revenue	487,122
a. Sales of giant Sea Perch	
- Fry	363,580
- Adult fish	22,050
b. Sales of mud crab	84,960
c. Sales of anchovies	8,694
d. Sales of shrimps	7,838
2. Expenditure	386,037
a. Operation cost	262,008
- Personnel expense	2,400
- Purchase of fry	185,900
- Payment to fishermen	67,320
- Boat operation cost	6,388
b. Maintenance cost	25,438
c. Depreciation	98,591
3. Profit before depreciation	199,676
4. Net profit	101,085

表87 孵化場の事業収支

	Unit : Rp.1000
1. Revenue	185,900
a. Sales of giant sea perch fry	152,000
b. Sales of mud crab fry	33,900
2. Expenditure	119,048
a. Operation cost	72,942
- Personnel expense	38,400
- Feed cost	29,654
- Electric cost	2,888
- Fuel cost for boat	2,000
b. Maintenance cost	15,132
c. Depreciation	30,974
3. Profit before depreciation	97,826
4. Net benefit	66,852

表88 Desa Tlk. Ketapang における小規模漁業開発計画の収支

	Unit : Rp.1000				
Description	1996	1997	1998	1999	2000
1. Revenue	260,519	279,125	297,732	316,336	334,942
a. Sales of dried anchovy	145,315	157,425	169,535	181,643	193,753
b. Sales of dried mysid	90,945	97,441	103,938	110,434	116,930
c. Sales of fresh shrimps	24,259	24,259	24,259	24,259	24,259
2. Expenditure	287,865	287,865	287,865	287,865	287,865
a. Operation cost	224,231	224,231	224,231	224,231	224,231
- Personnel expense	3,600	3,600	3,600	3,600	3,600
- Payment to fishermen	219,231	219,231	219,231	219,231	219,231
- Fuel cost	1,400	1,400	1,400	1,400	1,400
b. Maintenance cost	17,787	17,787	17,787	17,787	17,787
c. Depreciation	45,847	45,847	45,847	45,847	45,847
3. Profit before depreciation	18,501	37,107	55,714	74,318	92,924
4. Net profit	-27,346	-8,740	9,867	28,471	47,077

表09 損益計算書および現預金収支：小規模漁業開発計画

(1/2)

Description	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	
	-1	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
Income statement																		
1. Revenue	-	260,519	1,452,595	1,847,760	1,960,143	2,077,432	2,193,429	2,315,394	2,360,686	2,360,686	2,360,686	2,360,686	2,360,686	2,360,686	2,360,686	2,360,686	2,360,686	2,360,686
2. Expenditure	-	435,133	1,606,951	1,986,435	2,027,127	2,069,480	2,119,662	2,171,904	2,191,922	2,191,922	2,191,922	2,191,922	2,180,156	2,168,391	2,156,625	2,144,859	2,133,094	
a. Operation cost	-	278,902	820,280	1,008,069	1,048,760	1,091,113	1,141,296	1,193,537	1,213,555	1,213,555	1,213,555	1,213,555	1,213,555	1,213,555	1,213,555	1,213,555	1,213,555	
b. Maintenance cost	-	17,787	165,006	224,527	224,527	224,527	224,527	224,527	224,527	224,527	224,527	224,527	224,527	224,527	224,527	224,527	224,527	
c. Depreciation	-	45,847	410,161	518,527	518,527	518,527	518,527	518,527	518,527	518,527	518,527	518,527	518,527	518,527	518,527	518,527	518,527	
d. Interest	-	92,597	210,604	235,313	235,313	235,313	235,313	235,313	235,313	235,313	235,313	235,313	223,547	211,781	200,016	188,250	176,484	
3. Profit before D & I	-	-36,170	467,108	615,164	686,856	761,791	827,606	897,329	922,603	922,603	922,603	922,603	922,603	922,603	922,603	922,603	922,603	922,603
4. Net profit	-	-174,614	-153,656	-138,676	-66,984	7,952	73,766	143,489	168,764	168,764	168,764	168,764	180,529	192,295	204,060	215,826	227,592	
Cash flow																		
1. Source of fund	4,237,244	5,530,773	1,629,211	379,851	451,543	526,479	592,293	662,017	687,291	687,291	687,291	687,291	699,056	710,822	722,588	734,353	746,119	
a. Subsidy	1,150,681	1,597,210	549,083	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
b. Government fund	-	128,767	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
c. Loan	3,086,563	3,933,563	823,624	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
d. Depreciation	-	45,847	410,161	518,527	518,527	518,527	518,527	518,527	518,527	518,527	518,527	518,527	518,527	518,527	518,527	518,527	518,527	
e. Net profit	-	-174,614	-153,656	-138,676	-66,984	7,952	73,766	143,489	168,764	168,764	168,764	168,764	180,529	192,295	204,060	215,826	227,592	
2. Use of fund	4,237,244	5,530,773	1,501,474	-	-	14,063	103,500	295,020	135,381	130,023	188,260	510,988	1,903,569	670,268	495,688	398,948	547,748	
a. Construction	4,237,244	5,530,773	1,372,707	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
b. Reconstruction	-	-	-	-	-	14,063	103,500	295,020	135,381	130,023	188,260	118,800	1,511,381	278,080	103,500	6,760	155,560	
c. Government fund repayment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
d. Loan repayment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
3. Balance of govern. fund at end	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
4. Balance of loan at end	3,086,563	7,020,127	7,843,751	7,843,751	7,843,751	7,843,751	7,843,751	7,843,751	7,843,751	7,843,751	7,843,751	7,451,563	7,059,376	6,667,188	6,275,001	5,882,813	5,490,626	
5. Balance of cash flow	-	-	-127,738	507,589	959,132	1,471,548	1,960,341	2,327,338	2,879,247	3,436,516	3,935,546	4,111,850	2,907,337	2,947,891	3,174,792	3,510,197	3,708,568	
Interest																		
Grace period (years)																		
Repayment periods (years)																		
Ratio of subsidy																		

表89 損益計算書および現預金収支：小規模漁業開発計画

(2/2)

Description	16	17	18	19	20	21	22	23	24	25	26	27	28	29
	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Income statement														
1. Revenue	2,360,686	2,360,686	2,360,686	2,360,686	2,360,686	2,360,686	2,360,686	2,360,686	2,360,686	2,360,686	2,360,686	2,360,686	2,360,686	2,360,686
2. Expenditure	2,121,328	2,109,563	2,097,797	2,086,031	2,074,266	2,062,500	2,050,734	2,038,969	2,027,203	2,015,438	2,003,672	1,991,906	1,980,141	1,968,375
a. Operation cost	1,213,555	1,213,555	1,213,555	1,213,555	1,213,555	1,213,555	1,213,555	1,213,555	1,213,555	1,213,555	1,213,555	1,213,555	1,213,555	1,213,555
b. Maintenance cost	224,527	224,527	224,527	224,527	224,527	224,527	224,527	224,527	224,527	224,527	224,527	224,527	224,527	224,527
c. Depreciation	518,527	518,527	518,527	518,527	518,527	518,527	518,527	518,527	518,527	518,527	518,527	518,527	518,527	518,527
d. Interest	164,719	152,953	141,188	129,422	117,656	105,891	94,125	82,359	70,594	58,828	47,063	35,297	23,531	11,766
3. Profit before D & I	922,603	922,603	922,603	922,603	922,603	922,603	922,603	922,603	922,603	922,603	922,603	922,603	922,603	922,603
4. Net profit	239,357	251,123	262,889	274,654	286,420	298,185	309,951	321,717	333,482	345,248	357,014	368,779	380,545	392,310
Cash flow														
1. Source of fund	757,884	769,650	781,416	793,181	804,947	816,713	828,478	840,244	852,009	863,775	875,541	887,306	899,072	910,838
a. Subsidy	-	-	-	-	-	-	-	-	-	-	-	-	-	-
b. Government fund	-	-	-	-	-	-	-	-	-	-	-	-	-	-
c. Loan	-	-	-	-	-	-	-	-	-	-	-	-	-	-
d. Depreciation	518,527	518,527	518,527	518,527	518,527	518,527	518,527	518,527	518,527	518,527	518,527	518,527	518,527	518,527
e. Net profit	239,357	251,123	262,889	274,654	286,420	298,185	309,951	321,717	333,482	345,248	357,014	368,779	380,545	392,310
2. Use of fund	1,023,631	782,708	392,188	392,188	525,050	3,528,529	1,484,965	476,948	406,250	777,965	1,146,830	768,315	392,188	611,648
a. Construction	-	-	-	-	-	-	-	-	-	-	-	-	-	-
b. Reconstruction	631,443	390,521	-	-	132,863	3,136,341	1,092,778	84,760	14,063	385,778	754,642	376,128	-	219,460
c. Government fund repayment	-	-	-	-	-	-	-	-	-	-	-	-	-	-
d. Loan repayment	392,188	392,188	392,188	392,188	392,188	392,188	392,188	392,188	392,188	392,188	392,188	392,188	392,188	392,188
3. Balance of govern. fund at end	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4. Balance of loan at end	5,098,438	4,706,251	4,314,063	3,921,876	3,529,688	3,137,500	2,745,313	2,353,125	1,960,938	1,568,750	1,176,563	784,375	392,188	0
5. Balance of cash flow	3,442,822	3,429,764	3,818,992	4,219,986	4,499,883	1,788,067	1,131,580	1,494,876	1,940,636	2,026,446	1,755,157	1,874,148	2,381,032	2,680,222
Interest	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Grace period (years)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Repayment periods (years)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ratio of subsidy	-	-	-	-	-	-	-	-	-	-	-	-	-	29.6%

表90 損益計算書および現預金収支：Muntai

(2/2)

Description	16	17	18	19	20	21	22	23	24	25	26	27	28	29
	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Income statement														
1. Revenue	846,613	846,613	846,613	846,613	846,613	846,613	846,613	846,613	846,613	846,613	846,613	846,613	846,613	846,613
2. Expenditure	787,171	784,026	780,882	777,738	774,593	771,449	768,304	765,160	762,016	758,871	755,727	752,582	749,438	746,294
a. Operation cost	403,029	403,029	403,029	403,029	403,029	403,029	403,029	403,029	403,029	403,029	403,029	403,029	403,029	403,029
b. Maintenance cost	105,372	105,372	105,372	105,372	105,372	105,372	105,372	105,372	105,372	105,372	105,372	105,372	105,372	105,372
c. Depreciation	234,749	234,749	234,749	234,749	234,749	234,749	234,749	234,749	234,749	234,749	234,749	234,749	234,749	234,749
d. Interest	44,021	40,877	37,733	34,588	31,444	28,299	25,155	22,011	18,866	15,722	12,578	9,433	6,289	3,144
3. Profit before D & I	338,213	338,213	338,213	338,213	338,213	338,213	338,213	338,213	338,213	338,213	338,213	338,213	338,213	338,213
4. Net profit	59,442	62,587	65,731	68,875	72,020	75,164	78,309	81,453	84,597	87,742	90,886	94,031	97,175	100,319
Cash flow														
1. Sources of fund	294,191	297,336	300,480	303,625	306,769	309,914	313,058	316,202	319,346	322,491	325,635	328,780	331,924	335,068
a. Subsidy	-	-	-	-	-	274,889	-	-	-	-	-	-	-	-
b. Government fund	-	-	-	-	-	-	-	-	-	-	-	-	-	-
c. Loan	-	-	-	-	-	-	-	-	-	-	-	-	-	-
d. Depreciation	234,749	234,749	234,749	234,749	234,749	234,749	234,749	234,749	234,749	234,749	234,749	234,749	234,749	234,749
e. Net profit	59,442	62,587	65,731	68,875	72,020	75,164	78,309	81,453	84,597	87,742	90,886	94,031	97,175	100,319
2. Use of fund	440,066	104,813	104,813	104,813	104,813	2,426,093	313,058	256,217	104,813	104,813	541,127	104,813	104,813	189,573
a. Construction	-	-	-	-	-	-	-	-	-	-	-	-	-	-
b. Reconstruction	335,254	-	-	-	-	2,321,280	84,760	-	-	-	436,314	-	-	84,760
c. Government fund repayment	-	-	-	-	-	-	123,485	151,404	-	-	-	-	-	-
d. Loan repayment	104,813	104,813	104,813	104,813	104,813	104,813	104,813	104,813	104,813	104,813	104,813	104,813	104,813	104,813
3. Balance of govern. fund at end	-	-	-	-	-	274,889	151,404	-	-	-	-	-	-	-
4. Balance of loan at end	1,362,565	1,257,752	1,152,940	1,048,127	943,314	838,502	733,689	628,876	524,064	419,251	314,438	209,625	104,813	-0
5. Balance of cash flow	1,052,332	1,244,855	1,440,522	1,639,334	1,841,290	-0	-	59,985	274,519	492,197	276,706	500,673	727,784	873,280
Interest							3.0%							
Grace period (years)							10							
Repayment periods (years)							20							
Ratio of subsidy							50.0%							

表91 損益計算書および現預金収支 : Sei Cingam

(1/2)

Description	-1	0	1	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	
Income statement																		
1. Revenue	-	-	322,772	349,194	376,692	417,681	460,817	506,109	506,109	506,109	506,109	506,109	506,109	506,109	506,109	506,109	506,109	506,109
2. Expenditure	-	24,709	382,005	393,430	405,259	423,663	442,872	462,890	462,890	462,890	462,890	462,890	462,890	460,419	457,948	455,477	453,006	450,536
a. Operation cost	-	-	164,700	176,125	187,954	206,359	225,568	245,586	245,586	245,586	245,586	245,586	245,586	245,586	245,586	245,586	245,586	245,586
b. Maintenance cost	-	-	59,521	59,521	59,521	59,521	59,521	59,521	59,521	59,521	59,521	59,521	59,521	59,521	59,521	59,521	59,521	59,521
c. Depreciation	-	-	108,366	108,366	108,366	108,366	108,366	108,366	108,366	108,366	108,366	108,366	108,366	108,366	108,366	108,366	108,366	108,366
d. Interest	-	24,709	49,417	49,417	49,417	49,417	49,417	49,417	49,417	49,417	49,417	49,417	46,947	44,476	42,005	39,534	37,063	34,592
3. Profit before D & I	-	-	98,551	113,548	129,217	151,802	175,729	201,003	201,003	201,003	201,003	201,003	201,003	201,003	201,003	201,003	201,003	201,003
4. Net profit	-	-24,709	-59,233	-44,236	-28,567	-5,982	17,945	43,219	43,219	43,219	43,219	43,219	43,219	45,690	48,161	50,632	53,103	55,573
Cash flow																		
1. Source of fund	1,372,707	1,372,707	49,134	64,131	79,800	102,384	126,311	151,585	151,585	151,585	151,585	151,585	151,585	154,056	156,527	158,998	161,469	163,940
a. Subsidy	549,083	549,083	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
b. Government fund	-	24,709	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
c. Loan	823,624	823,624	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
d. Depreciation	-	108,366	108,366	108,366	108,366	108,366	108,366	108,366	108,366	108,366	108,366	108,366	108,366	108,366	108,366	108,366	108,366	108,366
e. Net profit	-	-24,709	-59,233	-44,236	-28,567	-5,982	17,945	43,219	43,219	43,219	43,219	43,219	43,219	45,690	48,161	50,632	53,103	55,573
2. Use of fund	1,372,707	1,372,707	24,709	-	-	-	-	128,621	-	84,760	-	-	82,362	346,380	82,362	82,362	82,362	167,122
a. Construction	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
b. Reconstruction	-	-	-	-	-	-	-	128,621	-	84,760	-	-	264,018	-	-	-	-	84,760
c. Government fund repayment	-	-	24,709	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
d. Loan repayment	-	-	-	-	-	-	-	-	-	-	-	-	-	82,362	82,362	82,362	82,362	82,362
3. Balance of govern. fund at end	-	24,709	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4. Balance of loan at end	823,624	1,647,248	1,647,248	1,647,248	1,647,248	1,647,248	1,647,248	1,647,248	1,647,248	1,647,248	1,647,248	1,647,248	1,564,836	1,482,524	1,400,161	1,317,799	1,235,436	1,153,074
5. Balance of cash flow	-	-24,425	88,556	168,356	270,740	397,051	420,016	571,601	638,427	790,012	859,235	666,912	741,076	817,712	896,819	893,636		
Interest	3.0%																	
Grace period (years)	10																	
Repayment periods (years)	20																	
Ratio of subsidy	40.0%																	

表91 損益計算書および現預金収支 : Sei Cingam

(2/2)

Description	16	17	18	19	20	21	22	23	24	25	26	27	28	29
	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Income statement														
1. Revenue	506,109	506,109	506,109	506,109	506,109	506,109	506,109	506,109	506,109	506,109	506,109	506,109	506,109	506,109
2. Expenditure	448,065	445,594	443,123	440,652	438,181	435,710	433,240	430,769	428,298	425,827	423,356	420,885	418,414	415,943
a. Operation cost	245,586	245,586	245,586	245,586	245,586	245,586	245,586	245,586	245,586	245,586	245,586	245,586	245,586	245,586
b. Maintenance cost	59,521	59,521	59,521	59,521	59,521	59,521	59,521	59,521	59,521	59,521	59,521	59,521	59,521	59,521
c. Depreciation	108,366	108,366	108,366	108,366	108,366	108,366	108,366	108,366	108,366	108,366	108,366	108,366	108,366	108,366
d. Interest	34,592	32,121	29,650	27,180	24,709	22,238	19,767	17,296	14,825	12,354	9,883	7,413	4,942	2,471
3. Profit before D & I	201,003	201,003	201,003	201,003	201,003	201,003	201,003	201,003	201,003	201,003	201,003	201,003	201,003	201,003
4. Net profit	58,044	60,515	62,986	65,457	67,928	70,399	72,869	75,340	77,811	80,282	82,753	85,224	87,695	90,166
Cash flow														
1. Source of fund	166,411	168,882	171,352	173,823	176,294	178,765	181,236	183,707	186,178	188,649	191,119	193,590	196,061	198,532
a. Subsidy	-	-	-	-	-	-	-	-	-	-	-	-	-	-
b. Government fund	-	-	-	-	-	-	-	-	-	-	-	-	-	-
c. Loan	-	-	-	-	-	-	-	-	-	-	-	-	-	-
d. Depreciation	108,366	108,366	108,366	108,366	108,366	108,366	108,366	108,366	108,366	108,366	108,366	108,366	108,366	108,366
e. Net profit	58,044	60,515	62,986	65,457	67,928	70,399	72,869	75,340	77,811	80,282	82,753	85,224	87,695	90,166
2. Use of fund	369,383	82,362	82,362	82,362	82,362	82,362	82,362	82,362	82,362	82,362	82,362	82,362	82,362	82,362
a. Construction	-	-	-	-	-	-	-	-	-	-	-	-	-	-
b. Reconstruction	287,021	-	-	-	-	976,818	84,760	-	-	-	376,128	-	-	84,760
c. Government fund repayment	-	-	-	-	-	-	-	-	-	-	-	-	-	-
d. Loan repayment	82,362	82,362	82,362	82,362	82,362	82,362	82,362	82,362	82,362	82,362	82,362	82,362	82,362	82,362
3. Balance of govern. fund at end	1,070,711	988,349	905,987	823,624	741,262	658,899	576,537	494,175	411,812	329,450	247,087	164,725	82,362	-0
4. Balance of loan at end	690,663	777,183	866,173	957,634	1,051,565	1,141,150	1,230,619	1,320,088	1,409,557	1,499,026	1,588,495	1,677,964	1,767,433	1,856,902
5. Balance of cash flow	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Interest	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Grace period (years)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Repayment periods (years)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ratio of subsidy	-	-	-	-	-	-	-	-	-	-	-	-	-	-

表92 損益計算書および現預金収支 : Pelantai

(1/2)

