

Table24 Wholesale Price of Fresh Fish from Riau/Sumatra in Malacca and Singapore

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

Table25 Production Volume and Its Composition by Product Type in Kabupaten Bengkalis

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

Table 26 Number of KUD Members by Kecamatan in Kab. Bengkalis (1991)

Kecamat	Name of KUD	Member of KUD			Total
		Fisherman	Fish Farmer	Others	
Unit : Person					
Kubu	KUD Minabankti	-	-	-	-
	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

Table 27 Numbers of Kelompok and Its Members by Kecamatan in Kab. Bengkalis (1991)

	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

Table 28 Forest Land Area by TGHK Indonesia (1984)

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

Table 29 Estimated Area of Mangrove Forests in the Study Area

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.

Table 30 Summary of Forest Inventory Plots

Sampling	Sample		Regeneration ³⁾ 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 (0.785m² x 5 traps/plot)

A: Additional surveyed

A: Sample plot for trees (D ≥ 10cm)

B: Sample plot for trees (D ≥ 4cm)

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

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

Table 31 Summary of Quantative Characteristics
(by the result of inventory plots)

	Forest types						
	Av	HRh	MRh	LRH		LRH-S	
				P.Rupat	Except P.Rupat	P.Rupat	Except P.Rupat
Ind./ha ¹⁾							
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.

Table 32 Estimated Amount of Mangrove Forest Resources per Ha

	Forest types						
	Av	HRh	MRh	LRh		LRh-S	
				Rupat	Except Rupat	Rupat	Except Rupat
Effective volume 1) for charcoal (m ³ /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.

Table33 Estimated Annual Increment of Mangrove Resources

	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

Table 34 Leaf Analysis Results

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

Table35 Fuelwood Consumption (1987)

	Unit: million ³		
	Household	Industry	Total Consumption
Jawa			
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

Table36 Estimated Composition of Fuelwood Sources for Domestic Consumption (1987)

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

Sources : Indonesia forestry action programme, 1991

Table37 Number of HPHH and Planned Cutting Volume for Charcoal Production in Riau Province (Mar. 1991)

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)

Table38 Actual Felling Volume by HPHH in the Study Area (Apr. 1991-Mar. 1992)

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)

Table39 Number of Charcoal Kilns in the Study Area

	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

Table40 Standard Charcoal Production Cycle of Traditional and/or Malaysian Type Kiln in the Study Area

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

Table41 Mangrove Charcoal Export from Riau Province (1985-1991)

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

Table42 Mangrove Charcoal Export from the Study Area (Apr. 1991~Mar. 1992)

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

Table 43 Classification of Fishing Village with more than 30 Fishermen
in Kab. Bengkalis (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 Tcbing Tinggi												
2 Selat Panjang	○						○	△		○	○	
9 Bungur				○		1	○	△		○	○	
15 Tg.Mcdang				○		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)

Table 43 Classification of Fishing Village with more than 30 Fishermen in Kab. Bengkalis (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 Pakning					○	2	△	△		○	○	
4 Buruk Bakul		○					△	△		○	○	(#)
5 Sungai Apit												
2 Sungai Kayu Ara					○	2	△	△	○	○	○	
3 Tanjung Kuras					○	3	△	△	○	○	○	
6 Rupa												
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 necessary to be care the environmental matters
(#) ; Per Capita Net Production <= Poverty Line (Rp. 320,000)

Table 44 Area by Forest Type and Landuse-vegetation Type in Model Mangrove Areas

	Forest type and landuse Vegetation type	Simbol	Area			Total	
			Muntai	Sei Cingam	Pelantai/ Tlk. Ketapang		
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	

Table45 Numbers of Fishermen and Fishing Boats in Desa Muntai

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

Table46 CPU of Gill Net Fishing by Boat Type in Desa Muntai

	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

Table47 Daily Average Catch by Gill Net Fishing in Desa Muntai

	Unit : kg/day/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

Table48 Daily Average Fish Landing in Desa Muntai

	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

Table49 Producer's Price of Fish in Desa Muntai (Purchased Price by Tauke)

	Unit : Rp./kg			
	Present Tauke*1	Bantang 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

Table50 Numbers of Fishermen and Fishing Boats in Desa Sei Cingam

Dusun	Number of Fishermen	Number of Fishing Boat			Jetty
		Non-powered	Out-board	In-board	
Scrimenanti	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

Table51 Fishing Effort of Gill Net Fishing by Boat Type in Desa Sei Cingam

	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

Table52 Daily Average Catch by Gill Net Fishing in Desa Sei Cingam

	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

Table53 Daily Average Fish Landing in Desa Sei Cingam

	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

Table54 Producer's Price of Fish in Desa Sei Cingam (Purchased Price by Tauke)

	Unit : Rp./kg		
	Tauke*1	KUD Rupert*1	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/Rupat Mai 1993

Table55 Numbers of Fishermen, Fishing Boats and Landing Jetties in Desa Pelantai

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

Table56 Fishing Effort of Gill Net Fishing by Non powered Boat in Desa Pelantai

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

Sources : Result of Field Survey

Table57 Daily Average Catch by Gill Net Fishing in Desa Pelantai

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

Sources : Result of Field Survey

Table58 Productivity of Gombang Fishing in Asam Channel

	Unit : kg/set/day			
	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

Table59 Water Conditions of Asam Channel

	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

Table60 Consumer's Price of Fish in Desa Pelantai

Type of Fish	Unit : Rp./kg	
	Pelantai	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.

Table61 Numbers of Fishermen, Fishing Boats and Landing Jetties in Desa Tlk. Ketapang

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

Table62 Daily Average Catch by Gombang Fishing in Desa Tlk. Ketapang

	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

Table 63 Policy on Strengthening Fishery Resources Management According to Model Areas for Development of Fishing Village

Description	Muntai	Sei Cingam	Pelantai	Tik. 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. Trap fishing in shallow waters / intr oduce shellfish propagation.	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

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

Table 64 Category of Forest Utilization

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).

Table 65 Suitable Site of Main Tree Species

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>Excoccaria 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

Table66 Area by Forest Utilization in Model Mangrove Areas

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

Table67 Carbonized Products Per Kiln / Burning 1)

(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 mentined values.
2) Percentage

Sources: Interviewed results

Table68 Allowable Cut Volume, Allowable Number of Kilns and Allowable Charcoal Production in the Study Area

	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 8)				
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/node of Number of kilns per site = 3

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

8) Without designation of mangrove greenbelt

Table69 Allowable Cut Volume, Allowable Number of Kilns and Allowable Charcoal Production in Model Mangrove Areas

	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

Table70 Amount of Forestation in Model Mangrove Areas

		Muntai	Sci 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)	^{s2} 18.0 (36)	^s 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

**Table71 Planned Scale of Facilities and Equipment
for the Muntai Model Fishing Village**

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

**Table72 Project Scale of Mangrove Forests Conservation
and Management Improvement Plan**

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	-	-

**Table73 Planned Scale of Facilities and Equipment
Sei Cingam Model Fishing Village**

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 Toransportation 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

**Table74 Planned Scale of Facilities and Equipments
for Pelantai Model Fishing Village**

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
for giant sea perch			
- Storage			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 Refregirator			2 set