Description	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Income statement																	
1. Revenue	-	487,122	487,122	487,122	487,122	487,122	487,122	487,122	487,122	487,122	487,122	487,122	487,122	487,122	487,122	487,122	487,122
2. Expenditure	-	448,294	448,294	448,294	448,294	448,294	448,294	448,294	448,294	448,294	448,294	448,294	445,218	442,142	439,065	435,989	432,913
a. Operation cost	-	262,008	262,008	262,008	262,008	262,008	262,008	262,008	262,008	262,008	262,008	262,008	262,008	262,008	262,008	262,008	262,008
b. Maintenance cost	-	26,169	26,169	26,169	26,169	26,169	26,169	26,169	26,169	26,169	26,169	26,169	26,169	26,169	26,169	26,169	26,169
c. Depreciation	-	98,591	98,591	98,591	98,591	98,591	98,591	98,591	98,591	98,591	98,591	98,591	98,591	98,591	98,591	98,591	98,591
d. Interest	-	61,526	61,526	61,526	61,526	61,526	61,526	61,526	61,526	61,526	61,526	61,526	58,450	55,374	52,297	49,221	46,145
3. Profit before D & I	-	198,945	198,945	198,945	198,945	198,945	198,945	198,945	198,945	198,945	198,945	198,945	198,945	198,945	198,945	198,945	198,945
4. Net profit	-	38,827	38,827	38,827	38,827	38,827	38,827	38,827	38,827	38,827	38,827	38,827	41,904	44,980	48,056	51,133	54,209
Cash flow																	
1. Source of fund	2,050,872	137,419	137,419	137,419	137,419	137,419	137,419	137,419	137,419	137,419	137,419	137,419	140,495	143,571	146,648	149,724	152,800
a. Subsidy	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
b. Government fund	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
c. Loan	2,050,872	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
d. Depreciation	-	98,591	98,591	98,591	98,591	98,591	98,591	98,591	98,591	98,591	98,591	98,591	98,591	98,591	98,591	98,591	98,591
e. Net profit	-	38,827	38,827	38,827	38,827	38,827	38,827	38,827	38,827	38,827	38,827	38,827	41,904	44,980	48,056	51,133	54,209
2. Use of fund	2,050,872	-	-	-	-	103,500	118,167	-	31,200	103,500	-	266,805	102,544	206,044	102,544	133,744	299,910
a. Construction	2,050,872	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
b. Reconstruction	-	-	-	-	-	103,500	118,167	-	31,200	103,500	-	164,261	-	103,500	-	31,200	197,567
c. Government fund repayment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
d. Loan repayment	-	-	-	-	-	-	-	-	-	-	-	102,544	102,544	102,544	102,544	102,544	102,544
3. Balance of govern. fund at end	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4. Balance of loan at end	2,050,872	2,050,872	2,050,872	2,050,872	2,050,872	2,050,872	2,050,872	2,050,872	2,050,872	2,050,872	2,050,872	1,948,329	1,845,785	1,743,241	1,640,698	1,538,154	1,435,611
5. Balance of cash flow	-	137,419	274,837	412,256	549,675	583,594	602,846	740,264	846,483	880,402	1,017,870	888,434	926,386	863,913	908,018	923,998	776,888
Interest	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Grace period (years)	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Repayment periods (years)	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ratio of subsidy	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

表92 損益計算書および現預金収支 : Peiantai

Description	(2/2)													
	17	18	19	20	21	22	23	24	25	26	27	28	29	30
	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Income statement														
1. Revenue	487,122	487,122	487,122	487,122	487,122	487,122	487,122	487,122	487,122	487,122	487,122	487,122	487,122	487,122
2. Expenditure	429,836	426,760	423,684	420,607	417,531	414,455	411,378	408,302	405,226	402,150	399,073	395,997	392,921	389,844
a. Operation cost	262,008	262,008	262,008	262,008	262,008	262,008	262,008	262,008	262,008	262,008	262,008	262,008	262,008	262,008
b. Maintenance cost	26,169	26,169	26,169	26,169	26,169	26,169	26,169	26,169	26,169	26,169	26,169	26,169	26,169	26,169
c. Depreciation	98,591	98,591	98,591	98,591	98,591	98,591	98,591	98,591	98,591	98,591	98,591	98,591	98,591	98,591
d. Interest	43,068	39,992	36,916	33,839	30,763	27,687	24,610	21,534	18,458	15,382	12,305	9,229	6,153	3,076
3. Profit before D & I	198,945	198,945	198,945	198,945	198,945	198,945	198,945	198,945	198,945	198,945	198,945	198,945	198,945	198,945
4. Net profit	57,285	60,361	63,438	66,514	69,590	72,667	75,743	78,819	81,896	84,972	88,048	91,125	94,201	97,277
Cash flow														
1. Source of fund	155,877	158,953	162,029	165,106	168,182	171,258	174,334	177,411	180,487	183,563	186,640	189,716	192,792	195,869
a. Subsidy	-	-	-	-	-	-	-	-	-	-	-	-	-	-
b. Government fund	-	-	-	-	-	-	-	-	-	-	-	-	-	-
c. Loan	-	-	-	-	-	-	-	-	-	-	-	-	-	-
d. Depreciation	98,591	98,591	98,591	98,591	98,591	98,591	98,591	98,591	98,591	98,591	98,591	98,591	98,591	98,591
e. Net profit	57,285	60,361	63,438	66,514	69,590	72,667	75,743	78,819	81,896	84,972	88,048	91,125	94,201	97,277
2. Use of fund	206,044	192,544	192,544	192,544	192,544	192,544	192,544	192,544	192,544	192,544	192,544	192,544	192,544	192,544
a. Construction	-	-	-	-	-	-	-	-	-	-	-	-	-	-
b. Reconstruction	103,500	-	-	-	802,361	31,200	-	-	103,500	318,328	-	-	134,700	-
c. Government fund repayment	-	-	-	-	-	-	-	-	-	-	-	-	-	-
d. Loan repayment	102,544	102,544	102,544	102,544	102,544	102,544	102,544	102,544	102,544	102,544	102,544	102,544	102,544	102,544
3. Balance of govern. fund at end	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4. Balance of loan at end	1,333,067	1,230,523	1,127,980	1,025,436	922,892	820,349	717,805	615,262	512,718	410,174	307,631	205,087	102,544	-0
5. Balance of cash flow	726,721	783,130	842,616	905,177	168,454	205,969	277,760	352,627	427,070	497,472	575,592	653,707	731,821	809,904
Interest	3.0%													
Grace period (years)	10													
Repayment periods (years)	20													
Ratio of subsidy	-													

表93 損益計算書および現預金収支：孵化場

(1/2)

Description	-1	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Income statement																	
1. Revenue	-	-	185,900	185,900	185,900	185,900	185,900	185,900	185,900	185,900	185,900	185,900	185,900	185,900	185,900	185,900	185,900
2. Expenditure	-	88,135	152,511	152,511	152,511	152,511	152,511	152,511	152,511	152,511	152,511	152,511	150,838	149,165	147,492	145,819	144,146
a. Operation cost	-	54,671	72,942	72,942	72,942	72,942	72,942	72,942	72,942	72,942	72,942	72,942	72,942	72,942	72,942	72,942	72,942
b. Maintenance cost	-	-	15,132	15,132	15,132	15,132	15,132	15,132	15,132	15,132	15,132	15,132	15,132	15,132	15,132	15,132	15,132
c. Depreciation	-	-	30,974	30,974	30,974	30,974	30,974	30,974	30,974	30,974	30,974	30,974	30,974	30,974	30,974	30,974	30,974
d. Interest	-	33,464	33,464	33,464	33,464	33,464	33,464	33,464	33,464	33,464	33,464	33,464	31,790	30,117	28,444	26,771	25,098
3. Profit before D & I	-	-54,671	97,826	97,826	97,826	97,826	97,826	97,826	97,826	97,826	97,826	97,826	97,826	97,826	97,826	97,826	97,826
4. Net profit	-	-88,135	33,389	33,389	33,389	33,389	33,389	33,389	33,389	33,389	33,389	33,389	35,062	36,735	38,408	40,081	41,754
Cash flow																	
1. Source of fund	1,115,455	-	64,362	64,362	64,362	64,362	64,362	64,362	64,362	64,362	64,362	64,362	66,035	67,708	69,382	71,055	72,728
a. Subsidy	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
b. Government fund	-	88,135	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
c. Loan	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
d. Depreciation	-	-	30,974	30,974	30,974	30,974	30,974	30,974	30,974	30,974	30,974	30,974	30,974	30,974	30,974	30,974	30,974
e. Net profit	-	-88,135	33,389	33,389	33,389	33,389	33,389	33,389	33,389	33,389	33,389	33,389	35,062	36,735	38,408	40,081	41,754
2. Use of fund	1,115,455	-	64,362	23,773	-	14,063	-	-	6,760	14,063	-	174,573	55,773	69,835	55,773	62,533	95,373
a. Construction	1,115,455	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
b. Reconstruction	-	-	-	-	-	14,063	-	-	6,760	14,063	-	118,800	-	14,063	-	6,760	39,600
c. Government fund repayment	-	-	64,362	23,773	-	-	-	-	-	-	-	-	-	-	-	-	-
d. Loan repayment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3. Balance of govern. fund at end	-	88,135	23,773	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4. Balance of loan at end	1,115,455	1,115,455	1,115,455	1,115,455	1,115,455	1,115,455	1,115,455	1,115,455	1,115,455	1,115,455	1,115,455	1,059,682	1,003,909	948,136	892,364	836,591	780,818
5. Balance of cash flow	-	-	-	40,589	104,952	155,251	219,613	283,975	341,577	391,877	456,239	346,028	356,291	354,164	367,773	376,295	353,650
Interest																	
Grace period (years)																	
Repayment periods (years)																	
Ratio of subsidy																	

表93 損益計算書および現預金収支：弊化場

(2/2)

Description	16	17	18	19	20	21	22	23	24	25	26	27	28	29
	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Income statement														
1. Revenue	185,900	185,900	185,900	185,900	185,900	185,900	185,900	185,900	185,900	185,900	185,900	185,900	185,900	185,900
2. Expenditure	142,472	140,799	139,126	137,453	135,780	134,106	132,433	130,760	129,087	127,414	125,741	124,067	122,394	120,721
a. Operation cost	72,942	72,942	72,942	72,942	72,942	72,942	72,942	72,942	72,942	72,942	72,942	72,942	72,942	72,942
b. Maintenance cost	15,132	15,132	15,132	15,132	15,132	15,132	15,132	15,132	15,132	15,132	15,132	15,132	15,132	15,132
c. Depreciation	30,974	30,974	30,974	30,974	30,974	30,974	30,974	30,974	30,974	30,974	30,974	30,974	30,974	30,974
d. Interest	23,425	21,751	20,078	18,405	16,732	15,059	13,385	11,712	10,039	8,366	6,693	5,020	3,346	1,673
3. Profit before D & I	97,826	97,826	97,826	97,826	97,826	97,826	97,826	97,826	97,826	97,826	97,826	97,826	97,826	97,826
4. Net profit	43,428	45,101	46,774	48,447	50,120	51,794	53,467	55,140	56,813	58,486	60,159	61,833	63,506	65,179
Cash flow														
1. Source of fund	74,401	76,074	77,748	79,421	81,094	82,767	84,440	86,113	87,787	89,460	91,133	92,806	94,479	96,153
a. Subsidy	-	-	-	-	-	-	-	-	-	-	-	-	-	-
b. Government fund	-	-	-	-	-	-	-	-	-	-	-	-	-	-
c. Loan	-	-	-	-	-	-	-	-	-	-	-	-	-	-
d. Depreciation	30,974	30,974	30,974	30,974	30,974	30,974	30,974	30,974	30,974	30,974	30,974	30,974	30,974	30,974
e. Net profit	43,428	45,101	46,774	48,447	50,120	51,794	53,467	55,140	56,813	58,486	60,159	61,833	63,506	65,179
2. Use of fund	69,835	55,773	55,773	55,773	188,635	62,533	55,773	55,773	69,835	338,051	55,773	55,773	55,773	55,773
a. Construction	-	-	-	-	-	-	-	-	-	-	-	-	-	-
b. Reconstruction	14,063	-	-	-	132,863	6,760	-	-	14,063	282,278	-	-	-	-
c. Government fund repayment	-	-	-	-	-	-	-	-	-	-	-	-	-	-
d. Loan repayment	55,773	55,773	55,773	55,773	55,773	55,773	55,773	55,773	55,773	55,773	55,773	55,773	55,773	55,773
3. Balance of govern. fund at end	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4. Balance of loan at end	725,045	669,273	613,500	557,727	501,955	446,182	390,409	334,636	278,864	223,091	167,318	111,545	55,773	0
5. Balance of cash flow	358,216	378,518	400,493	424,140	316,599	336,833	365,501	395,842	413,793	165,202	200,563	237,596	276,303	316,682
Interest	3.0%													
Grace period (years)	10													
Repayment periods (years)	20													
Ratio of subsidy	-													

表94 損益計算書および現預金収支：Tik. Ketapang

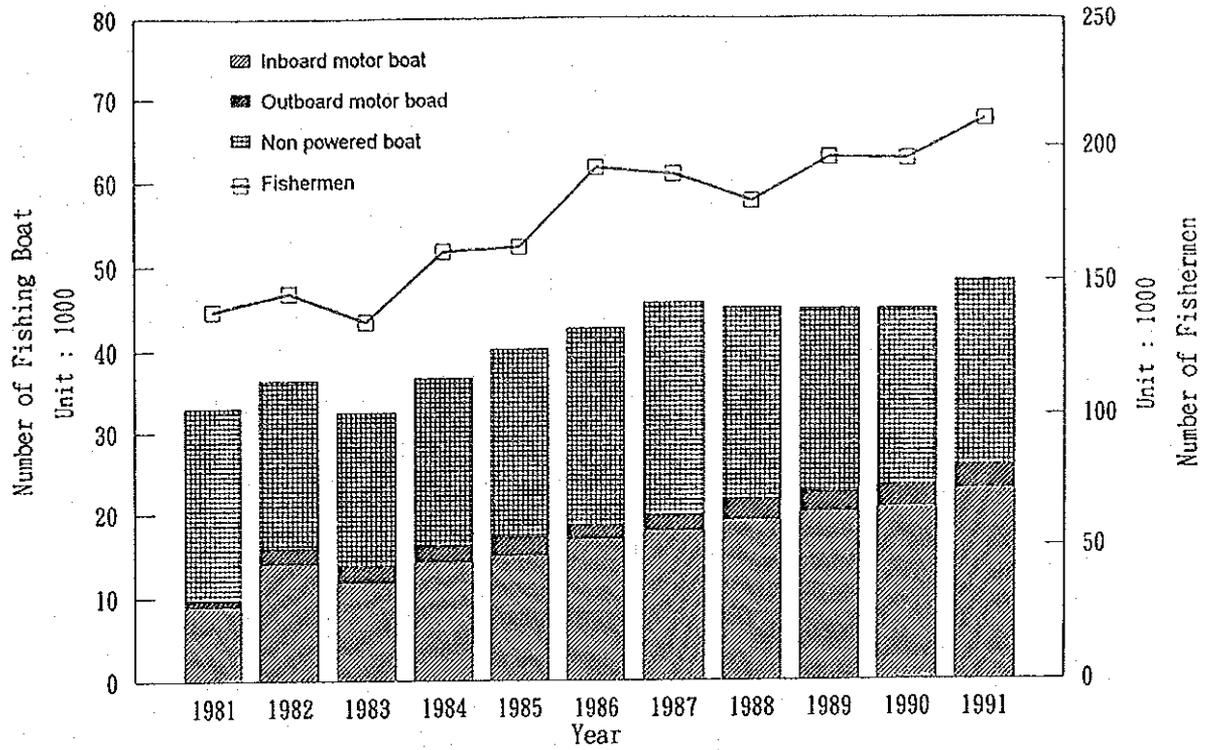
(2/2)

Description	17	18	19	20	21	22	23	24	25	26	27	28	29
	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Income statement													
1. Revenue	334,942	334,942	334,942	334,942	334,942	334,942	334,942	334,942	334,942	334,942	334,942	334,942	334,942
2. Expenditure	305,863	304,478	303,094	301,709	300,325	298,940	297,556	296,171	294,787	293,403	292,018	290,634	289,249
a. Operation cost	224,231	224,231	224,231	224,231	224,231	224,231	224,231	224,231	224,231	224,231	224,231	224,231	224,231
b. Maintenance cost	17,787	17,787	17,787	17,787	17,787	17,787	17,787	17,787	17,787	17,787	17,787	17,787	17,787
c. Depreciation	45,847	45,847	45,847	45,847	45,847	45,847	45,847	45,847	45,847	45,847	45,847	45,847	45,847
d. Interest	17,998	16,614	15,229	13,845	12,460	11,076	9,691	8,307	6,922	5,538	4,153	2,769	1,384
3. Profit before D & I	92,924	92,924	92,924	92,924	92,924	92,924	92,924	92,924	92,924	92,924	92,924	92,924	92,924
4. Net profit	29,079	30,464	31,848	33,233	34,617	36,002	37,386	38,771	40,155	41,539	42,924	44,308	45,693
Cash flow													
1. Source of fund	74,926	76,310	77,695	79,079	80,464	81,848	83,233	84,617	86,002	208,898	88,771	90,155	91,540
a. Subsidy	-	-	-	-	-	-	-	-	-	-	-	-	-
b. Government fund	-	-	-	-	-	-	-	-	-	121,512	-	-	-
c. Loan	-	-	-	-	-	-	-	-	-	-	-	-	-
d. Depreciation	45,847	45,847	45,847	45,847	45,847	45,847	45,847	45,847	45,847	45,847	45,847	45,847	45,847
e. Net profit	29,079	30,464	31,848	33,233	34,617	36,002	37,386	38,771	40,155	41,539	42,924	44,308	45,693
2. Use of fund	46,149	46,149	46,149	46,149	46,149	46,149	46,149	46,149	46,149	629,841	88,771	90,155	81,033
a. Construction	-	-	-	-	-	-	-	-	-	-	-	-	-
b. Reconstruction	-	-	-	-	189,772	-	-	-	-	583,692	-	-	-
c. Government fund repayment	-	-	-	-	-	-	-	-	-	-	42,621	44,006	34,884
d. Loan repayment	46,149	46,149	46,149	46,149	46,149	46,149	46,149	46,149	46,149	46,149	46,149	46,149	46,149
3. Balance of govern. fund at end	553,789	507,640	461,491	415,342	369,193	323,044	276,894	230,745	184,596	138,447	92,298	46,149	0
4. Balance of loan at end	330,660	360,821	392,367	425,297	269,840	305,539	342,622	381,091	420,943	0	-	-	10,506
5. Balance of cash flow	-	-	-	-	-	-	-	-	-	-	-	-	-
Interest	-	-	-	-	-	-	-	-	-	-	-	-	-
Grice period (years)	-	-	-	-	-	-	-	-	-	-	-	-	-
Repayment periods (years)	-	-	-	-	-	-	-	-	-	-	-	-	-
Ratio of subsidy	-	-	-	-	-	-	-	-	-	-	-	-	-

表94 損益計算書および現預金収支 : Tik. Ketapang

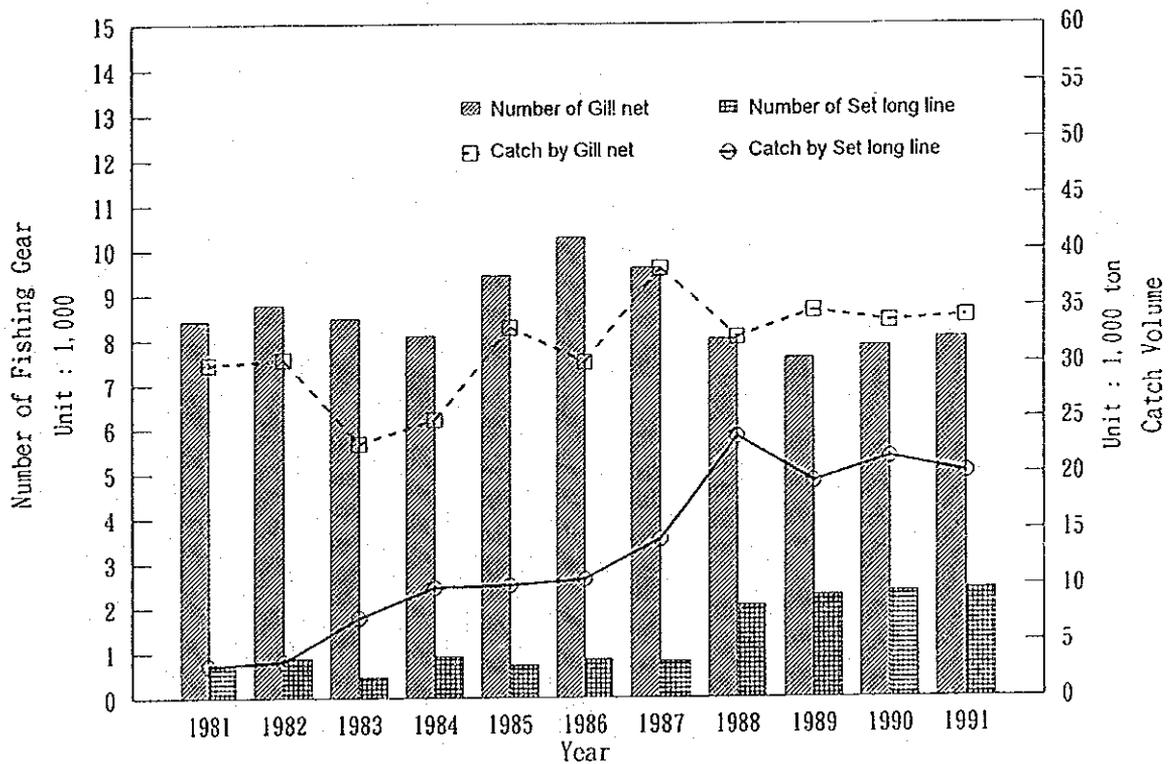
(1/2)

Description	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	
Income statement																		
1. Revenue	-	260,519	279,125	297,732	316,336	334,942	334,942	334,942	334,942	334,942	334,942	334,942	334,942	334,942	334,942	334,942	334,942	
2. Expenditure	-	315,554	315,554	315,554	315,554	315,554	315,554	315,554	315,554	315,554	315,554	314,170	312,785	311,401	310,016	308,632	307,247	
a. Operation cost	-	224,231	224,231	224,231	224,231	224,231	224,231	224,231	224,231	224,231	224,231	224,231	224,231	224,231	224,231	224,231	224,231	
b. Maintenance cost	-	17,787	17,787	17,787	17,787	17,787	17,787	17,787	17,787	17,787	17,787	17,787	17,787	17,787	17,787	17,787	17,787	
c. Depreciation	-	45,847	45,847	45,847	45,847	45,847	45,847	45,847	45,847	45,847	45,847	45,847	45,847	45,847	45,847	45,847	45,847	
d. Interest	-	27,689	27,689	27,689	27,689	27,689	27,689	27,689	27,689	27,689	27,689	26,305	24,921	23,536	22,152	20,767	19,383	
3. Profit before D & I	-	18,501	37,107	55,714	74,318	92,924	92,924	92,924	92,924	92,924	92,924	92,924	92,924	92,924	92,924	92,924	92,924	
4. Net profit	-	-55,035	-36,429	-17,822	782	19,388	19,388	19,388	19,388	19,388	19,388	20,772	22,157	23,541	24,926	26,310	27,695	
Cash flow																		
1. Source of fund	1,025,535	-	9,418	28,025	46,629	65,235	65,235	65,235	65,235	65,235	65,235	66,619	68,003	69,388	70,772	72,157	73,541	
a. Subsidy	102,554	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
b. Government fund	-	9,188	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
c. Loan	922,982	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
d. Depreciation	-	45,847	45,847	45,847	45,847	45,847	45,847	45,847	45,847	45,847	45,847	45,847	45,847	45,847	45,847	45,847	45,847	
e. Net profit	-	-55,035	-36,429	-17,822	782	19,388	19,388	19,388	19,388	19,388	19,388	20,772	22,157	23,541	24,926	26,310	27,695	
2. Use of fund	1,025,535	-	9,188	-	-	15,246	-	-	-	-	46,149	87,421	46,149	46,149	46,149	46,149	46,149	
a. Construction	1,025,535	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
b. Reconstruction	-	-	-	-	-	15,246	-	-	-	-	-	41,272	-	-	-	-	205,326	
c. Government fund repayment	-	-	9,188	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
d. Loan repayment	-	-	-	-	-	-	-	-	-	-	46,149	46,149	46,149	46,149	46,149	46,149	46,149	
3. Balance of govern. fund at end	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
4. Balance of loan at end	922,982	922,982	922,982	922,982	922,982	922,982	922,982	922,982	922,982	922,982	876,832	830,683	784,534	738,385	692,236	646,087	599,938	
5. Balance of cash flow	-	-	229	28,254	74,882	140,117	190,105	255,340	320,574	385,809	404,894	384,092	405,947	429,186	453,809	479,817	301,883	
Interest																	3.0%	
Grace period (years)																		10
Repayment periods (years)																		20
Ratio of subsidy																		10.0%



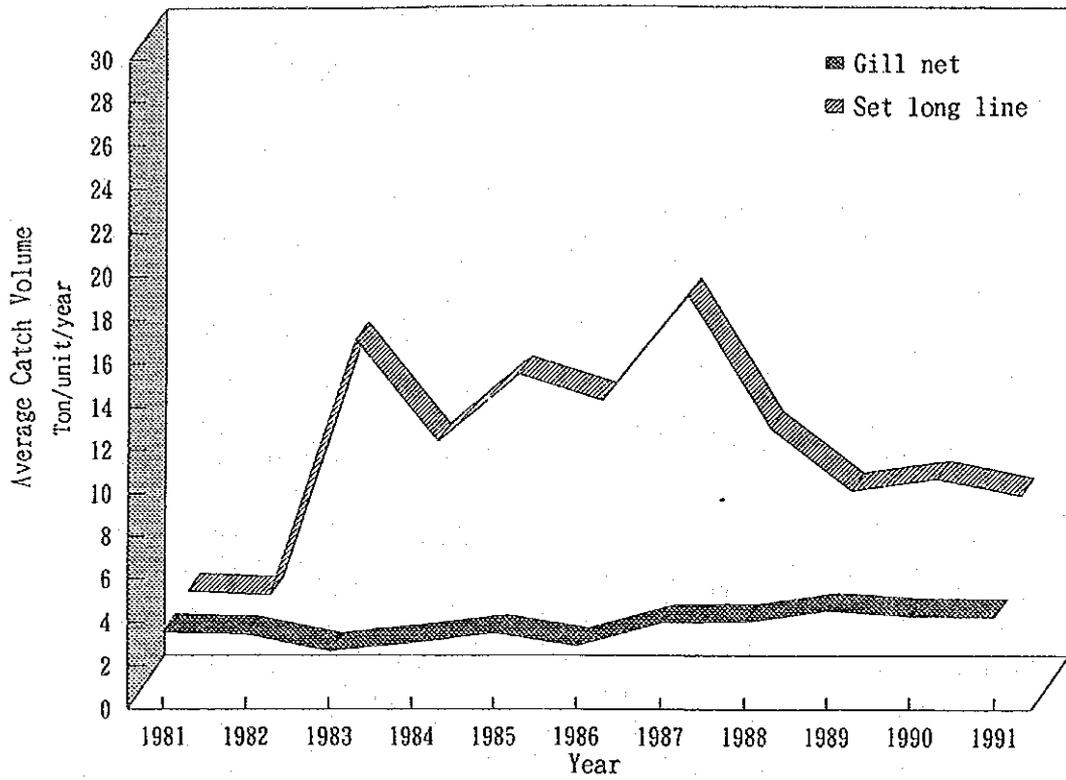
Sources : Fisheries Statistics of Indonesia 1981-1991

図1 マラッカ海峡漁船・漁民数



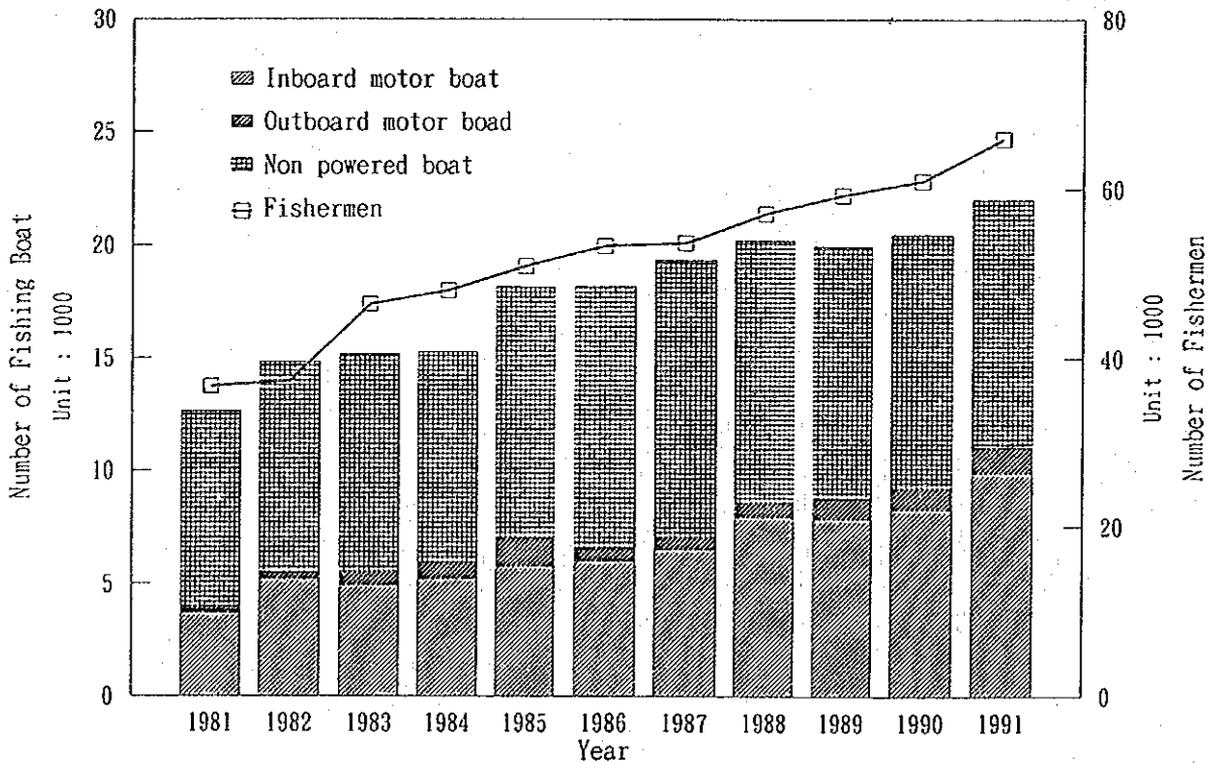
Sources : Fisheries Statistics of Indonesia 1981-1991

図2 マラッカ海峡における漁具数・漁獲量



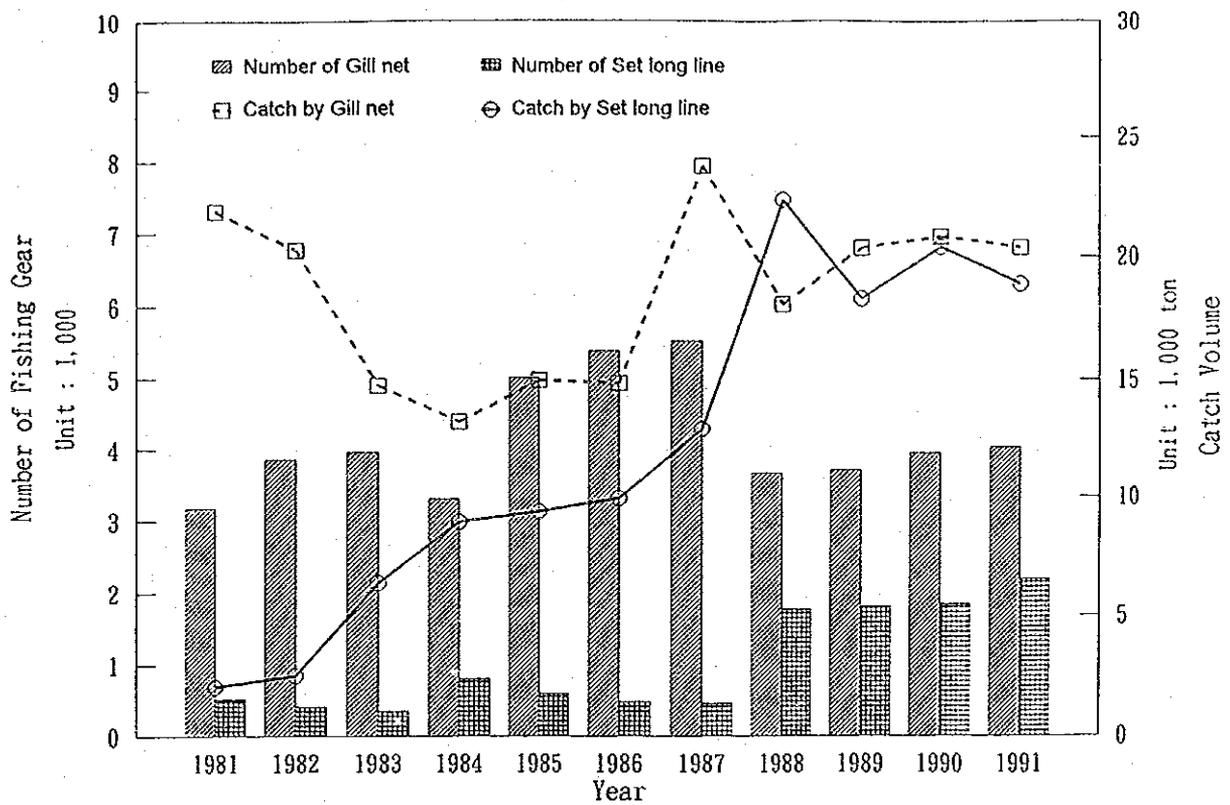
Sources : Fisheries Statistics of Indonesia 1981~1991

図3 マラッカ海峡における漁具当たり年間漁獲量



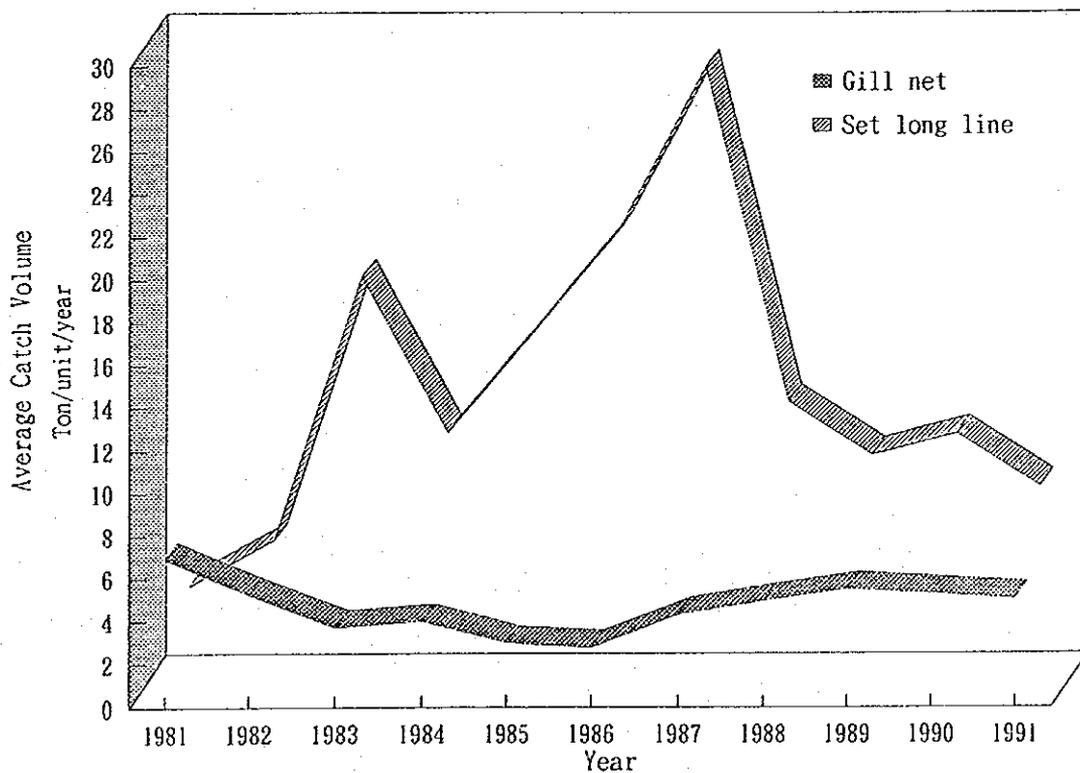
Sources : Fisheries Statistics of Indonesia 1981~1991