Remark : I ; Imported, L ; Local

**Table75 Planned Scale of Facilities and Equipments
for Hatchery Center**

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

**Table76 Planned Scale of Facilities and Equipments
for Tik. Ketapang Model Fishing Village**

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

**Table77 Project Cost of Small-scale Fishery Development
Plan in Desa Muntai**

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

**Table78 Project Cost of Small-scale Fishery Development
Plan in Desa Sei Gingam**

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

Table79 Project Cost of Small-scale Fishery Development
Plan in Desa Pelantai

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

Table80 Project Cost of Hatchery Center

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

**Table81 Project Cost of Small-scale Fishery Development
Plan in Desa Tik. Ketapang**

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 Cooking 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

**Table82 Project Cost of Mangrove Forests Conservation
and Management Improvement Plan**

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

Table83 Physical Life of Facilities

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 Refregirator	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

Table84 Revenue and Expenditure of Small-Scale Fishery
Development Plan in Desa Muntai

	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

**Table 85 Revenue and Expenditure of Small-Scale Fishery
Development Plan in Desa Sei Cingam**

						Unit : Rp.1000	
		1998	1999	2000	2001	2002	On and after 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

**Table 86 Revenue and Expenditure of Small-Scale Fishery
Development Plan in Desa Pelantai (Whole Period)**

		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

Table87 Revenue and Expenditure of Hatchery Center Plan (Whole Period)

	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

Table88 Revenue and Expenditure of Small-Scale Fishery
Development Plan in Desa Tik. Ketapang

	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

Table 89 Income Statement and Cash Flow : Overall Small-scale Fishery Development Plan

(1/2)

Description	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Income statement																	
1. Revenue	-	260,519	1,452,395	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. Expenditure	-	435,133	1,606,051	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	1,193,337	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
4. Net profit	-	-174,614	-153,656	-138,676	-66,984	7,932	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	7,932	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	133,381	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	133,381	130,023	188,260	118,800	1,511,381	278,080	103,500	6,760	155,560
c. Government fund repayment	-	-	128,767	-	-	-	-	-	-	-	-	-	-	-	-	-	-
d. Loan repayment	-	-	-	-	-	-	-	-	-	-	-	392,188	392,188	392,188	392,188	392,188	392,188
3. Balance of govern. fund at end	-	128,767	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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																	

Table 89 Income Statement and Cash Flow : Overall Small-scale Fishery Development Plan

(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	4,788,067	5,076,580	5,364,667	5,652,759	5,940,846	6,228,934	6,517,021	6,805,108	7,093,195
Interest														
Grace period (years)														
Repayment periods (years)														
Ratio of subsidy														

Table 90 Income Statement and Cash Flow : Desa Muntai

(1/2)

Description	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Income statement																	
1. Revenue	-	-	500,248	554,234	621,591	692,776	767,784	846,613	846,613	846,613	846,613	846,613	846,613	846,613	846,613	846,613	846,613
2. Expenditure	-	31,444	658,347	681,436	710,702	741,226	773,004	806,037	806,037	806,037	806,037	806,037	802,893	799,748	796,604	793,459	790,315
a. Operation cost	-	-	255,339	278,427	307,694	338,218	369,996	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	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	234,749
d. Interest	-	31,444	62,888	62,888	62,888	62,888	62,888	62,888	62,888	62,888	62,888	62,888	59,743	56,599	53,454	50,310	47,166
3. Profit before D & I	-	-	139,538	170,435	208,526	249,186	292,416	338,213	338,213	338,213	338,213	338,213	338,213	338,213	338,213	338,213	338,213
4. Net profit	-	-31,444	-158,099	-127,202	-89,111	-48,450	-5,220	40,576	40,576	40,576	40,576	40,576	43,720	46,865	50,009	53,154	56,298
Cash flow																	
1. Source of fund	2,096,254	2,096,254	76,650	107,548	145,638	186,299	229,529	275,325	275,325	275,325	275,325	275,325	278,470	281,614	284,758	287,903	291,047
a. Subsidy	1,048,127	1,048,127	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
b. Government fund	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
c. Loan	1,048,127	1,048,127	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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	234,749
e. Net profit	-	-31,444	-158,099	-127,202	-89,111	-48,450	-5,220	40,576	40,576	40,576	40,576	40,576	43,720	46,865	50,009	53,154	56,298
2. Use of fund	2,096,254	2,096,254	31,444	-	-	-	-	176,854	-	84,760	-	-	104,813	1,445,993	104,813	104,813	189,573
a. Construction	2,096,254	2,096,254	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
b. Reconstruction	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
c. Government fund repayment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
d. Loan repayment	-	-	31,444	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3. Balance of govern. fund at end	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4. Balance of loan at end	1,048,127	2,096,254	2,096,254	2,096,254	2,096,254	2,096,254	2,096,254	2,096,254	2,096,254	2,096,254	1,991,441	1,886,629	1,781,816	1,677,003	1,572,191	1,467,378	
5. Balance of cash flow	-	-	45,206	152,754	298,392	484,691	714,220	812,691	1,088,016	1,278,581	1,553,906	1,724,419	556,896	733,697	913,642	1,096,732	1,198,207
Interest	3.0%																
Grace period (years)	10																
Repayment periods (years)	20																
Ratio of subsidy	50.0%																

Table 90 Income Statement and Cash Flow : Desa 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. Source of fund	294,191	297,336	300,480	303,625	306,769	584,802	313,058	316,202	319,346	322,491	325,635	328,780	331,924	335,068
a. Subsidy	-	-	-	-	-	-	-	-	-	-	-	-	-	-
b. Government fund	-	-	-	-	-	274,889	-	-	-	-	-	-	-	-
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%													

Table 91 Income Statement and Cash Flow : Desa Sei Cingam

(1/2)

Description	-1	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	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
2. Expenditure	-	24,709	382,005	393,430	405,259	423,663	442,872	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
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
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
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
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
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	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	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
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	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	82,362	167,122
a. Construction	1,372,707	1,372,707	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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	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	1,564,886	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	895,656	
Interest	3.0%																
Grace period (years)	10																
Repayment periods (years)	20																
Ratio of subsidy	40.0%																

Table 91 Income Statement and Cash Flow : Desa Sei Cingam

(2/2)

Description	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	28	29
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	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	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	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
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
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	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	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	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	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	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	87,695	90,166
2. Use of fund	369,383	82,362	82,362	82,362	82,362	1,059,180	167,122	82,362	82,362	82,362	458,490	82,362	82,362	82,362	167,122
a. Construction	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
b. Reconstruction	287,021	-	-	-	-	576,818	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	82,362
3. Balance of govern. fund at end	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4. Balance of loan 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	82,362	-0
5. Balance of cash flow	690,663	777,183	866,173	957,634	1,051,565	1,141,150	1,230,264	1,318,340	1,406,416	1,494,491	1,582,566	1,670,641	1,758,716	1,846,791	1,934,866
Interest	3,0%														
Grace period (years)	10														
Repayment periods (years)	20														
Ratio of subsidy	40,0%														