図4 リアウ州におけるマラッカ海峡漁船・漁民数



Sources : Fisheries Statistics of Indonesia 1981~1991

図5 リアウ州におけるマラッカ海峡の漁具数・漁獲量



Sources : Fisheries Statistics of Indonesia 1981~1991

図6 リアウ州におけるマラッカ海峡の漁具当たり年間漁獲量

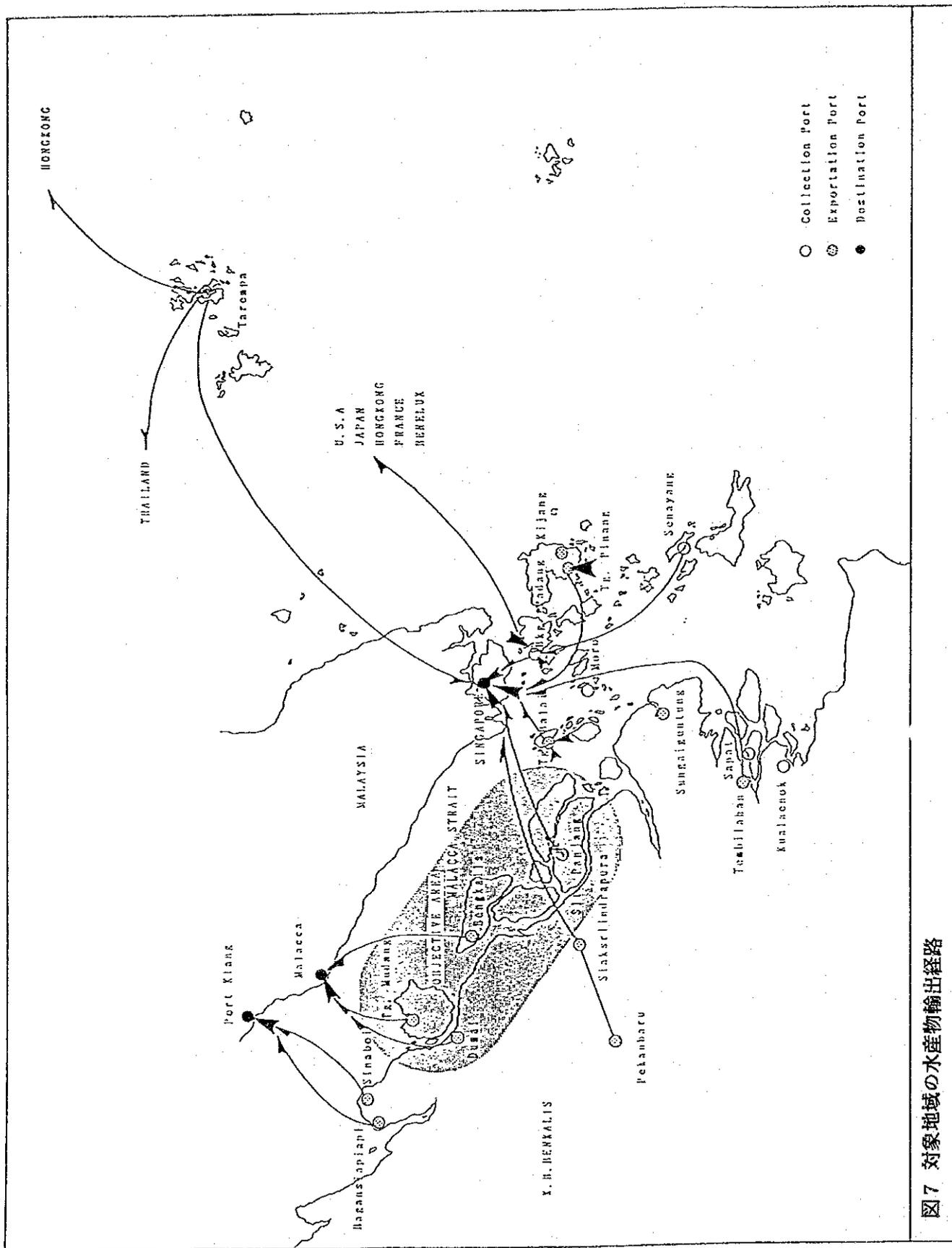


図7 対象地域の水産物輸出経路

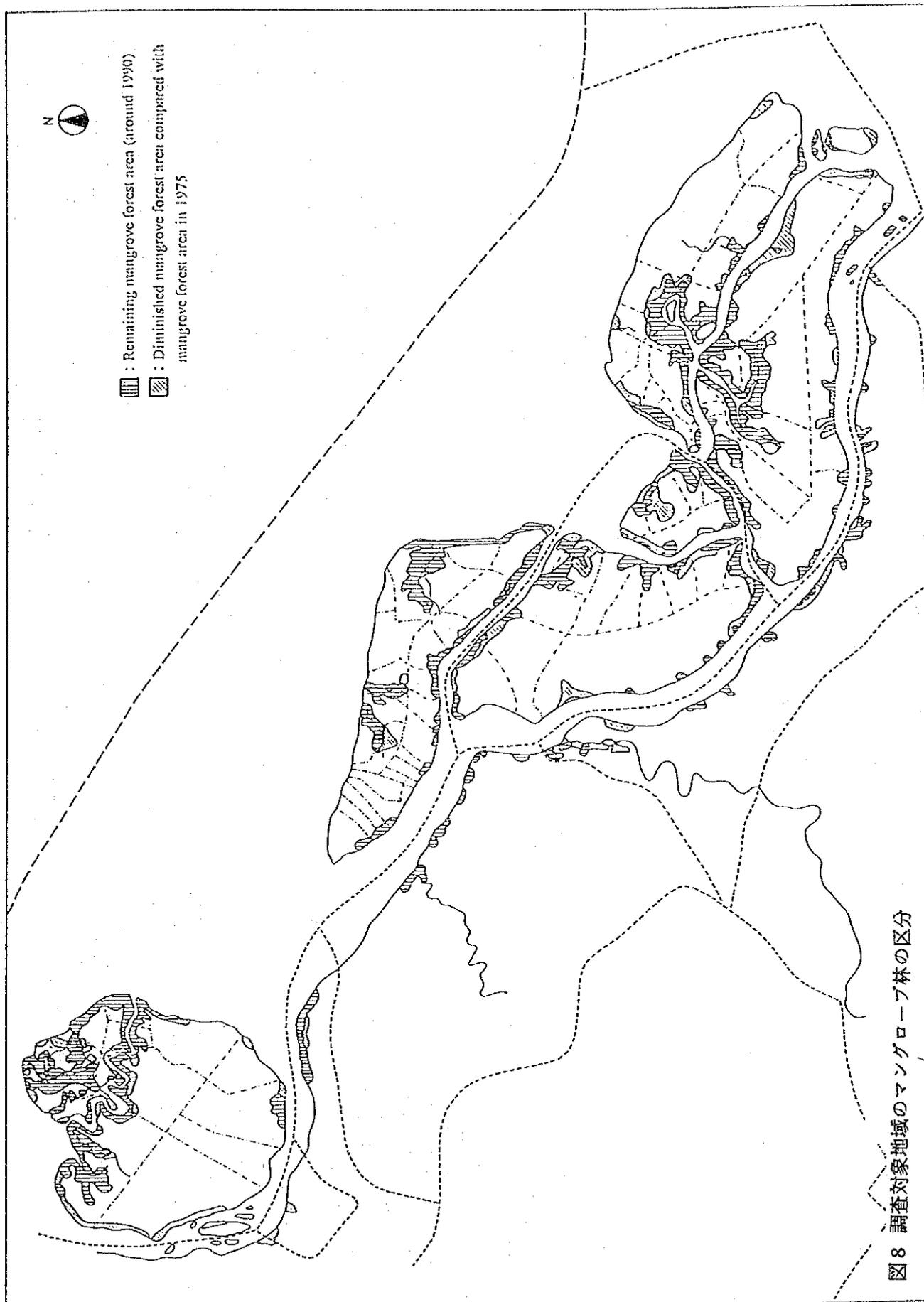


図8 調査対象地域のマングローブ林の区分

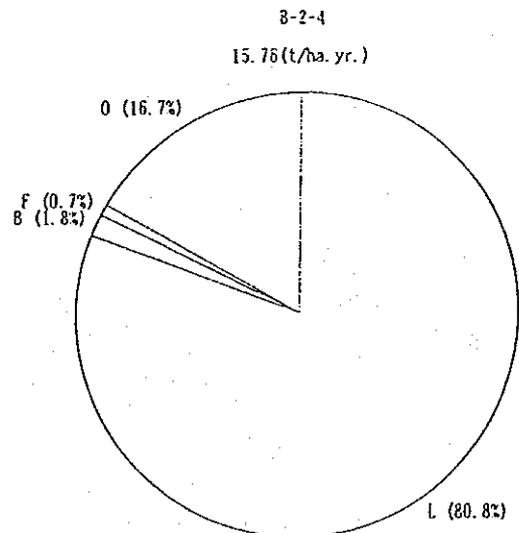
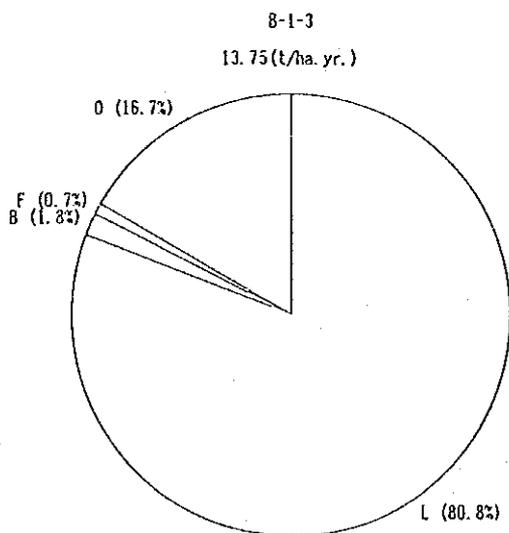
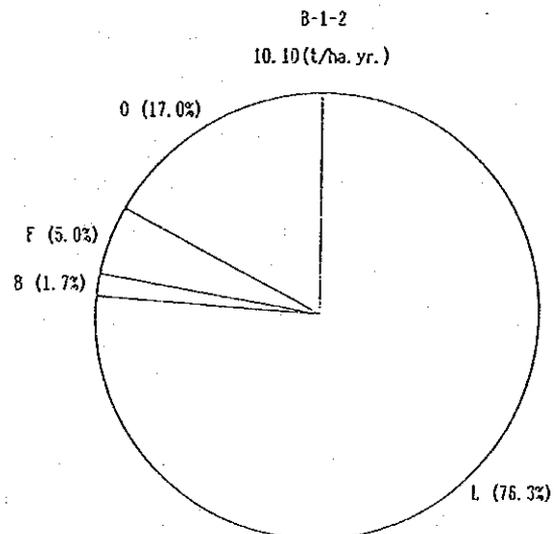
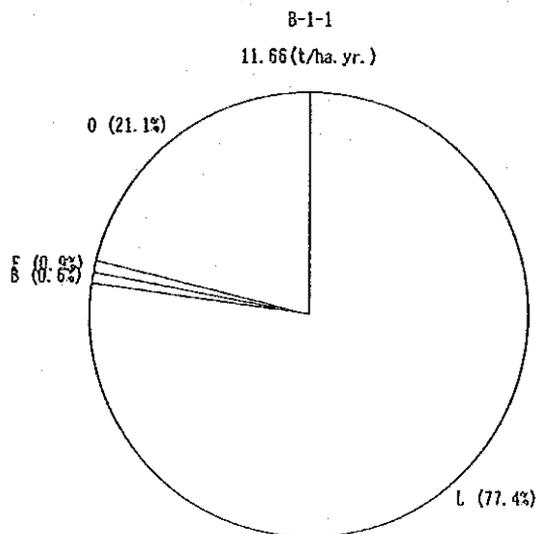
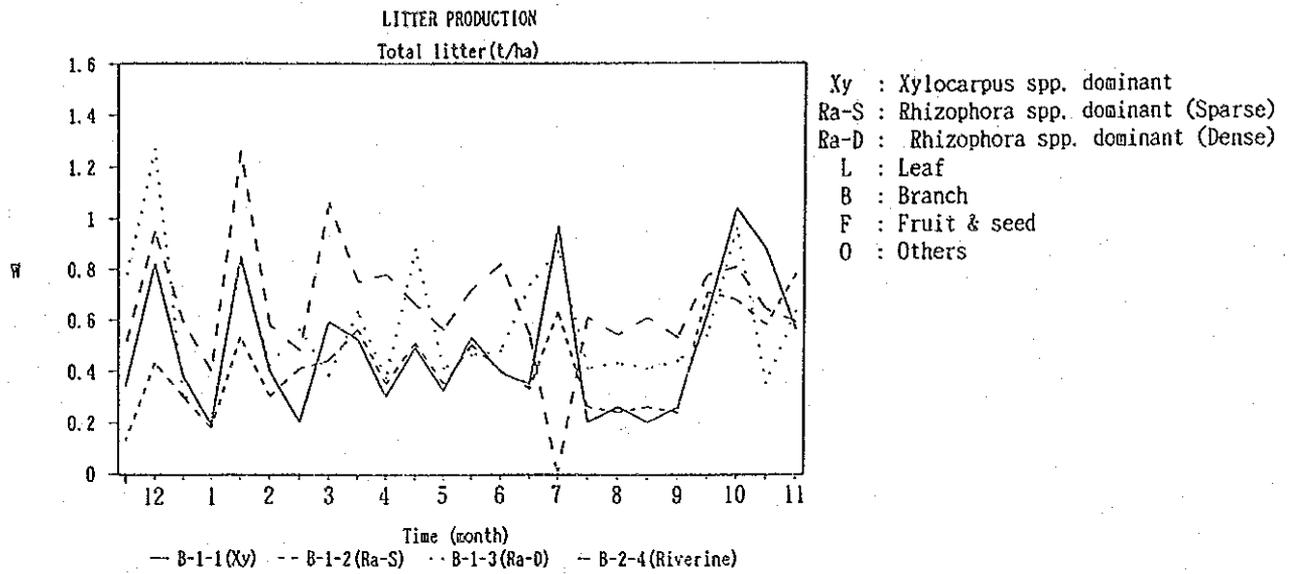


図9 リター生産量



図10 調査対象地域のHPHH概略分布図

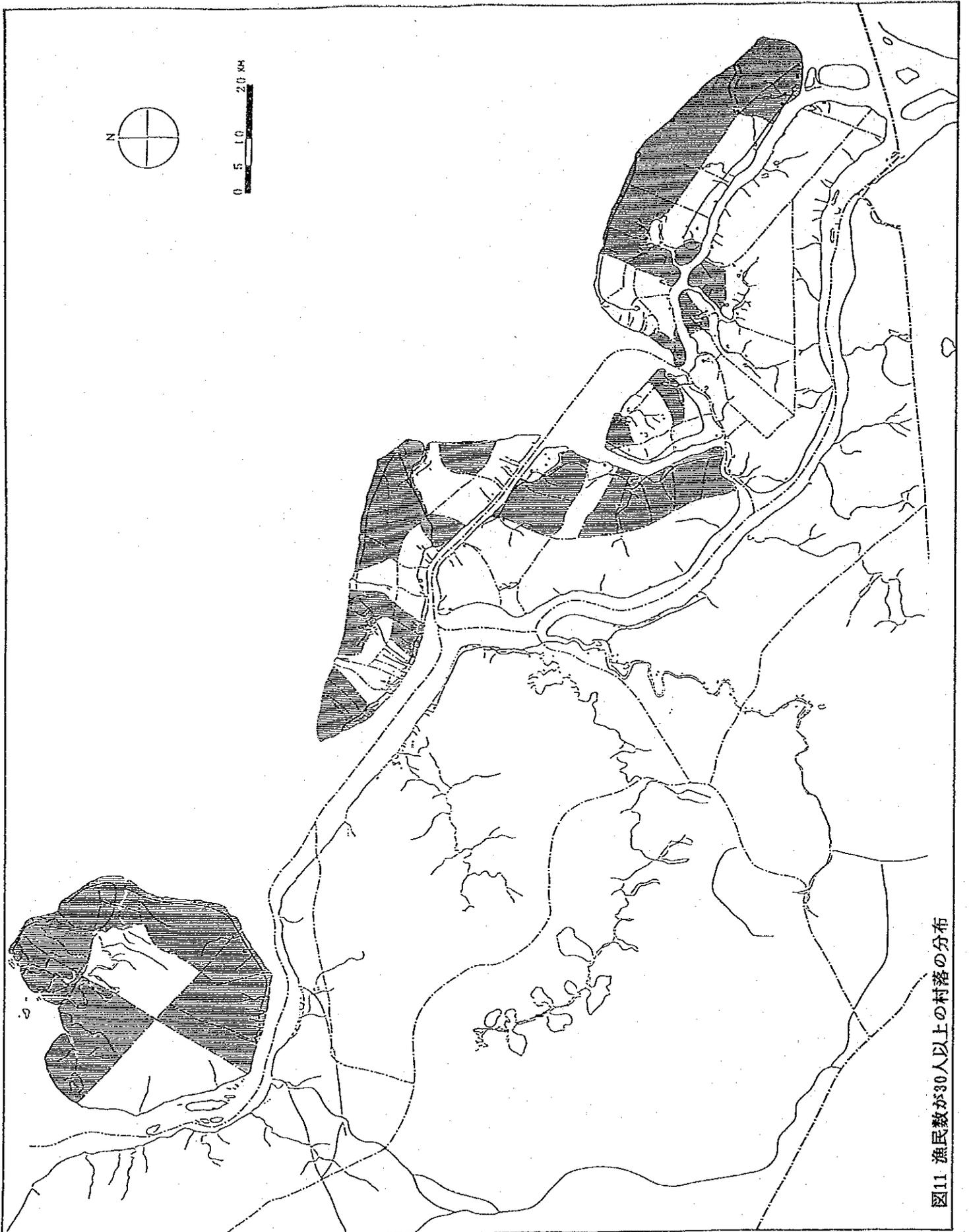


図11 漁民数が30人以上の村落の分布

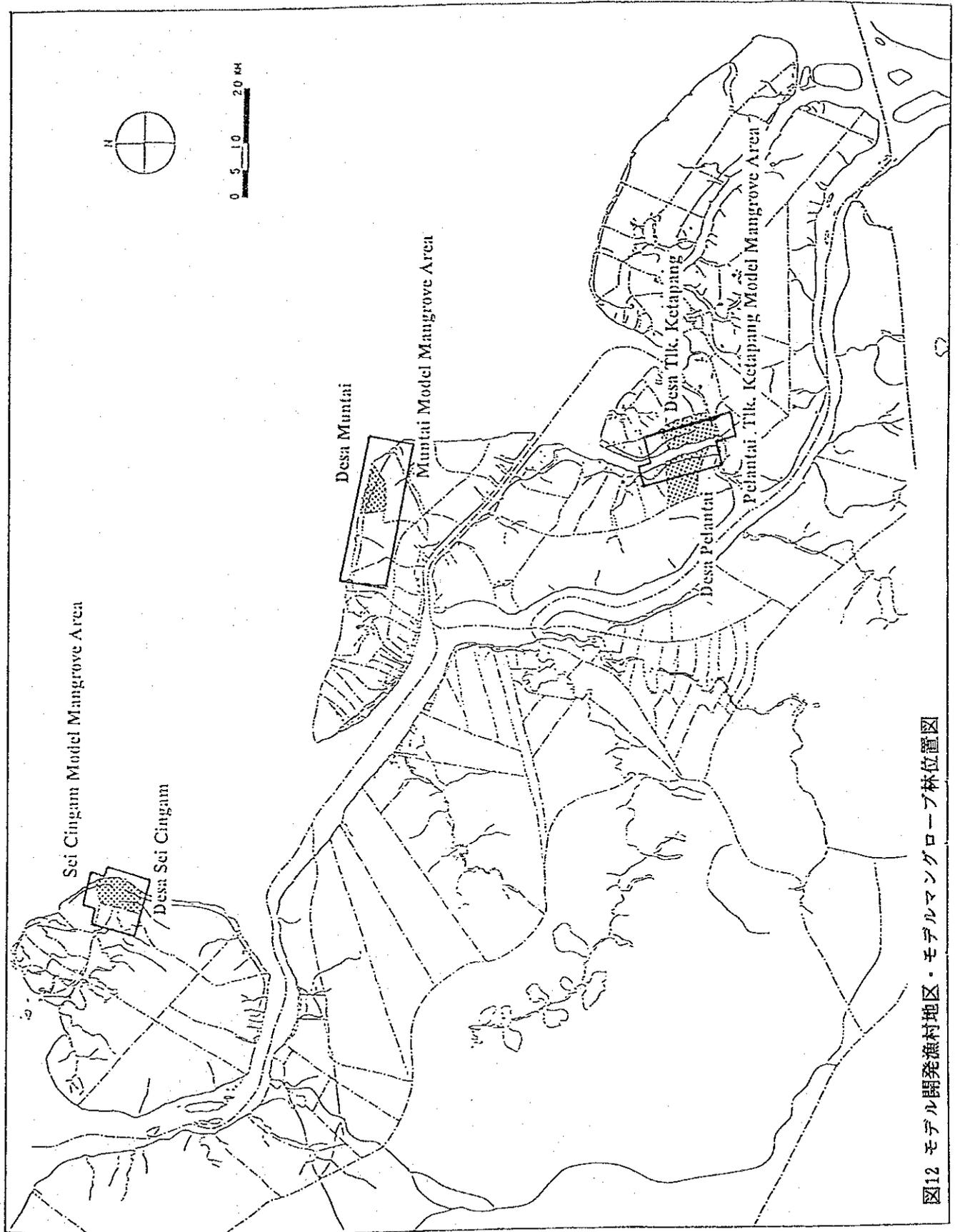


図12 モデル開発漁村地区・モデルマングローブ林位置図

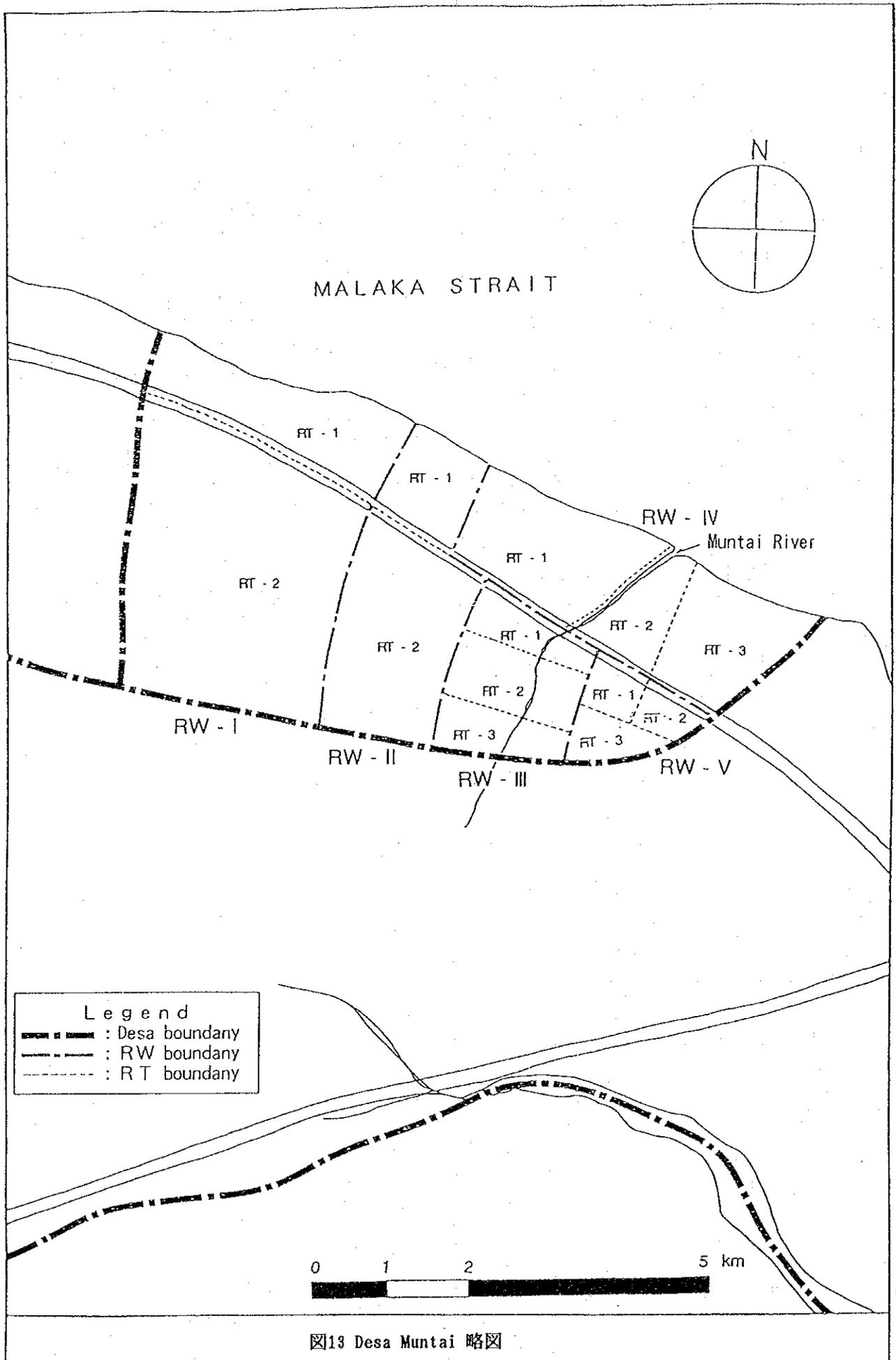


图13 Desa Muntai 略图

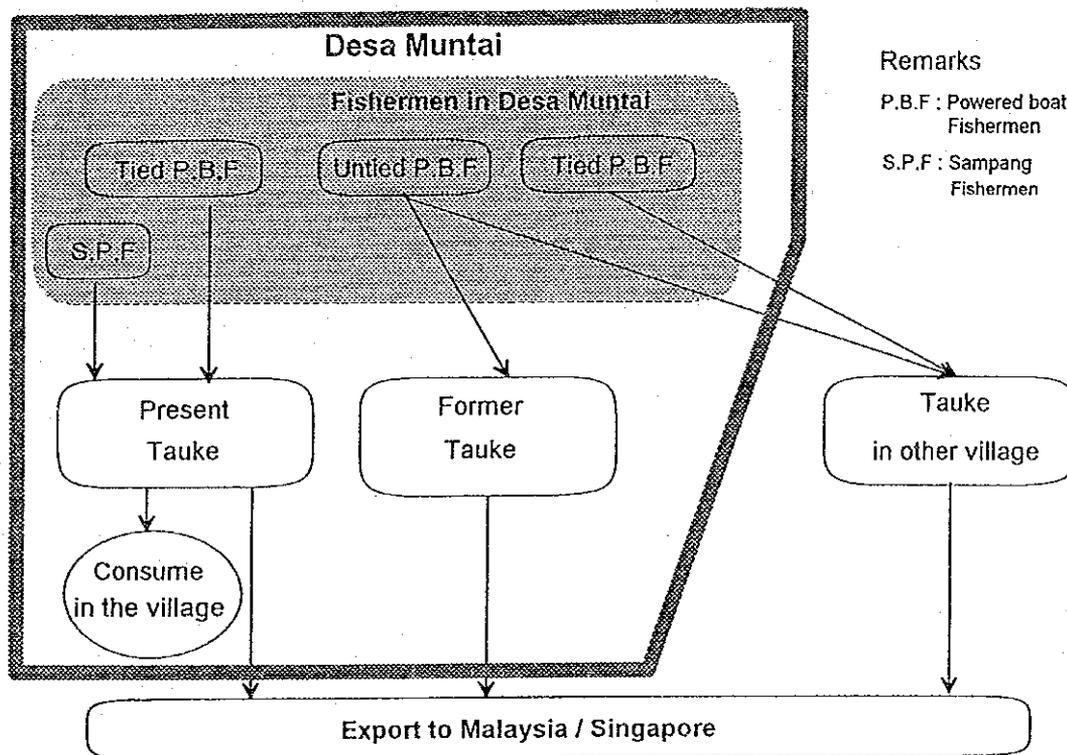


图14 Desa Muntai 鲜鱼流通构造

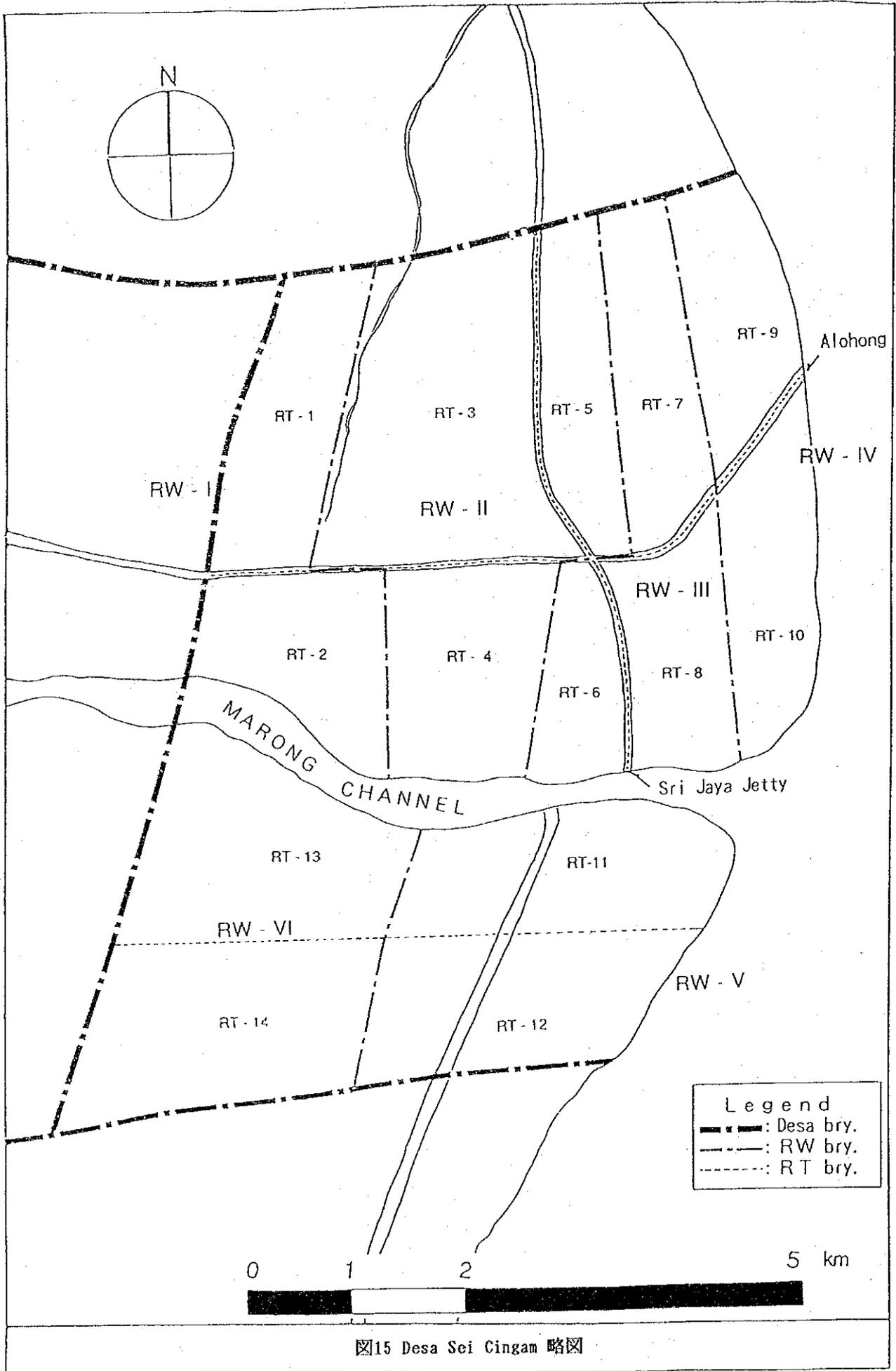


图15 Desa Sei Cingan 略图

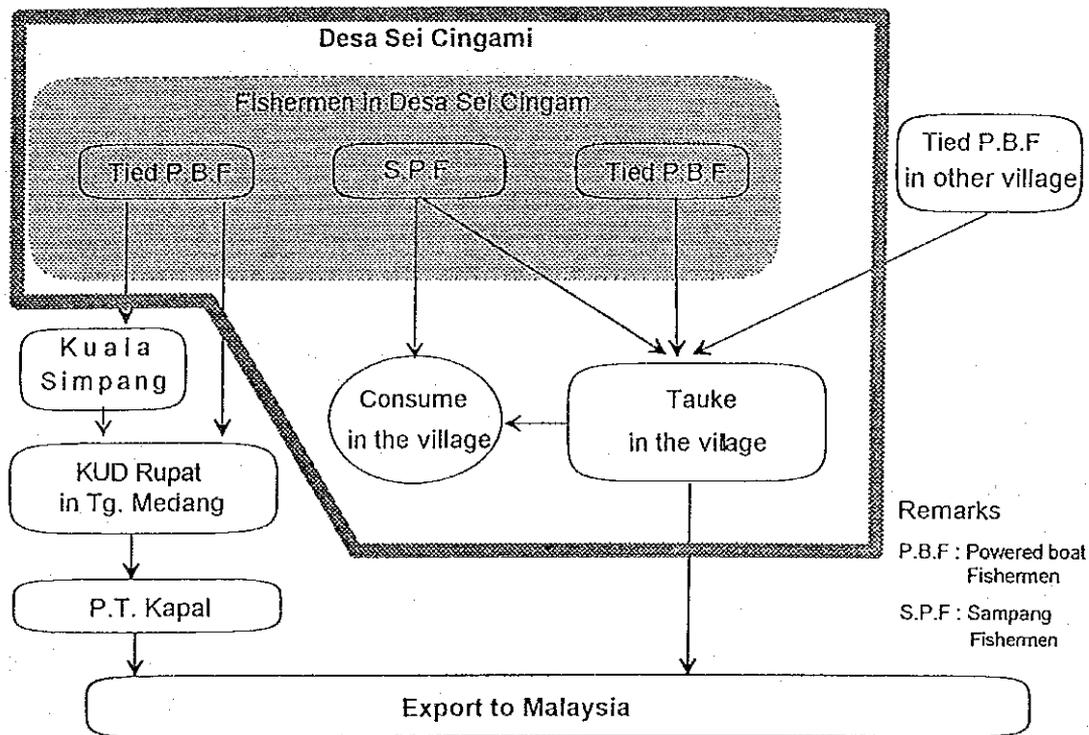


图16 Desa Sei Cingam 鲜鱼流通构造

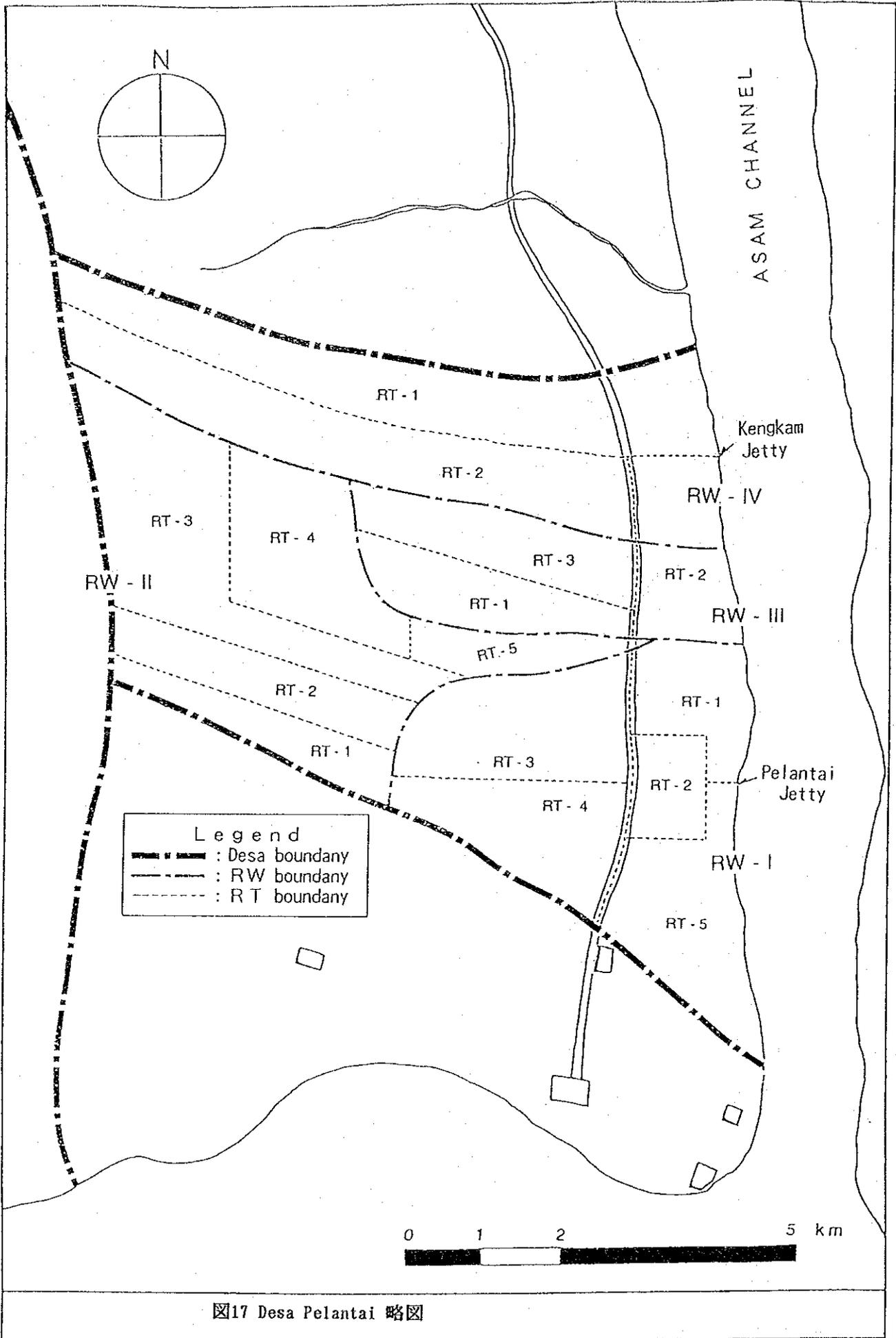


图17 Desa Pelantai 略图

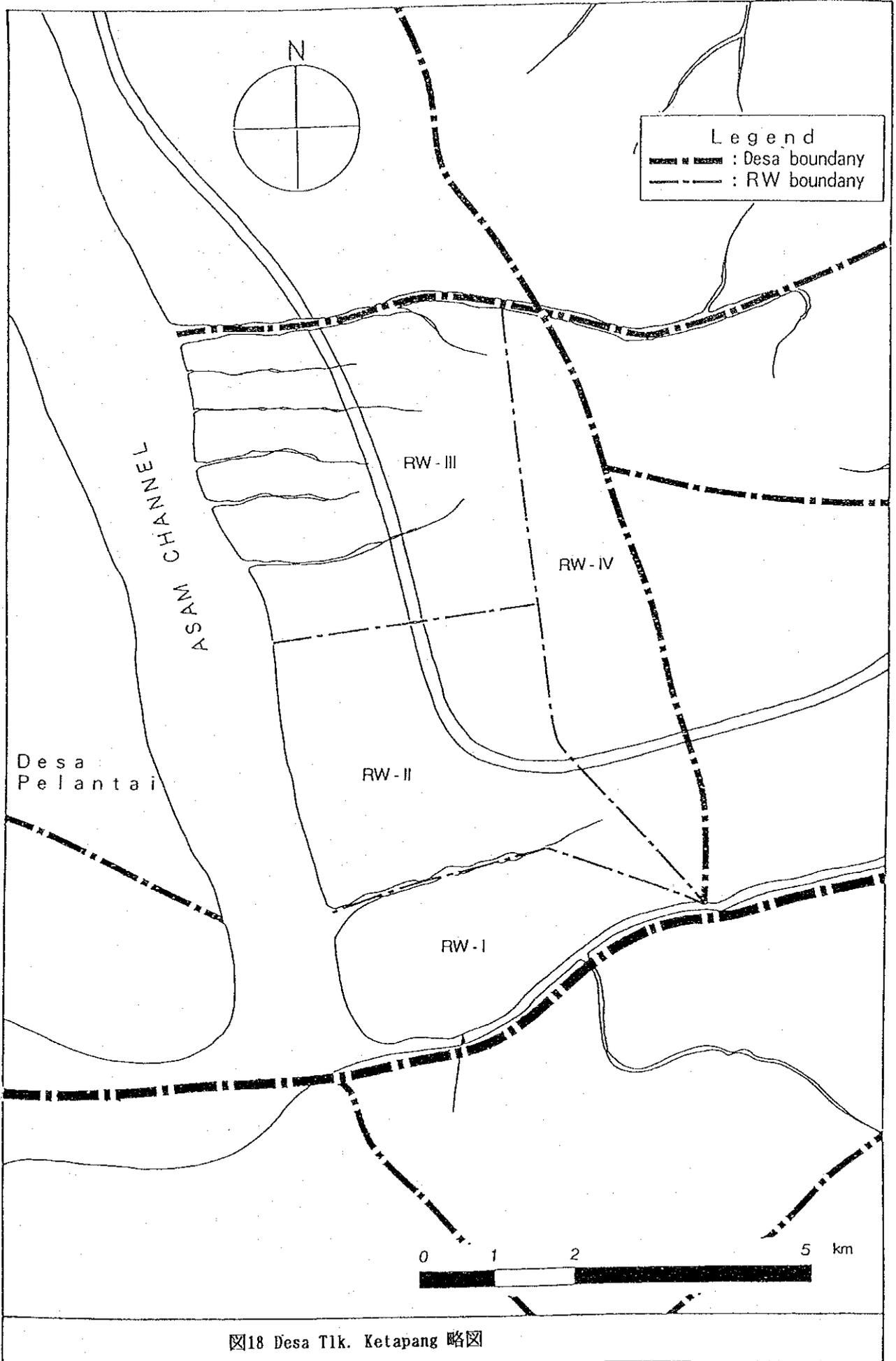


图18 Desa Tik. Ketapang 略图

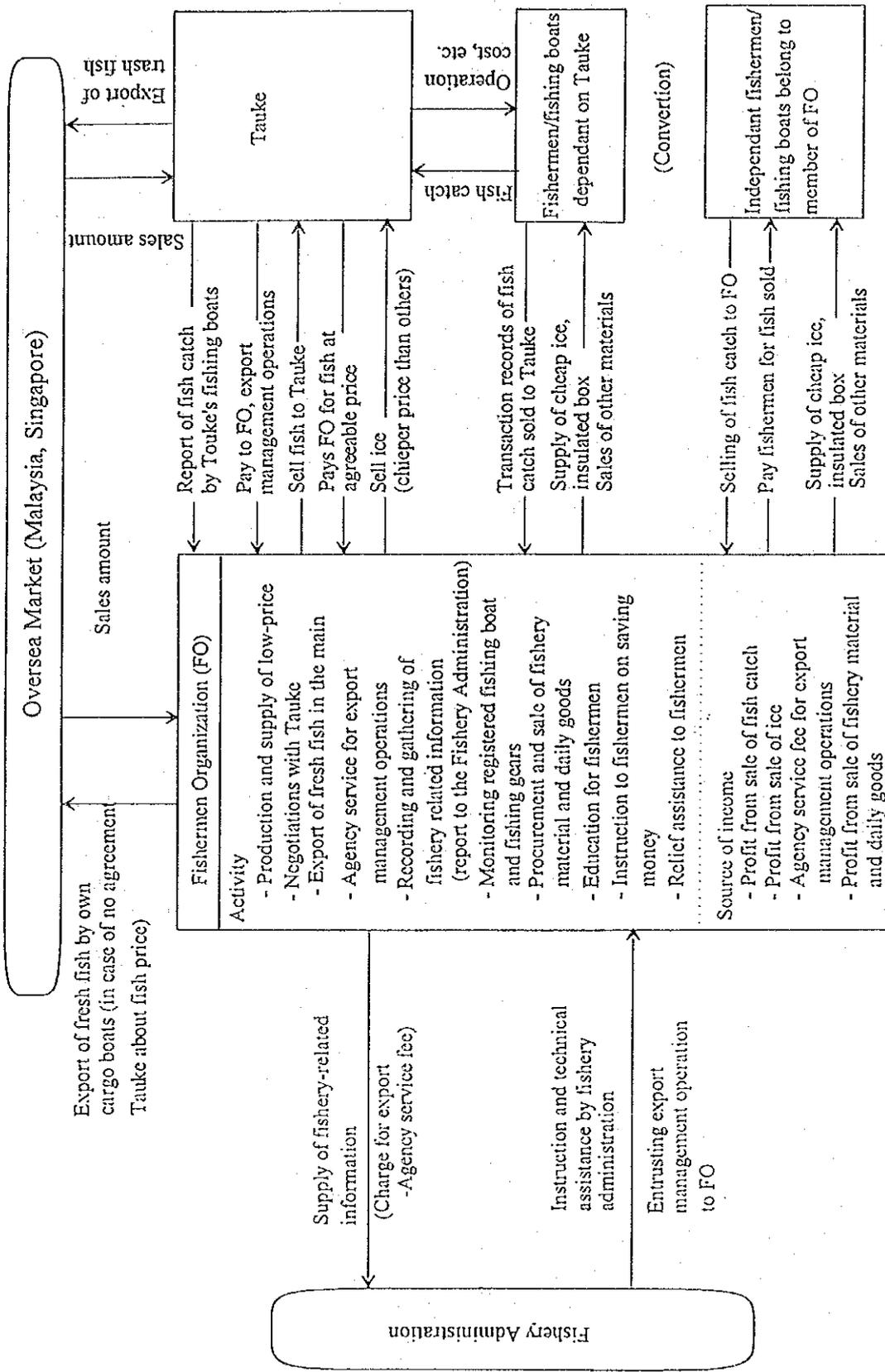
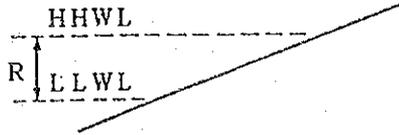