Table92 Income Statement and Cash Flow : Desa 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	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	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	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	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	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	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	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	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	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	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	54,209
2. Use of fund	2,050,872	-	-	-	-	103,500	118,167	-	31,200	103,500	-	-	266,805	206,044	102,544	133,744	299,910	299,910
a. Construction	2,050,872	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
b. Reconstruction	-	-	-	-	-	103,500	118,167	-	31,200	103,500	-	-	164,261	-	-	-	31,200	197,367
c. Government fund repayment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
d. Loan repayment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3. Balance of govern. fund at end	-	-	-	-	-	-	-	-	-	-	-	-	102,544	102,544	102,544	102,544	102,544	102,544
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	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	1,017,820	888,434	926,386	863,913	908,018	923,998	776,888	776,888
Interest																		
Grace period (years)																		
Repayment periods (years)																		
Ratio of subsidy																		

Table92 Income Statement and Cash Flow : Desa Pelantai

(2/2)

Description	17	18	19	20	21	22	23	24	25	26	27	28	29	30
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	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
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	1,230,323	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	327,070	89,762	173,838	261,031	216,579	309,904
Interest	3.0%													
Grace period (years)	10													
Repayment periods (years)	20													
Ratio of subsidy	-													

Table 93 Income Statement and Cash Flow : Hatchery

(1/2)

Description	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	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	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
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	-	-	-	-	-	-	-	-	-	-	-	55,773	55,773	55,773	55,773	55,773	55,773	
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																		

Table93 Income Statement and Cash Flow : Hatchery

(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														
Grace period (years)														
Repayment periods (years)														
Ratio of subsidy														

Table 94 Income Statement and Cash Flow : Desa Tik. Ketapang

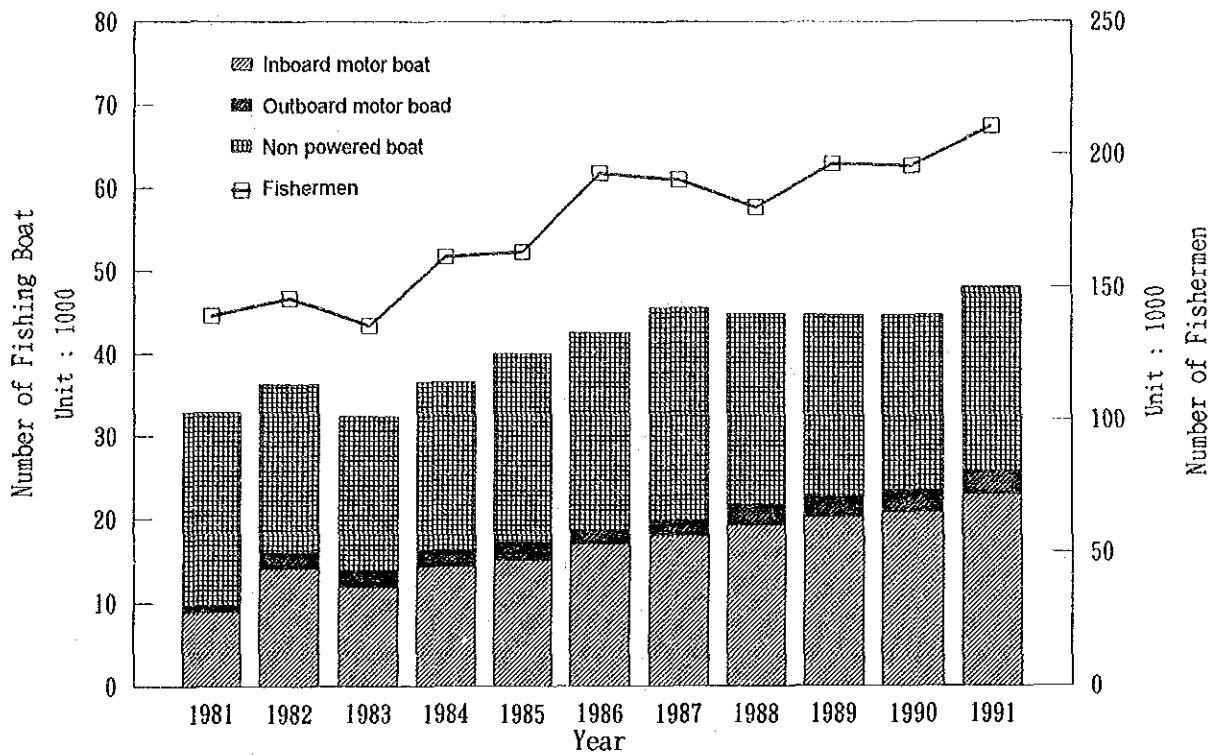
(1/2)

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	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	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	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	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	45,847
d. Interest	-	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	19,383	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	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	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	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	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	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	46,149
a. Construction	1,025,535	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
b. Reconstruction	-	-	-	-	-	-	15,246	-	-	-	-	41,272	-	-	-	-	-	-
c. Government fund repayment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
d. Loan repayment	-	-	-	-	-	-	-	-	-	-	46,149	46,149	46,149	46,149	46,149	46,149	46,149	46,149
3. Balance of govern. fund at end	-	9,188	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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	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	301,883
Interest	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Grace period (years)	10																	
Repayment periods (years)	20																	
Ratio of subsidy	10.0%																	

Table 94 Income Statement and Cash Flow : Desa Tik. Ketapang

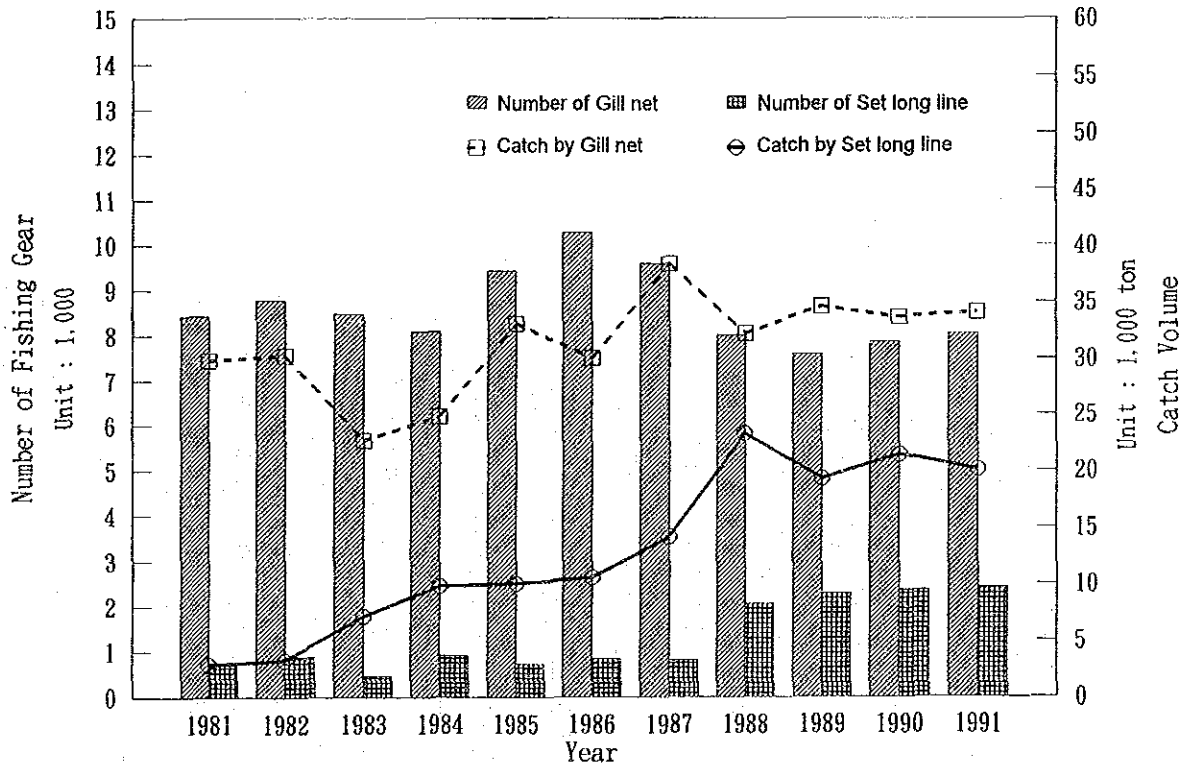
(2/2)

Description	17	18	19	20	21	22	23	24	25	26	27	28	29
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	303,863	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	-	-	-	-	-	-	-	-	-	-	-	-	-
4. Balance of loan 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
5. Balance of cash flow	330,660	360,821	392,367	425,297	269,840	305,539	342,622	381,091	420,943	0	-	-	10,506
Interest	3.0%												
Grace period (years)	10												
Repayment periods (years)	20												
Ratio of subsidy	10.0%												



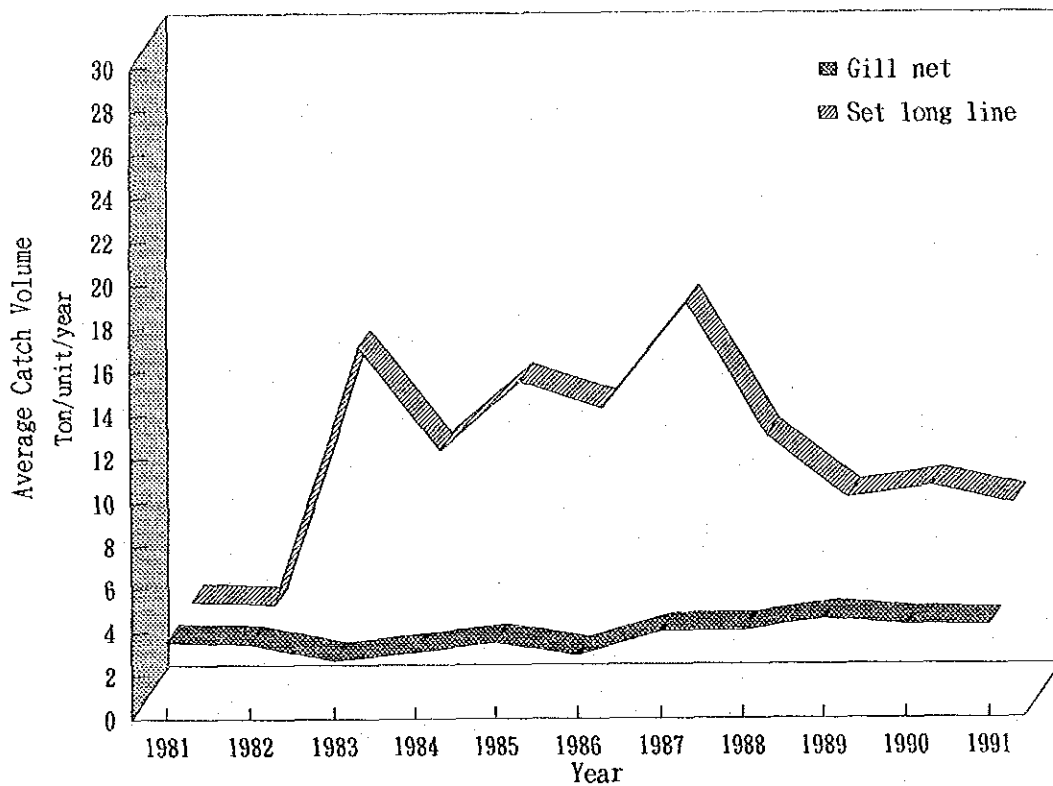
Sources : Fisheries Statistics of Indonesia 1981~1991

Fig. 1 Numbers of Fishing Boat and Fishermen in Malacca Strait



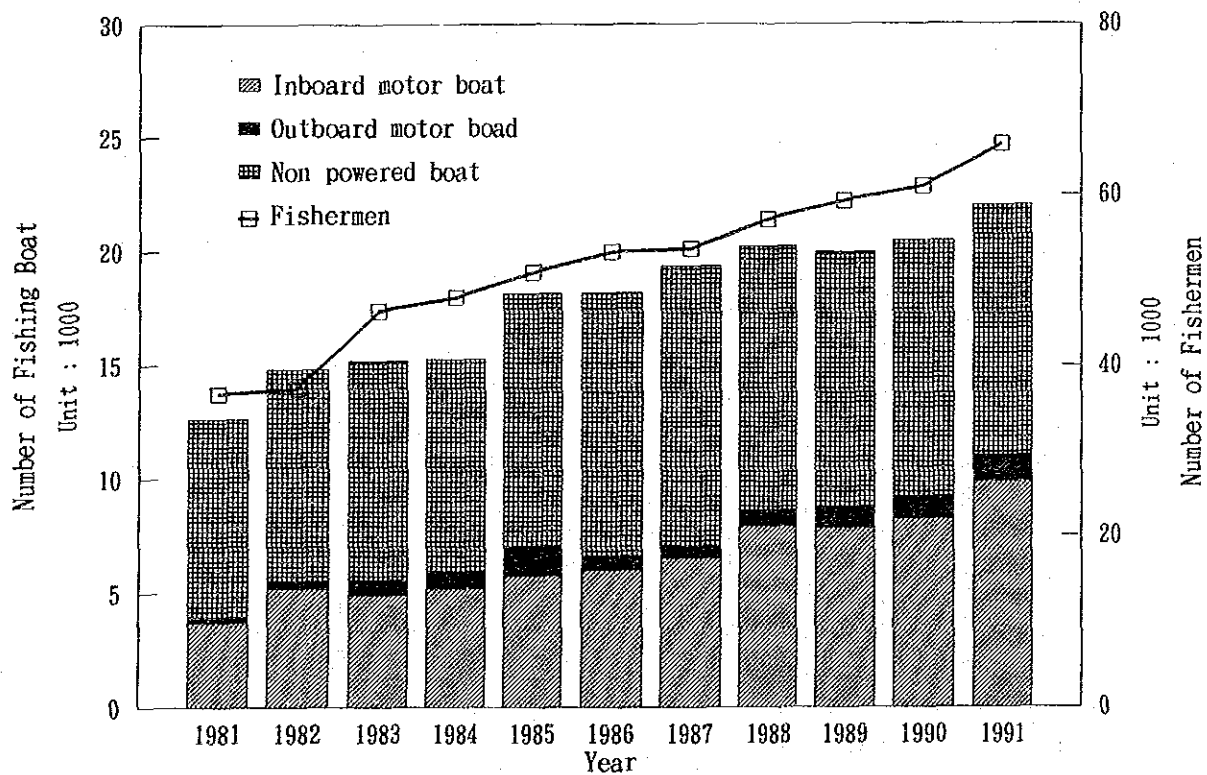
Sources : Fisheries Statistics of Indonesia 1981~1991