図19 漁民組織の構築

$$L = 130 \times R(m)$$

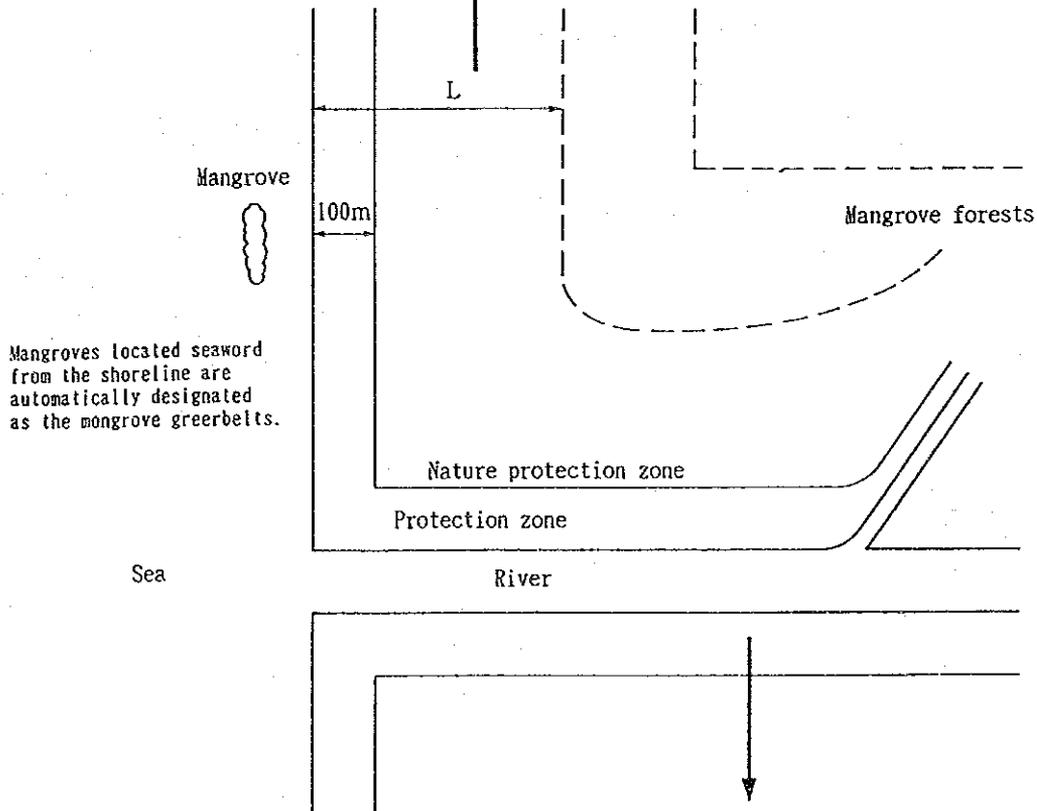


Along the coast:

- the coast with 0 - 8% slope which is not used for ports or tourism and along a mangrove forest on the muddy substratum
- other coasts: nil

Along the riverbank:

- areas with no inhabitancies: outside of 200m inner coastal protection zone
- areas with inhabitancies: nil



Mangroves located seaward from the shoreline are automatically designated as the mangrove greenbelts.

Along the coast: 100m toward the land from the base tide level

Along the riverbank:

- areas with no inhabitancies
 - ‡ 100m on the both sides of the main streams
 - ‡ 50m on the both sides of the branches
- areas with inhabitancies
 - ‡ 10m on the both sides of the rivers

図20 マングローブ林グリーンベルト概念図 (大統領令に基づく)

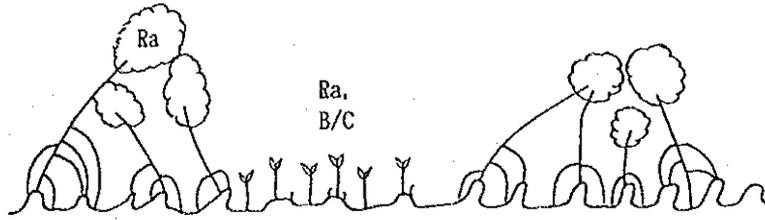
Month	1	2	3	4	5	6	7	8	9	10	11	12
Site Preparation												
Planting												
Supplementary planting												
Inspection on survival												
Seed collection/Direct seeding												
Nursery practice												

Remarks : — ; For *Rhizophora* spp., *Bruguiera* spp., *Ceriops* spp.

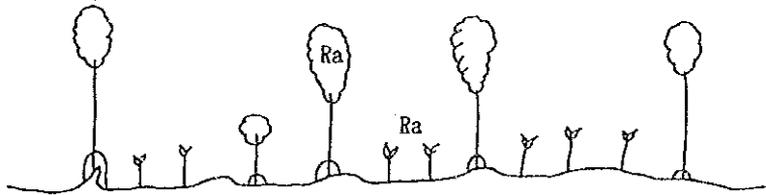
図21 マングローブ林造林作業スケジュール (案)

Sparse low Rhizophora spp. stands

LRh-S (S.Cingam model mangrove area)

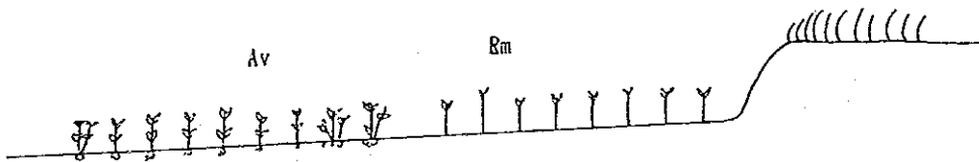


LRh-S (Except S.Cingam model mangrove area)

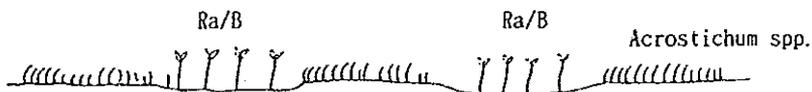


Marshlands

M1 (non-low vegetation cover)



M2 (with low vegetation cover)



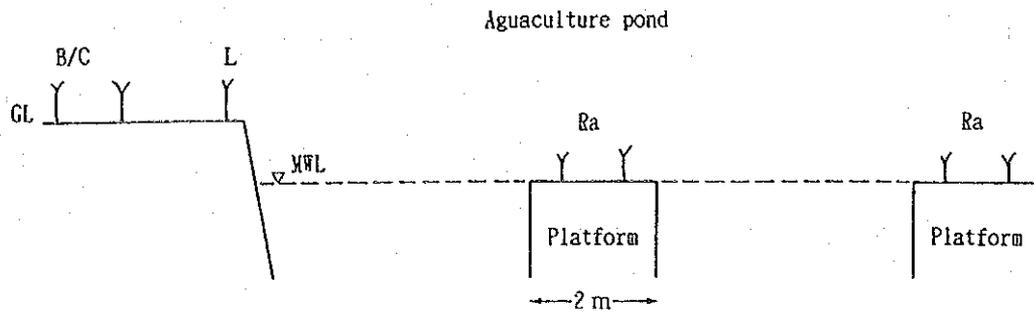
Candidate species

Av : Avicennia spp.
 B : Bruguiera spp.
 C : Ceriops spp.

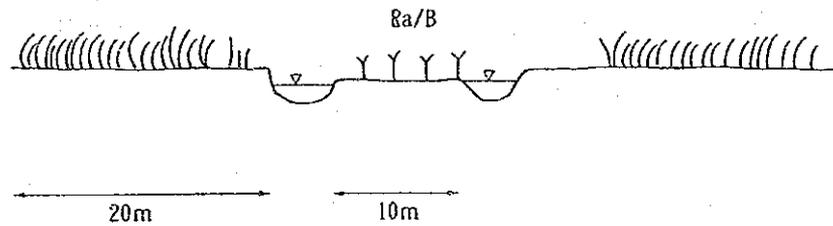
Ra : Rhizophora apiculata
 Rm : Rhizophora mucronata

図22 マングローブ植栽模式図

Forestation for aguaculture



Forestation for fishery resources



Candidate species

B : *Bruguiera* spp.
 C : *Ceriops* spp.

L : *Lumnitzera apiculata*
 Ra : *Rhizophora apiculata*

図23 湿性草地 (M2) におけるシルボフィッシャリー樹帯配置模式図

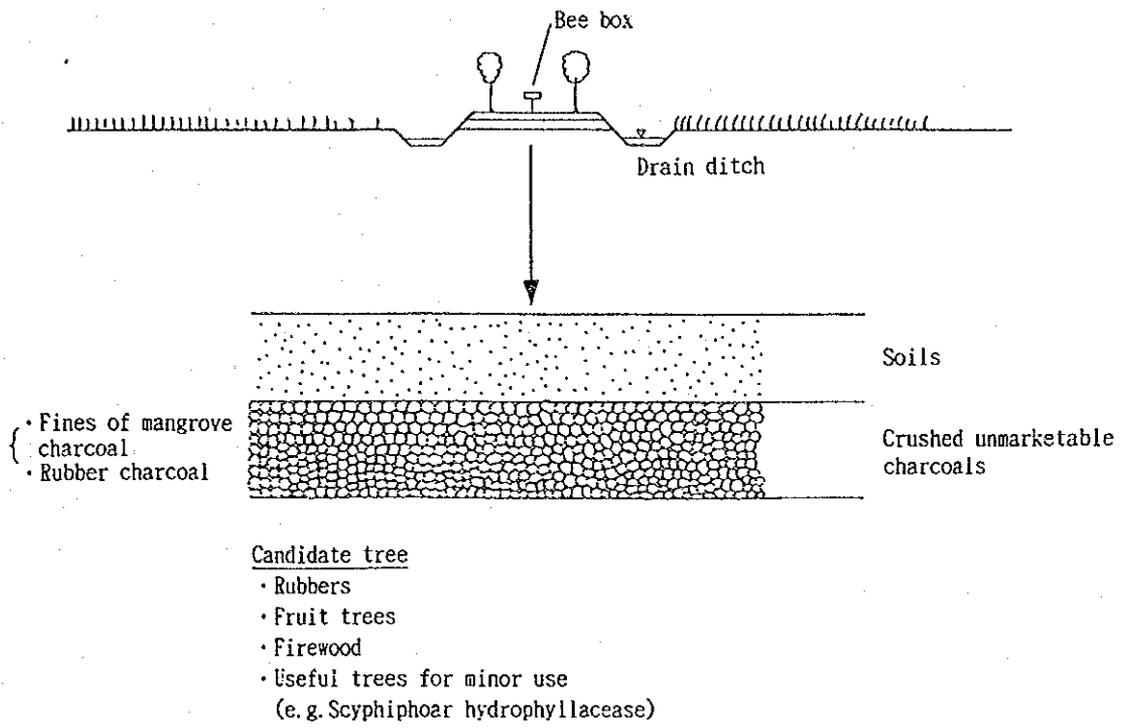


図24 草地 (G) での植栽模式図 (不良炭加工品の利用による例)

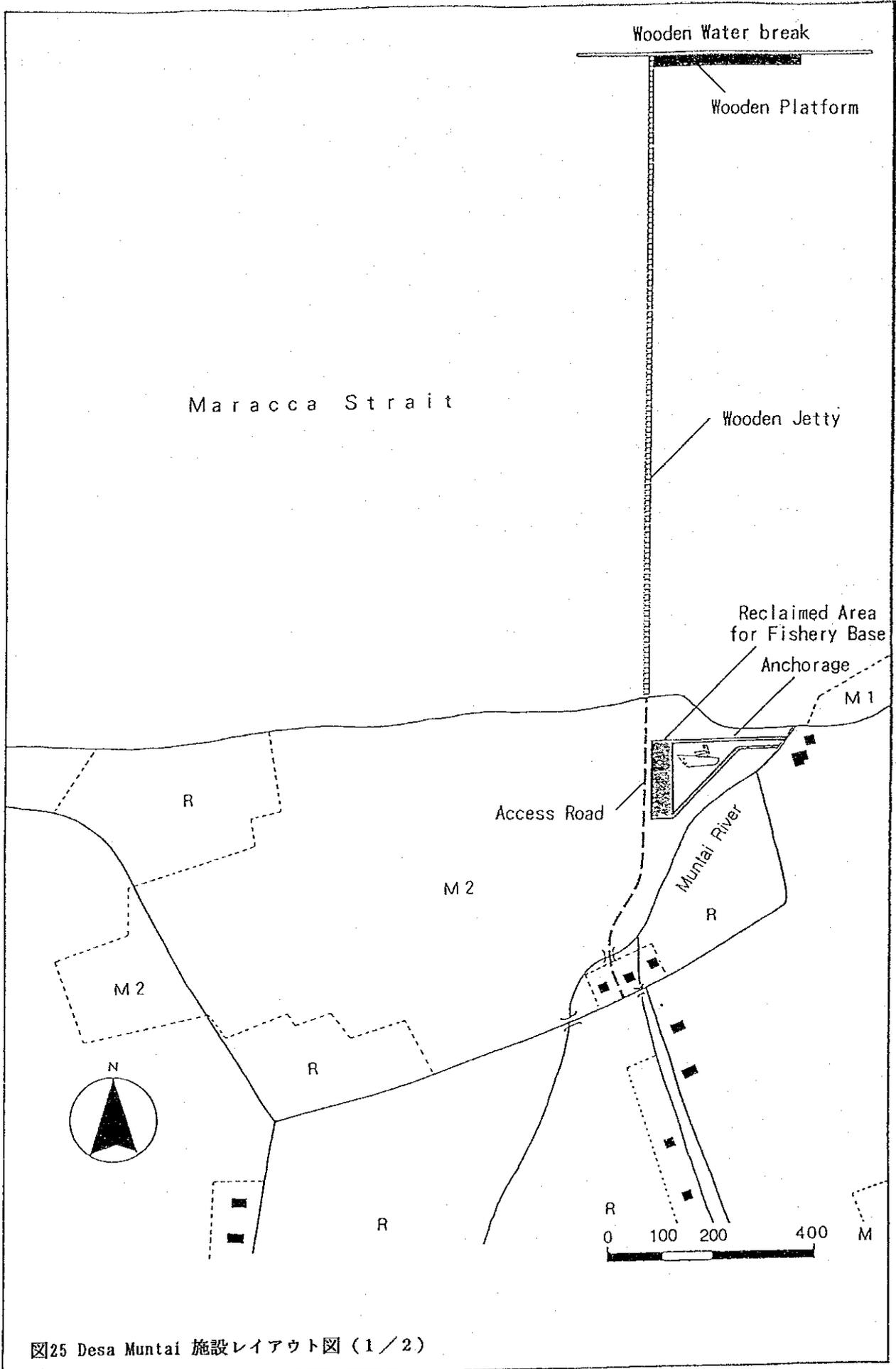


図25 Desa Muntai 施設レイアウト図 (1/2)

Maracca Strait

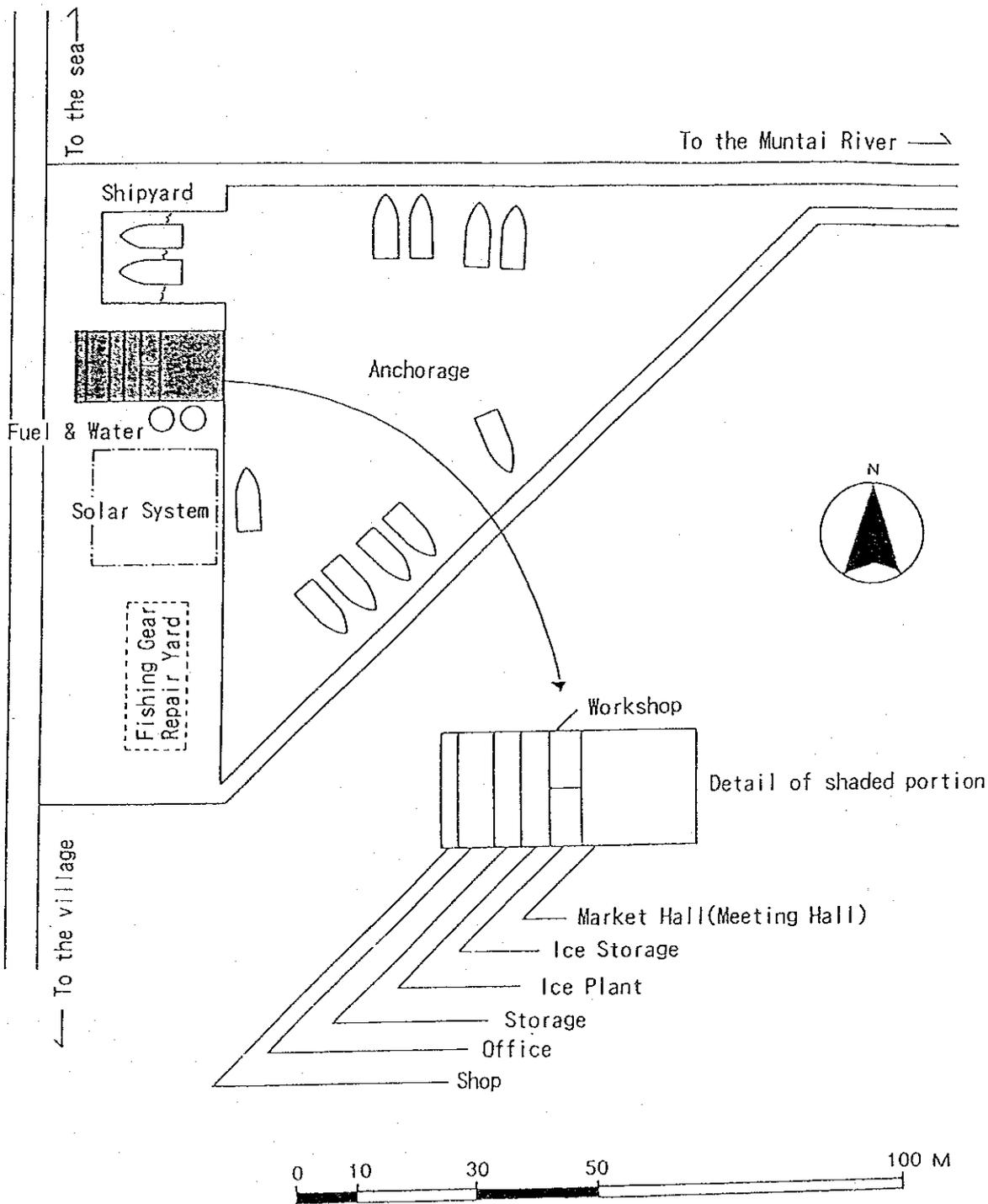


図25 Desa Muntai 施設レイアウト図 (2/2)