Fig. 2 Number of Fishing Gear and Fish Catch in Malacca Strait



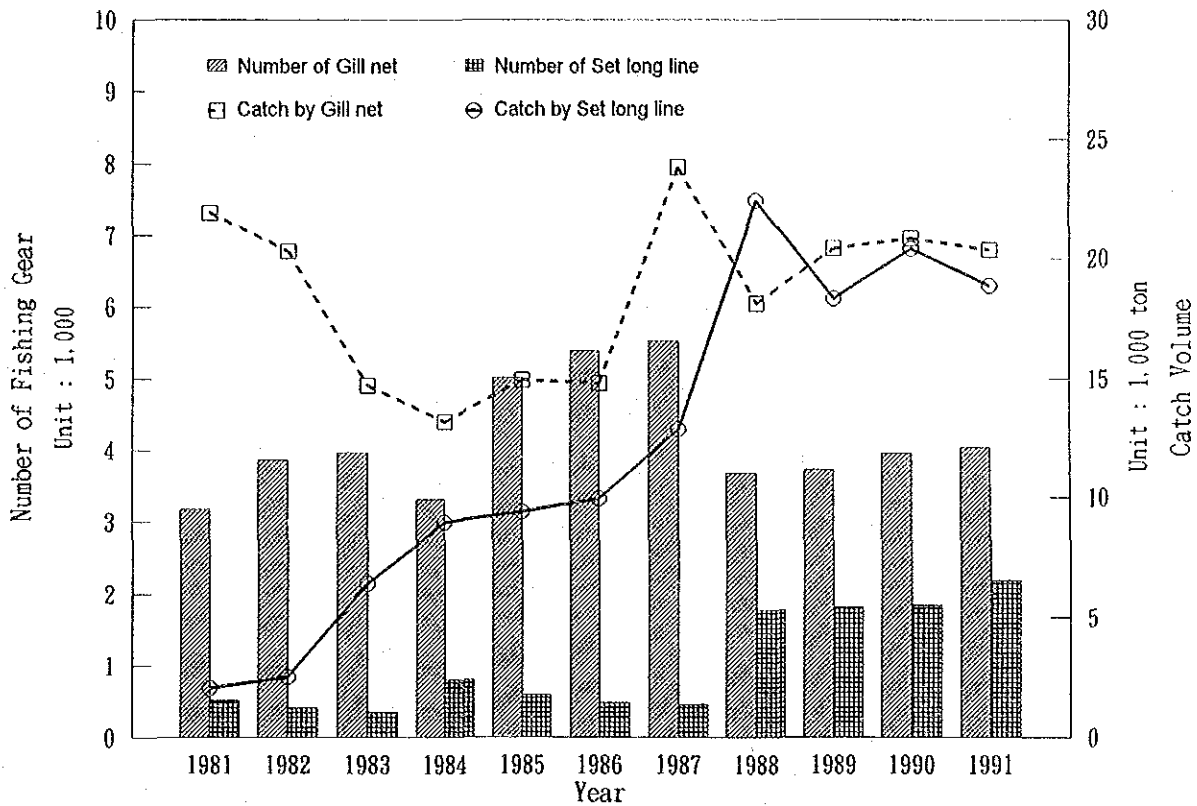
Sources : Fisheries Statistics of Indonesia 1981~1991

Fig. 3 Annual Fish Catch per Fishing Unit in Malacca Strait



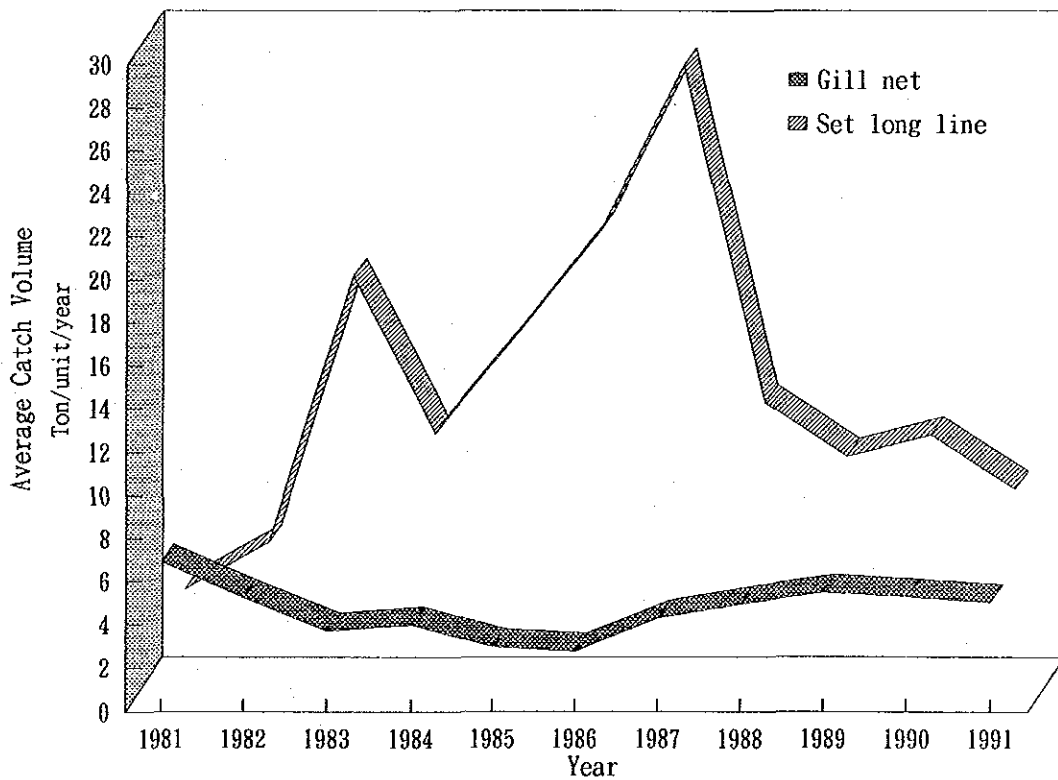
Sources : Fisheries Statistics of Indonesia 1981~1991

Fig. 4 Numbers of Fishing Boat and Fishermen of Riau Province in Malacca Strait



Sources : Fisheries Statistics of Indonesia 1981-1991

Fig 5. Number of Fishing Gear and Fish Catch of Riau Province in Malacca Strait



Sources : Fisheries Statistics of Indonesia 1981-1991

Fig. 6 Annual Fish Catch per Fishing Unit of Riau Province in Malacca Strait

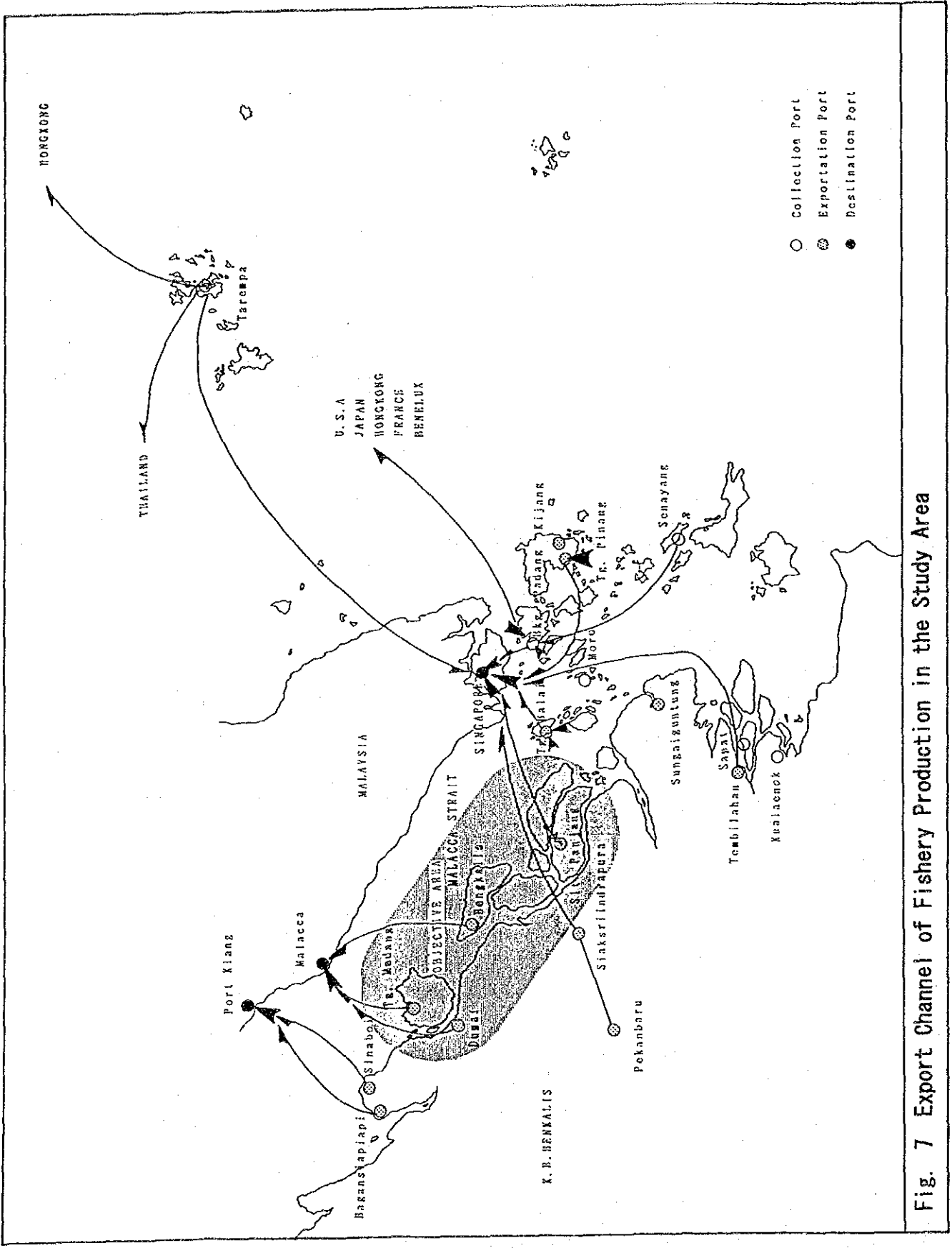