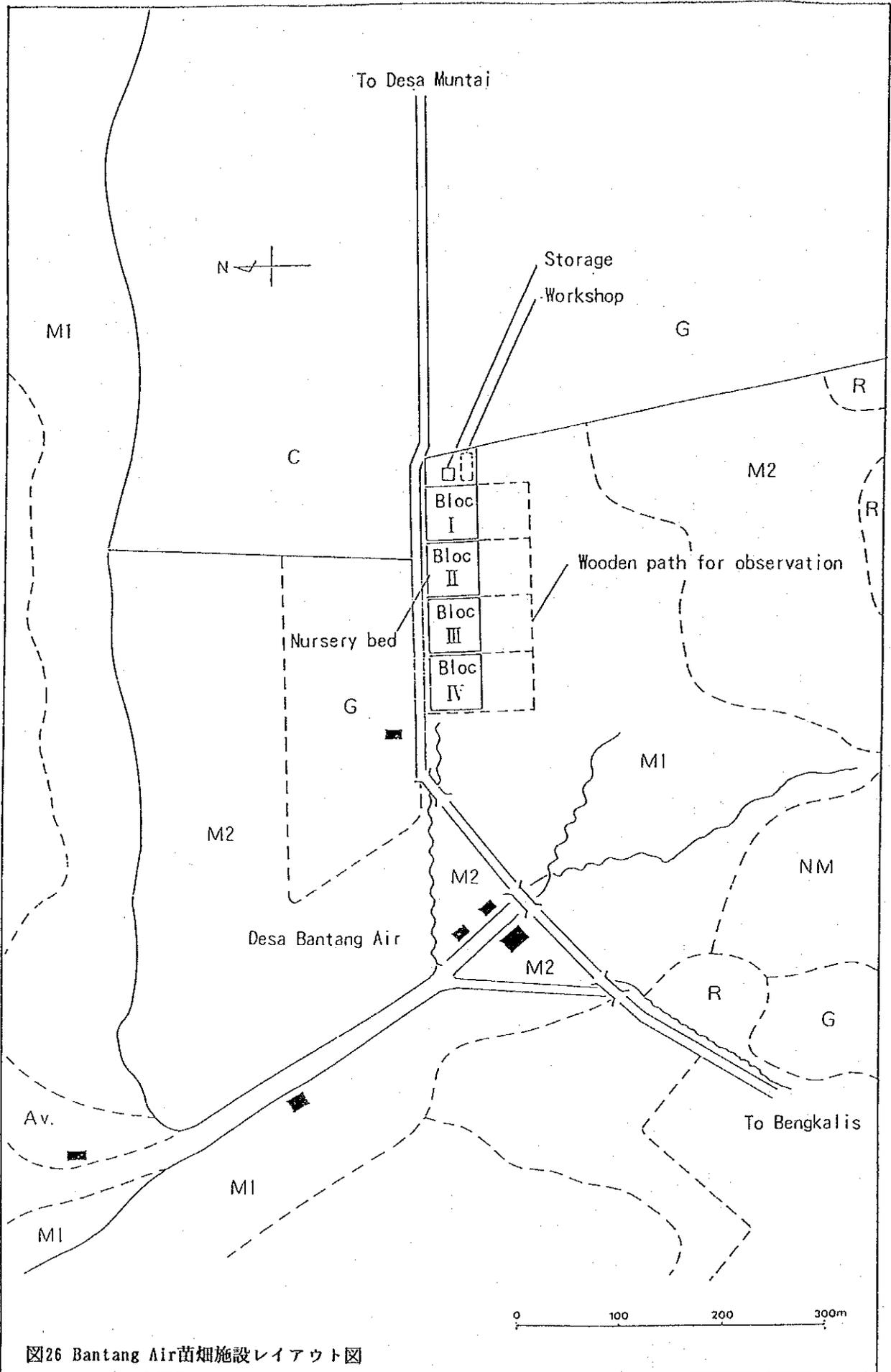


図26 Bantang Air 苗畑施設レイアウト図

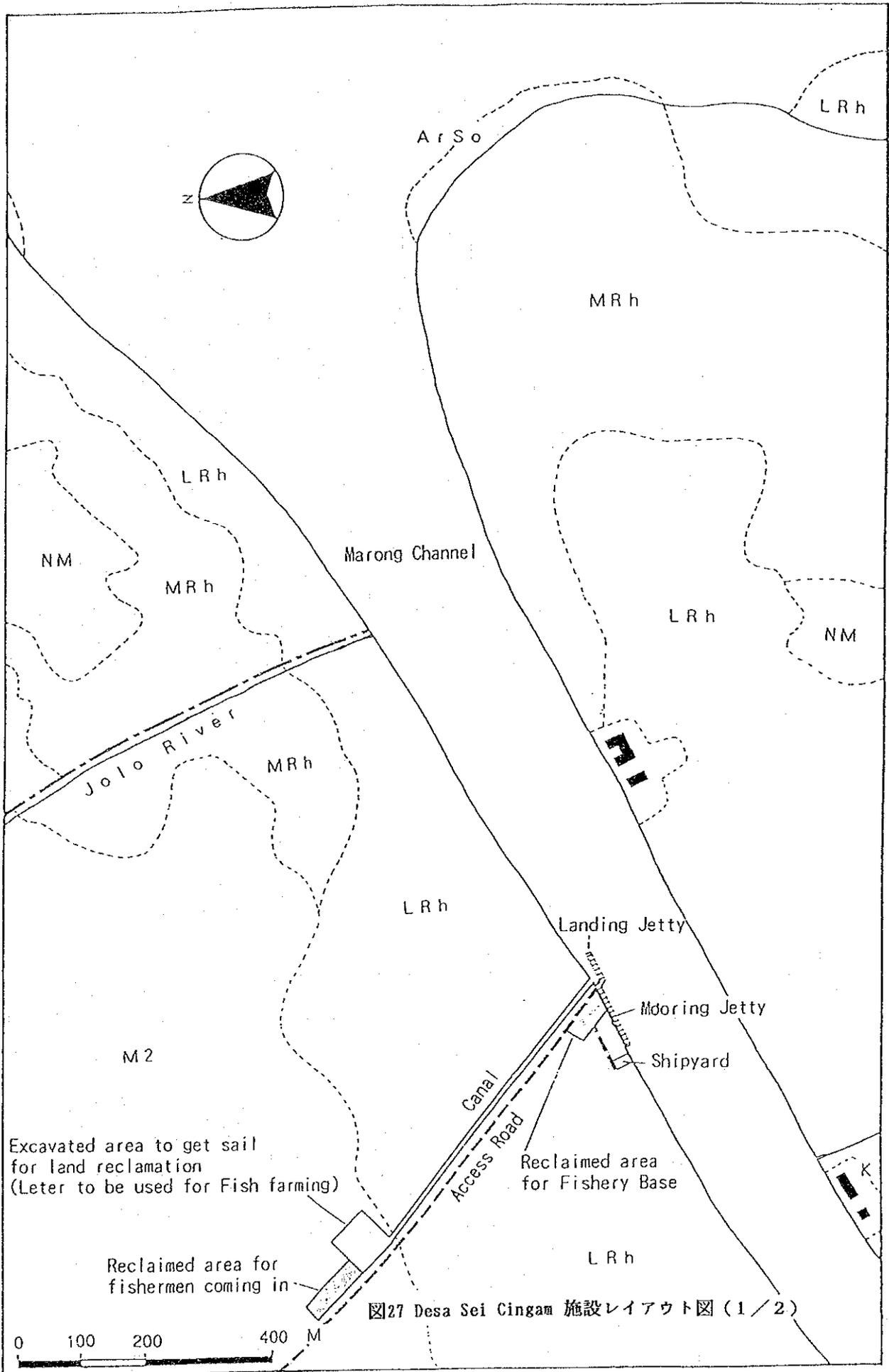


図27 Desa Sei Cingam 施設レイアウト図 (1/2)

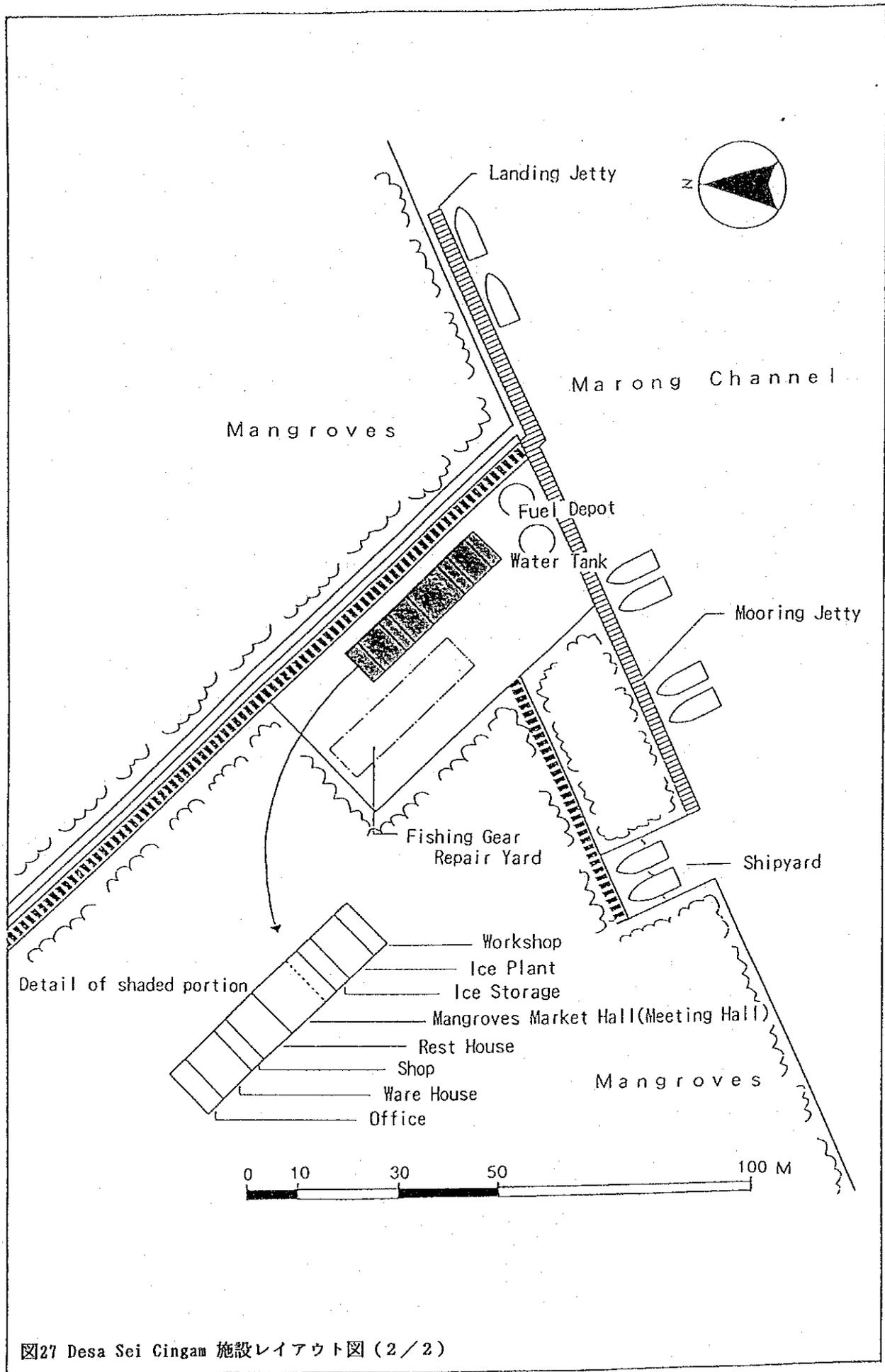


図27 Desa Sei Cingam 施設レイアウト図 (2/2)

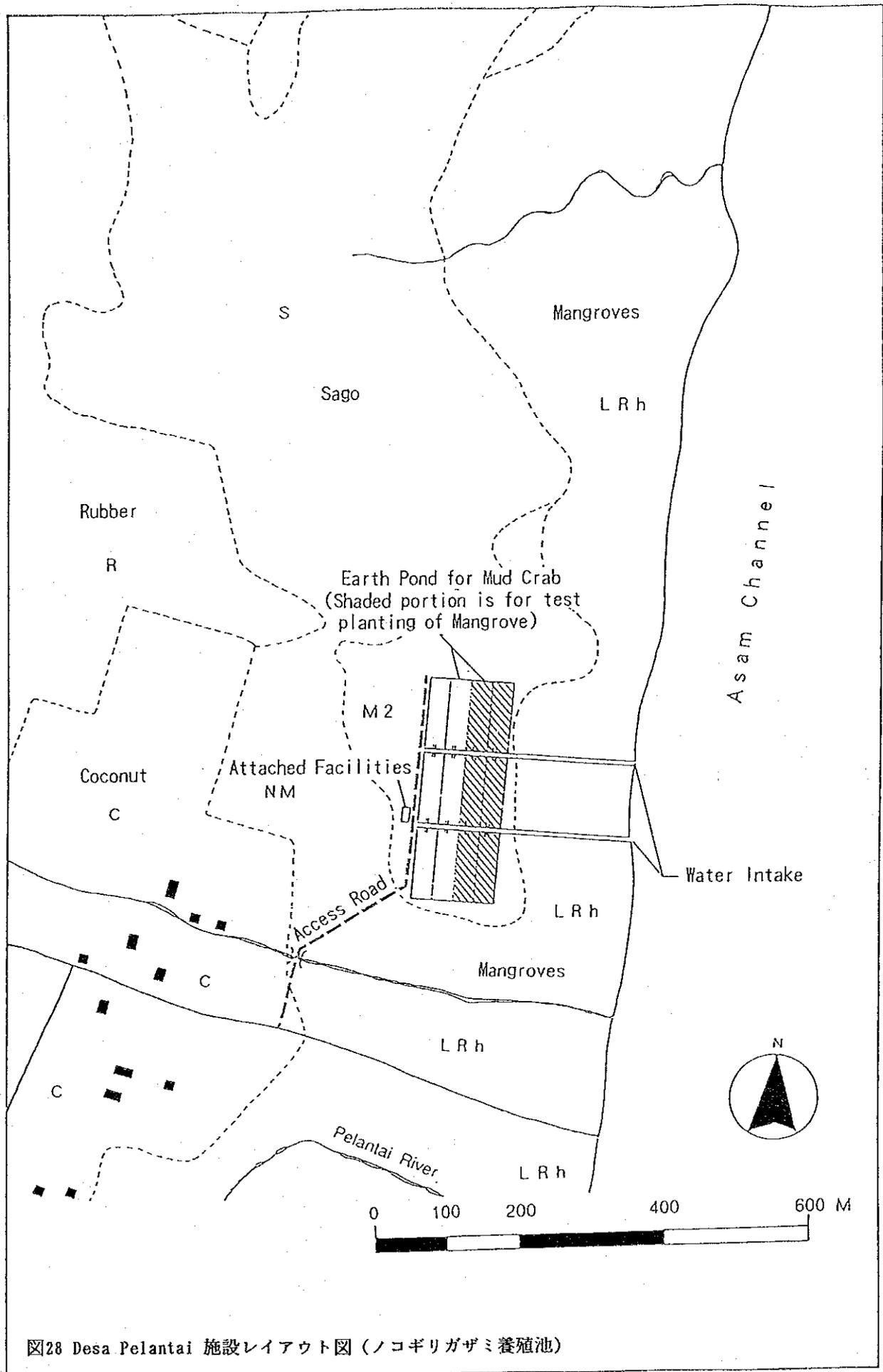


図28 Desa Pelantai 施設レイアウト図 (ノギリガザミ養殖池)

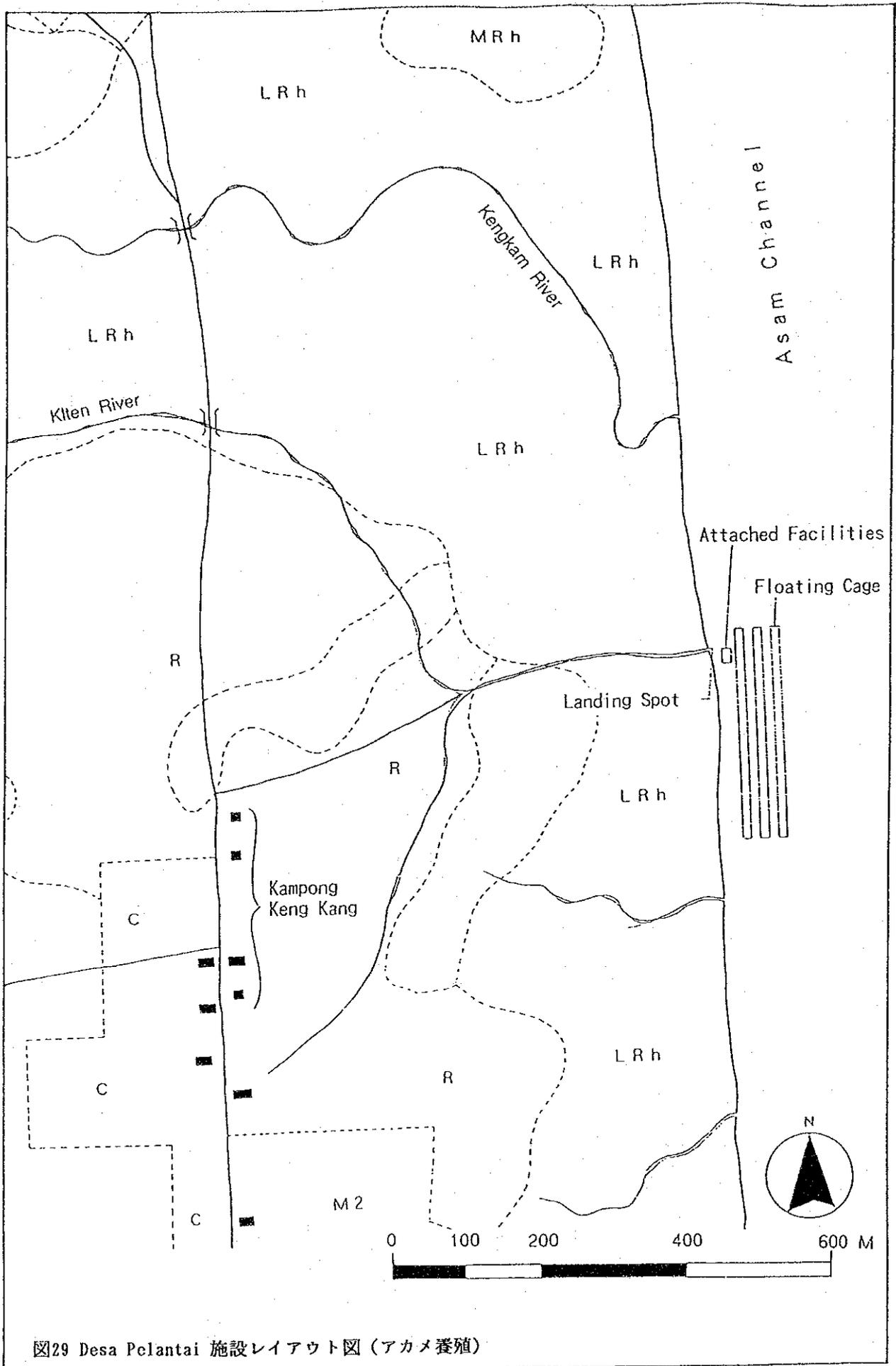


図29 Desa Pelantai 施設レイアウト図 (アカメ養殖)