Fig. 7 Export Channel of Fishery Production in the Study Area

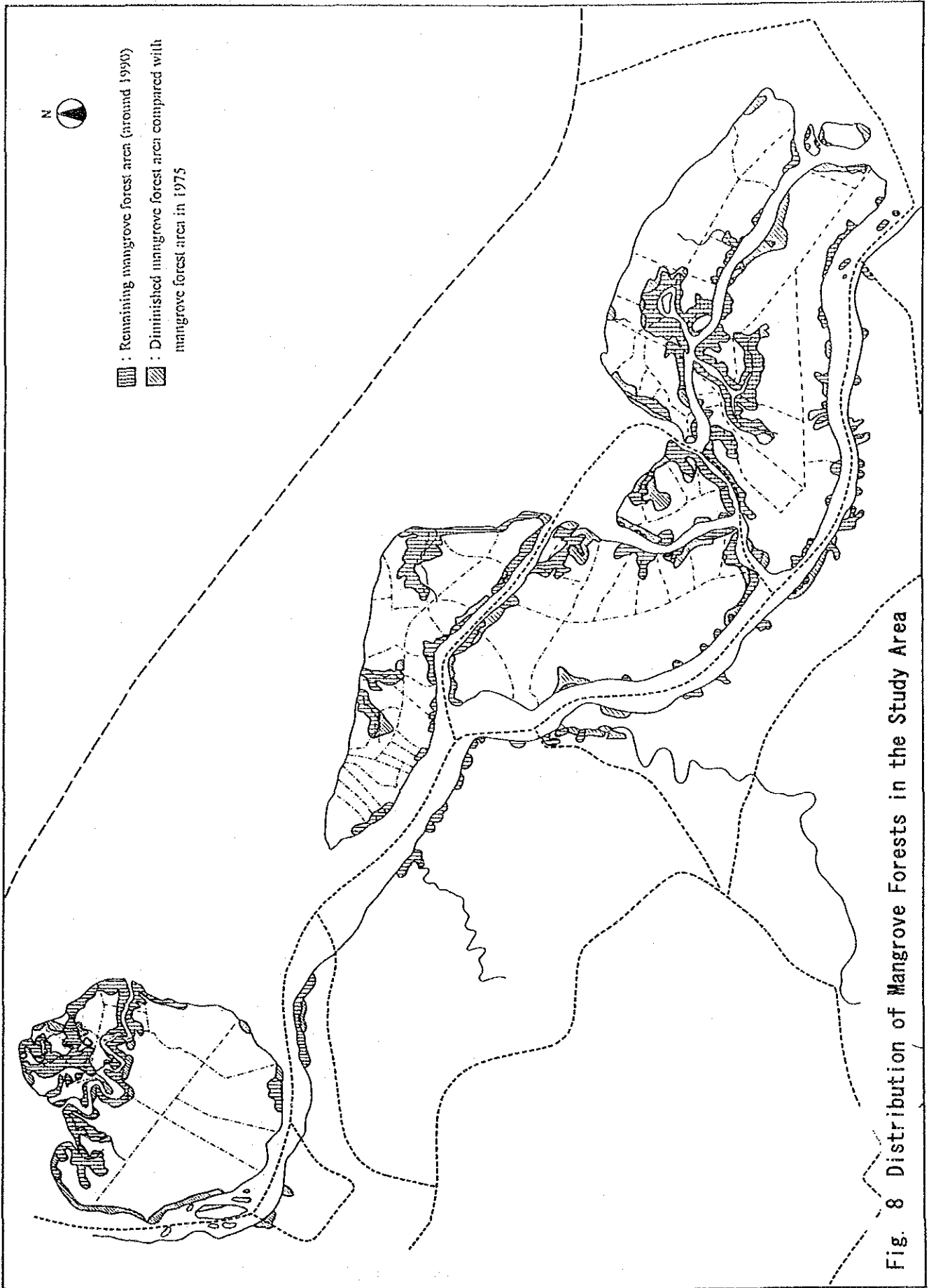


Fig. 8 Distribution of Mangrove Forests in the Study Area

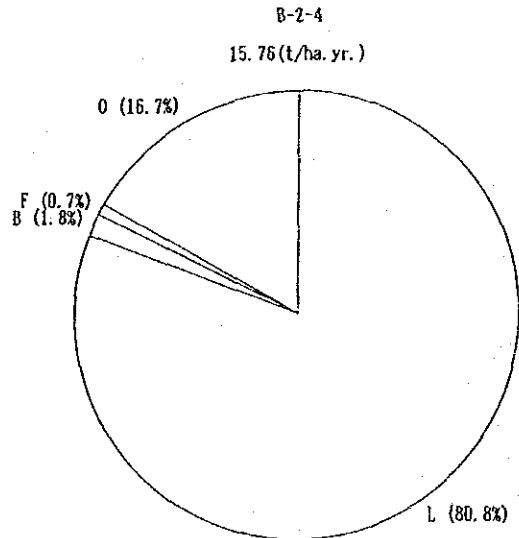
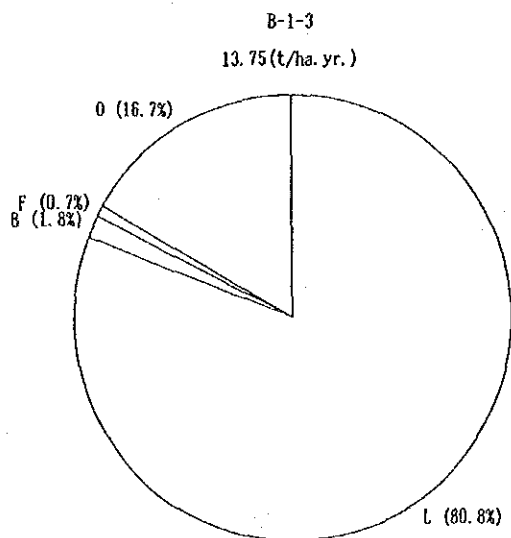
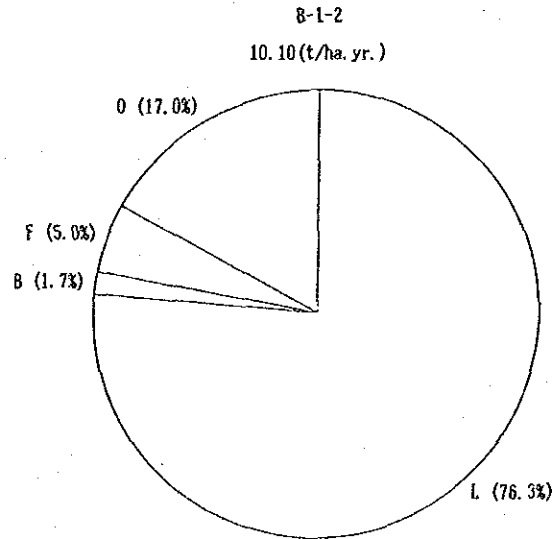
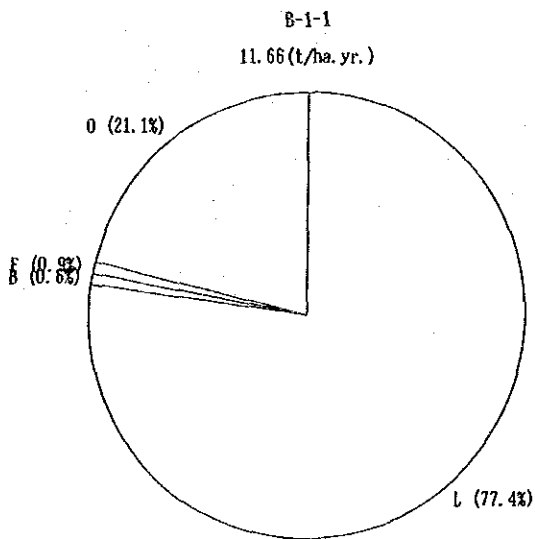
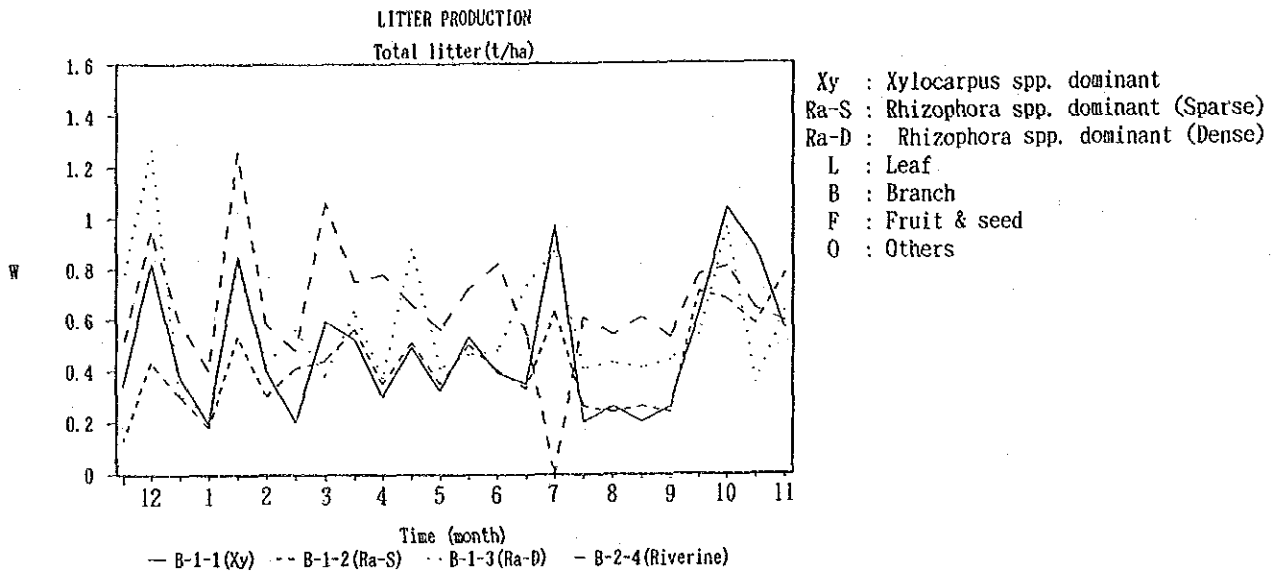