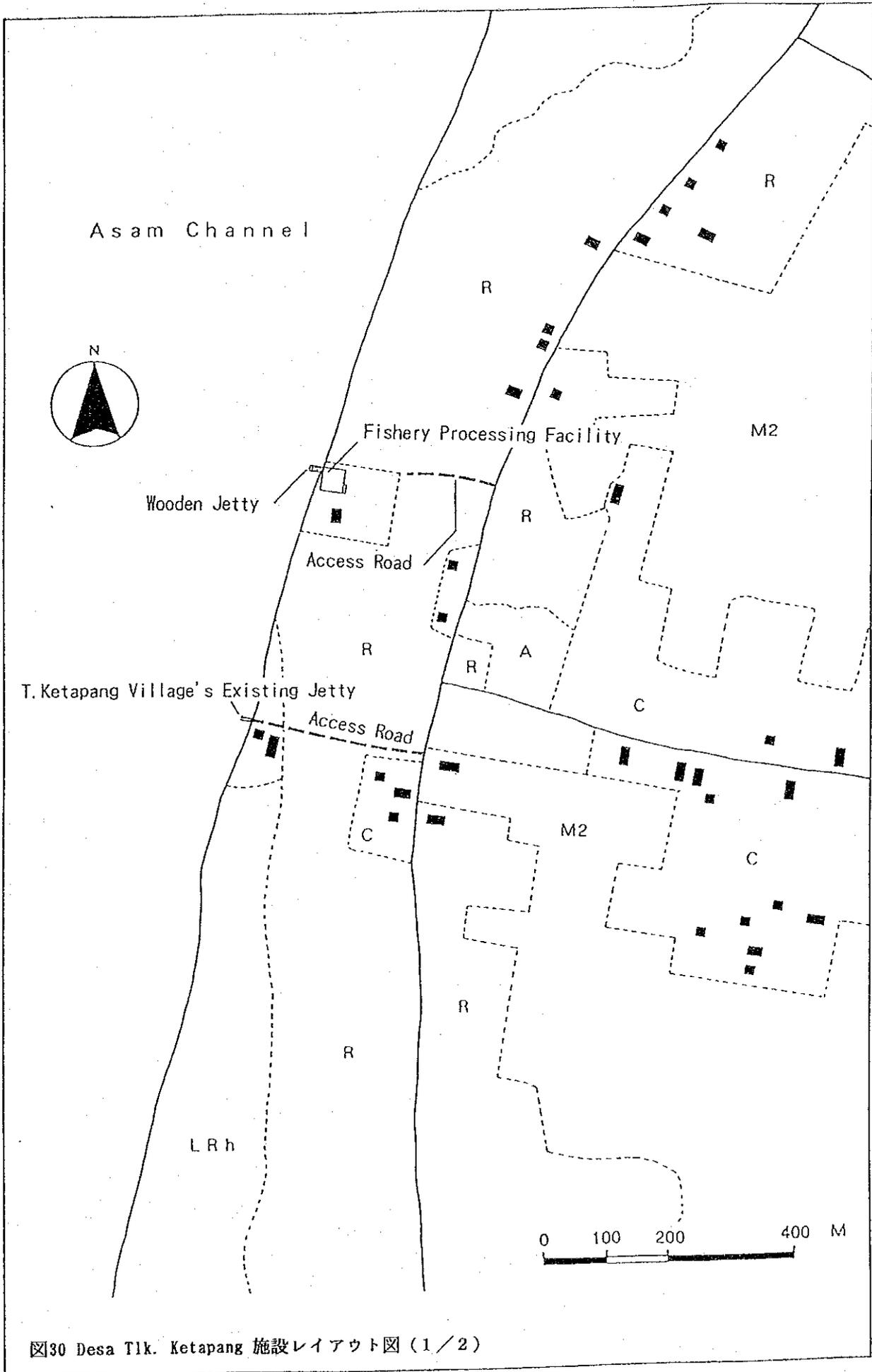


図30 Desa Tlk. Ketapang 施設レイアウト図 (1/2)

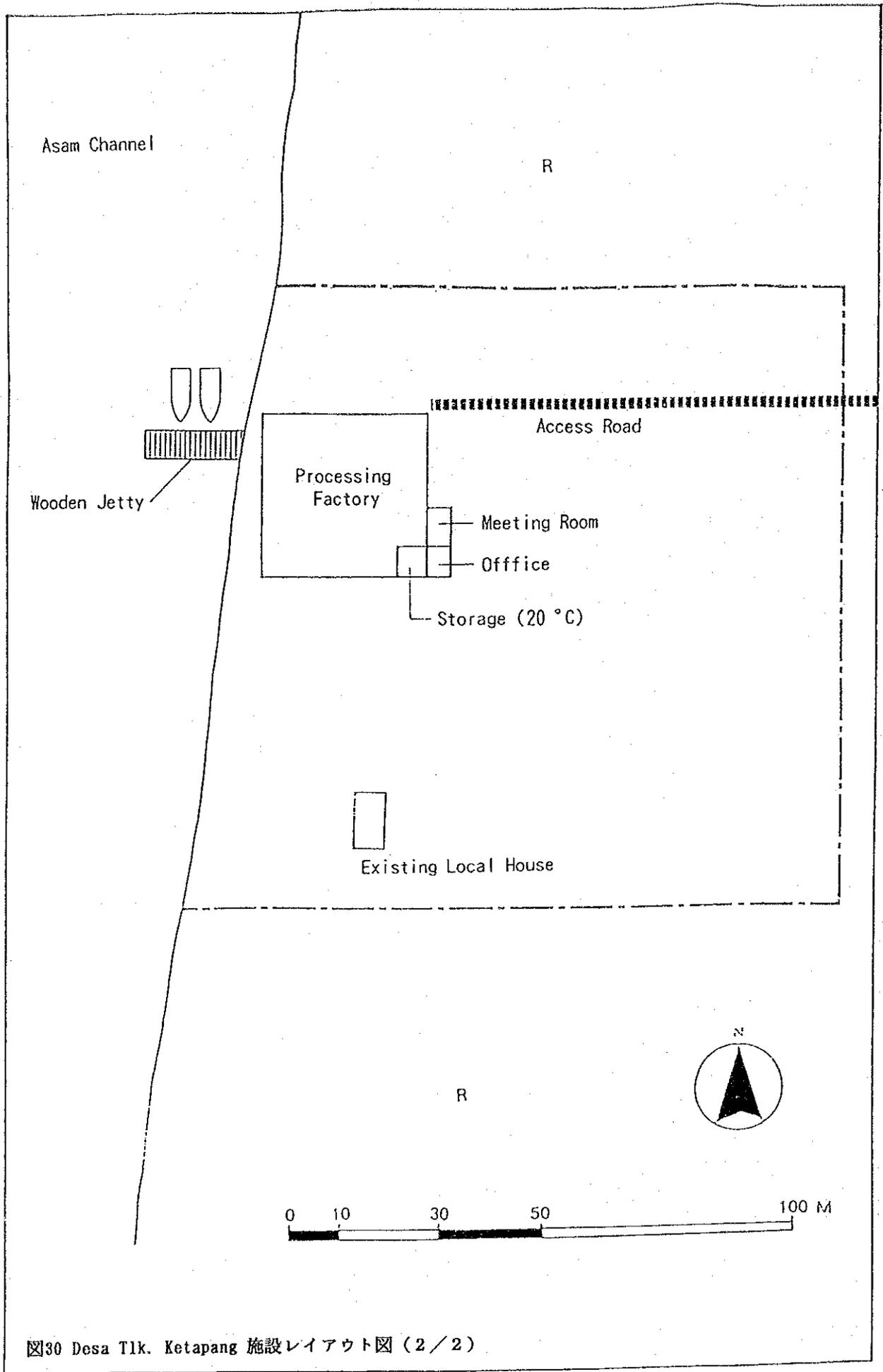


図30 Desa Tlk. Ketapang 施設レイアウト図 (2 / 2)

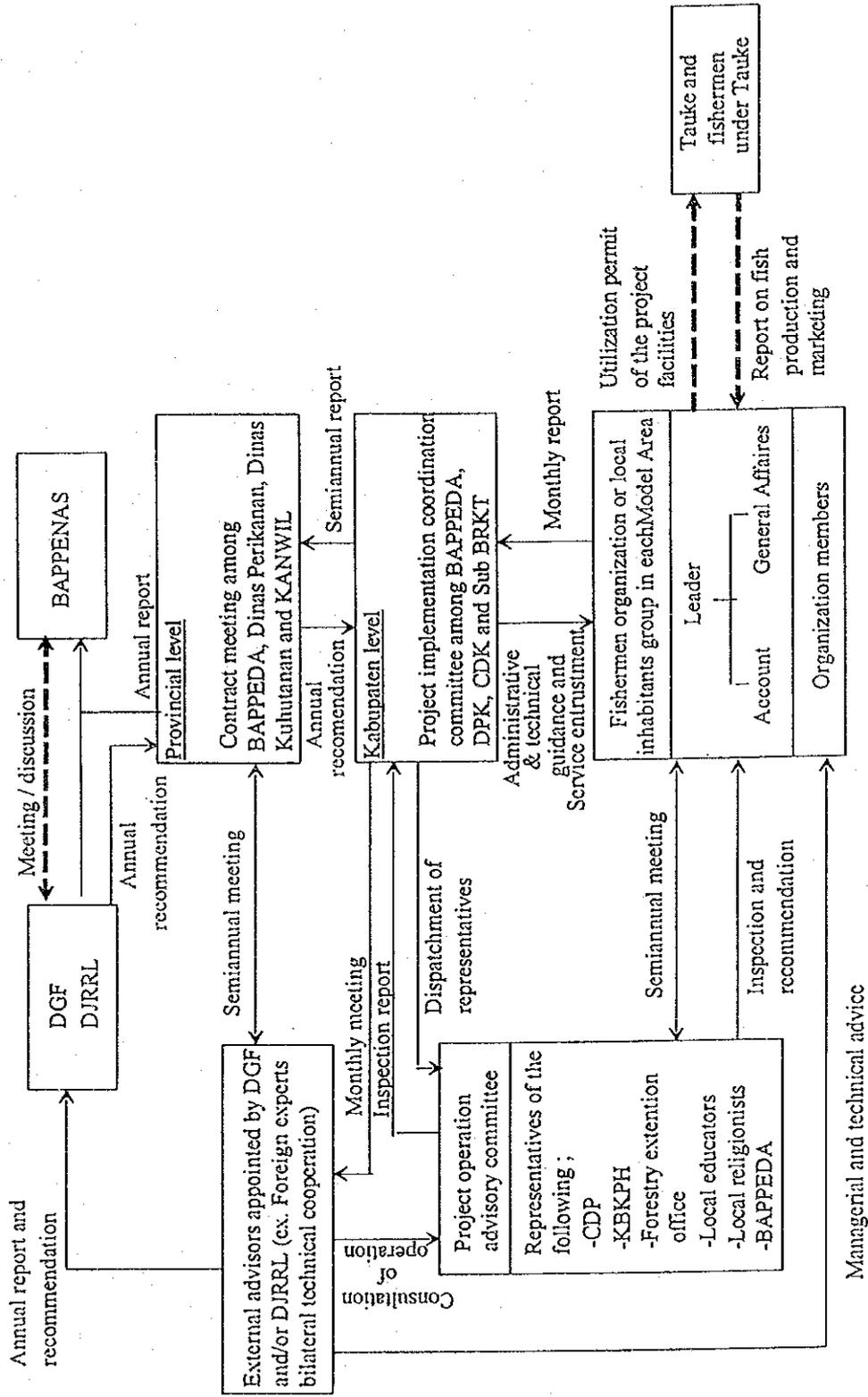


図31 本計画の管理運営体制

付属資料

付属資料 1 調査関係者リスト

(1/2)

氏名	担当	所属
1.1 日本政府		
(1) 作業監理委員会		
1) 田邊 隆一	委員長	(社)日本水産物輸出入協会 専務理事
2) 重 義行	委員	水産庁振興部沖合課 課長補佐
3) 富塚 叙	委員	水産庁振興部沿岸課 課長補佐
4) 田淵 隆一	委員	林野庁森林総合研究所北海道支部 育林部樹木生理研究室 主任研究官
(2) 調査団		
1) 富山 保	総括	システム科学コンサルタンツ(株)
2) 岩崎 茂	漁村社会・経済 ／事業評価	システム科学コンサルタンツ(株)
3) 治田 栄一	漁業生産 ・漁場環境	システム科学コンサルタンツ(株)
4) 北窓 時男	漁民組織・制度	個人
5) 狩野 伊知郎	水産流通 ／水産加工	個人
6) 今井 忠美	マングローブ林管理	(社)日本林業技術協会
7) 久納 泰光	マングローブ林生態	(社)日本林業技術協会
8) 久米 恒雄	環境配慮	システム科学コンサルタンツ(株)
9) 宮崎 義朗	業務調整	システム科学コンサルタンツ(株)

氏 名	所 属
-----	-----

1.2 インドネシア政府

(1) National Steering Committee

- | | |
|------------------------|--|
| 1) Sukotjo Adisukresno | Counterpart Leader
Directorate General of Fisheries, Directorate of Fisheries Resource Management (DGF) Jakarta |
| 2) Bambang Edi Priyono | Directorate of Fisheries Resource Management (DGF) Jakarta |
| 3) Suseno | Directorate of Program (DGF) Jakarta |
| 4) Praatma Prihadi | DGF Jakarta |
| 5) Deddy Setiapermana | Head, Marine environmental Research and Development Division, RDCO, LIPI |
| 6) Bambang Soekartiko | Kepala Boro, KLM & PM, Departmen Kehutanan |
| 7) Kenji Okuaki | JICA Expert |

(2) Regional Steering Committee

- | | |
|------------------------|---|
| 1) Sugiri Elon Kepala | Dinas Perikanan, Dinas Perikanan Propinsi Dati I Riau |
| 2) Rusukin Har | Kepala Bidang Penelitian, BAPPEDA Prop. Dati I Riau |
| 3) I. Putu Sedana | The Faculty of Fisheries, The University of Riau |
| 4) Engkah Sutadipradja | Kepala Dinas, Dinas Kehutanan Propinsi Dati I Riau |
| 5) Soekadji | Kepala Kantor, Kanwill Kehutanan Propinsi Riau |
| 6) Azaly Djohan | Bupati of Kabupaten Bengkalis |
| 7) Umar Lubis | Kepala Dinas, Dinas Perikanan Kabupaten Daerah Tingkat II Bengkalis |
-

付属資料 2 Scope of Work

SCOPE OF WORK
FOR
THE STUDY
ON
COASTAL RESOURCES INVENTORY MANAGEMENT AND ENHANCEMENT
IN
THE REPUBLIC OF INDONESIA

AGREED UPON
BETWEEN
DIRECTORATE GENERAL OF FISHERIES,
MINISTRY OF AGRICULTURE
AND
THE JAPAN INTERNATIONAL COOPERATION AGENCY

JAKARTA

December 20, 1991



Mr. Sukotjo Adisukresno
Director of Fishery
Resource Management,
Directorate General of
Fisheries



Mr. Ryuichi TANABE
Leader
Preparatory Study Team,
Japan International
Cooperation Agency

I . INTRODUCTION

In response to the request of the Government of Indonesia, the Government of Japan has decided to conduct the Study on Coastal Resources Inventory Management and Enhancement (hereinafter referred to as "the Study"), in accordance with the relevant laws and regulations in force in Japan.

Accordingly, the Japan International Cooperation Agency (hereinafter referred to as "JICA"), the official agency responsible for the implementation of technical cooperation programmes of the Government of Japan, will undertake the Study in close cooperation with the authorities concerned of the Government of the Republic of Indonesia.

The present document sets forth the scope of work with regard to the Study.

II . OBJECTIVE OF THE STUDY

The objectives of the study are to formulate coastal community development programmes in coastal area of Riau Province based on sustainable and rational resource utilization, conservation of ecosystems, and promotion of social participation expecting their contribution to the rural development in Indonesia.

III . OUTLINE OF THE STUDY

1. The Study Area

The study area will cover Bengkalis District in east coast of Riau Province.

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2. Scope of the Study

In order to achieve the objectives mentioned above, the Study will cover the following works.

(1) Field survey and data collection

- a) Socio-economic background of selected coastal communities
- b) Utilization and management of fisheries resources
- c) Conservation and management of mangrove resources

(2) Formulation of coastal community development programmes

The programmes consist of:

- a) Small scale fisheries development with proper management measures of fisheries resources,
- b) Development of conservation and management measures of mangrove forest,
- c) Introduction of new income sources, such as aquaculture and
- d) Optimal combination of above a, b, and c for the improvement of socio-economic conditions of coastal communities.

Necessary works are:

- a) Collection and analysis of the data,
- b) Planning,
and
- c) Financial and economic analysis.

IV. STUDY SCHEDULE

The Study will be executed in accordance with the attached tentative work schedule.

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V. REPORT

JICA shall prepare and submit the following reports in English to the Government of Indonesia

1. Inception Report

Thirty (30) copies at the commencement of the field survey in Indonesia.

2. Progress Report

Thirty (30) copies within six(6) months after the beginning the Study.

3. Interim Report

Thirty (30) copies within twelve(12) months after the beginning of the Study.

4. Draft Final Report

Thirty (30) copies within nineteen(19) months after the beginning of the Study, the Government of Indonesia is requested to provide its comments on the Draft Final Report within one (1) month after receipt of the Draft Final Report.

5. Final Report

Thirty (30) copies within two (2) months after receiving the comments from the Government of Indonesia on the Draft Final Report.

VI. UNDERTAKING OF THE GOVERNMENT OF INDONESIA

1. To facilitate smooth conduct of the Study, the Government of the Indonesia shall take necessary measures:

- (1) to secure the safety of the Japanese study team,
- (2) to permit the members of the Japanese study teams to enter, leave and sojourn in Indonesia for the duration of their assignment therein, and exempt them from alien registration requirements and consular fees,
- (3) to exempt the members of the Japanese study team from taxes, duties, fees, and other charges on equipment, machinery and other materials brought into and out for the conduct of the Study,

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- (4) to exempt the members of the Japanese study team from income tax and charges of any kind imposed on or in connection with any emoluments or allowances paid to the members of Japanese study team for their services in connection with the implementation of the Study,
- (5) to provide necessary facilities to the Japanese study team for remittance as well as utilization of funds introduced into Indonesia from Japan in connection with the implementation of the Study,
- (6) to secure permission for entry into private properties or restricted areas for the implementation of the Study,
- (7) to secure permission for the Japanese study team to take all data and documents including maps and photographs related to the Study out of Indonesia to Japan,
- (8) to provide medical services as needed, under the condition that its expenses will be chargeable on members of the Japanese study team,
- (9) to secure clearance for the use of communication facilities including transceivers
and
- (10) to provide the Japanese study team with adequate means of local transport for official travel under the condition that its expenses will be chargeable on members of the Japanese study team.

2. The Government of Indonesia shall bear claims, if any arises, against the members of the Japanese study team resulting from, occurring in the course of, or otherwise connected with, the discharge of their duties in the implementation of the Study, except when such claims arise from gross negligence or willful misconduct on the part of the members of the Japanese study team.

3. Directorate General of Fisheries, Ministry of Agriculture (hereinafter referred to as "DGF") will act as the main counterpart agency to the Japanese study team and also as coordinating body in relation with other governmental and non-governmental organizations concerned for the smooth implemenetation of the study.

4. DGF shall, at its own expense, provide the Japanese study team with the following, in cooperation with other organization concerned:

- (1) available data and information related to the Study,
- (2) counterpart personnel,
- (3) suitable office space with necessary equipment in Jakarta and Pekanbaru
and
- (4) credentials or identification cards.

VII. UNDERTAKING OF JICA

For the implemetation of the Study, JICA shall take the following measures:

- (1) to dispatch, at its own expense, the study team to Indonesia,
and
- (2) to pursue technology transfer to the Indonesian counterpart personnel in the course of the Study.

VIII. CONSULTATION

JICA and DGF of the Government of Indonesia shall consult with each other in respect of any matter that may arise from or in connection with the Study.

2/12/91

MINUTES OF MEETING
ON
SCOPE OF WORK
FOR
THE STUDY
ON
COASTAL RESOURCES INVENTORY MANAGEMENT AND ENHANCEMENT
IN
THE REPUBLIC OF INDONESIA

AGREED UPON
BETWEEN
DIRECTORATE GENERAL OF FISHERIES,
MINISTRY OF AGRICULTURE
AND
THE JAPAN INTERNATIONAL COOPERATION AGENCY

The Japanese Preparatory Study Team, headed by Mr. Ryuichi Tanabe, visited the Republic of Indonesia for the purpose of discussing the Scope of Work for the Study on Coastal Resources Inventory Management and Enhancement from December 9, 1991 to January 5, 1992.

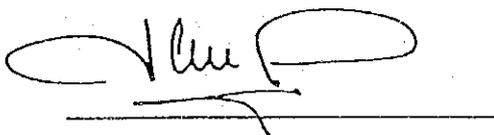
The team had a series of discussion with Indonesia side for exchanging the views and opinions, and conducted field surveys in the study areas in Riau Province.

As the results of the above, both sides have confirmed the following points in addition to the Scope of Work.

1. The Directorate General of Fisheries is requested that they will make effort to get permission from the authorities concerned to get necessary maps, aerial photos and so on.
2. The Directorate General of Fisheries is requested that they will make effort to establish a national steering committee and a regional steering committee.
3. The Directorate General of Fisheries is requested that they will issue invitation letters for the entry visa of Japanese study team members.

4. The Preparatory Study Team is requested to make copy of acquired data and submit them to the Directorate General of Fisheries.
5. The Preparatory Study Team is requested to accept counterparts of this Study by the JICA's Trainee Acceptance Programme.

JAKARTA
December 20, 1991



Mr. Sukotjo Adisukresno
Director of Fishery
Resource Management,
Directorate General of
Fisheries



Mr. Ryuichi TANABE
Leader
Preparatory Study Team,
Japan International
Cooperation Agency

24/12/91