Fig. 9 Litter Production



Fig. 10 Approximate Distribution of HPHH

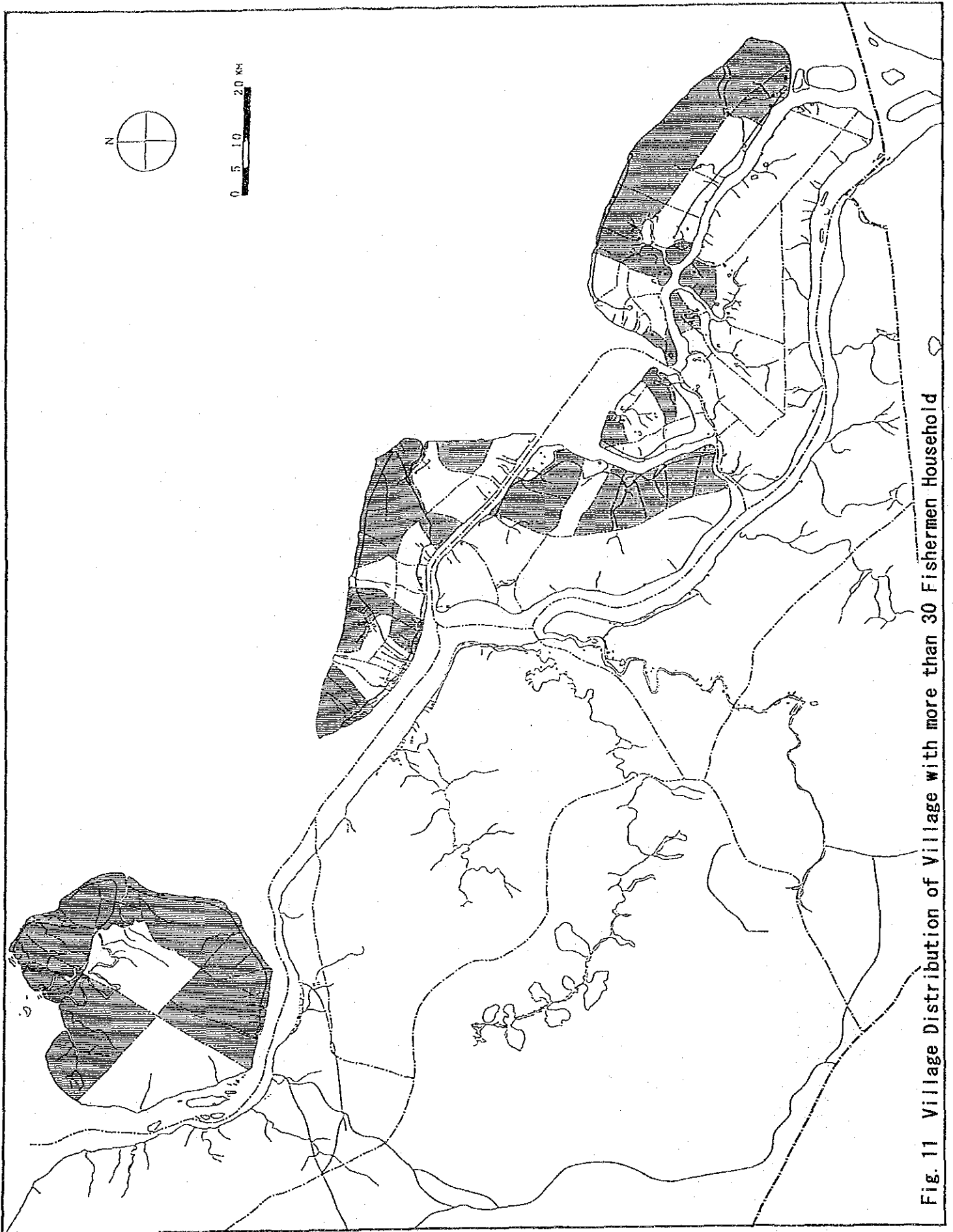


Fig. 11 Village Distribution of Village with more than 30 Fishermen Household

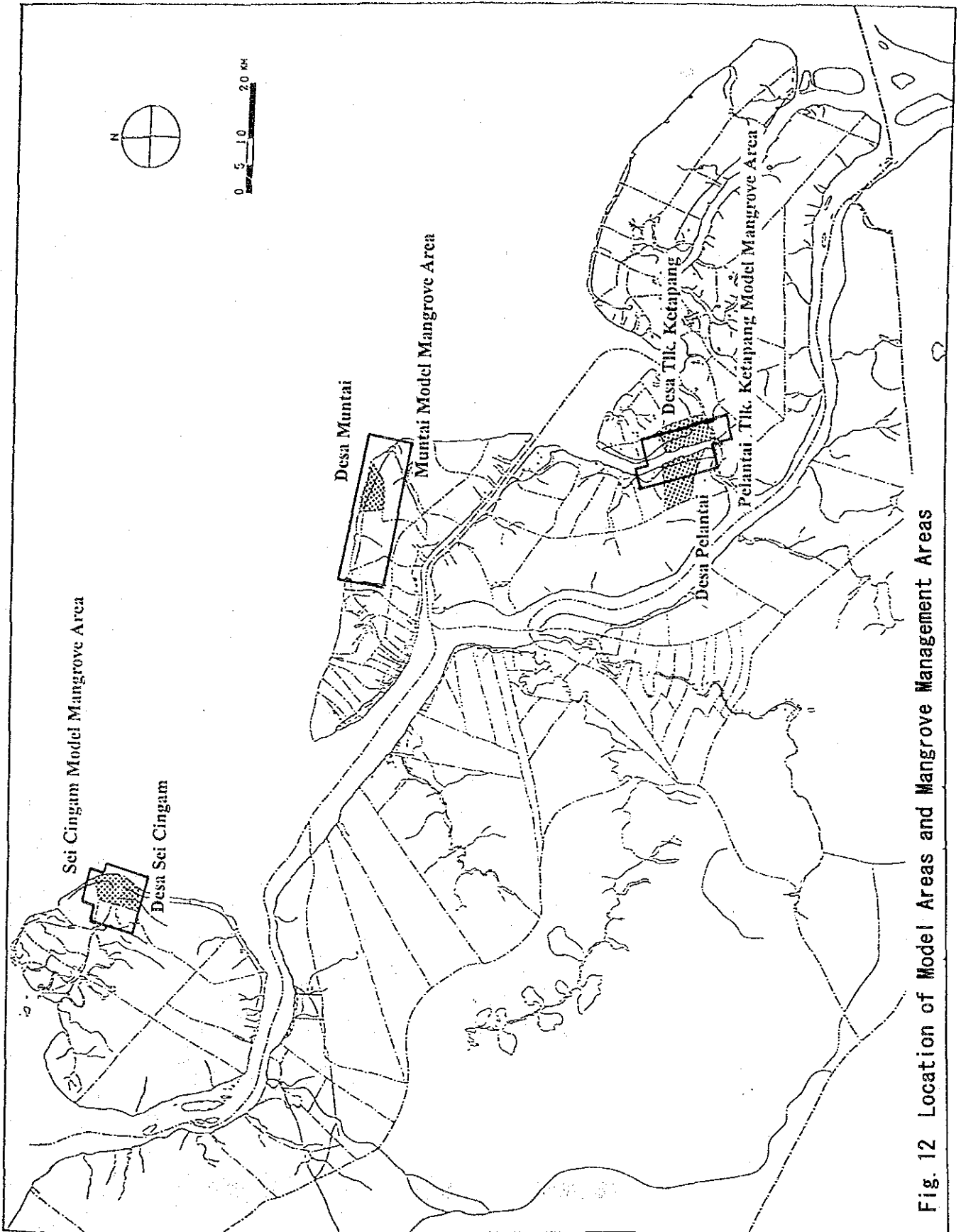


Fig. 12 Location of Model Areas and Mangrove Management Areas

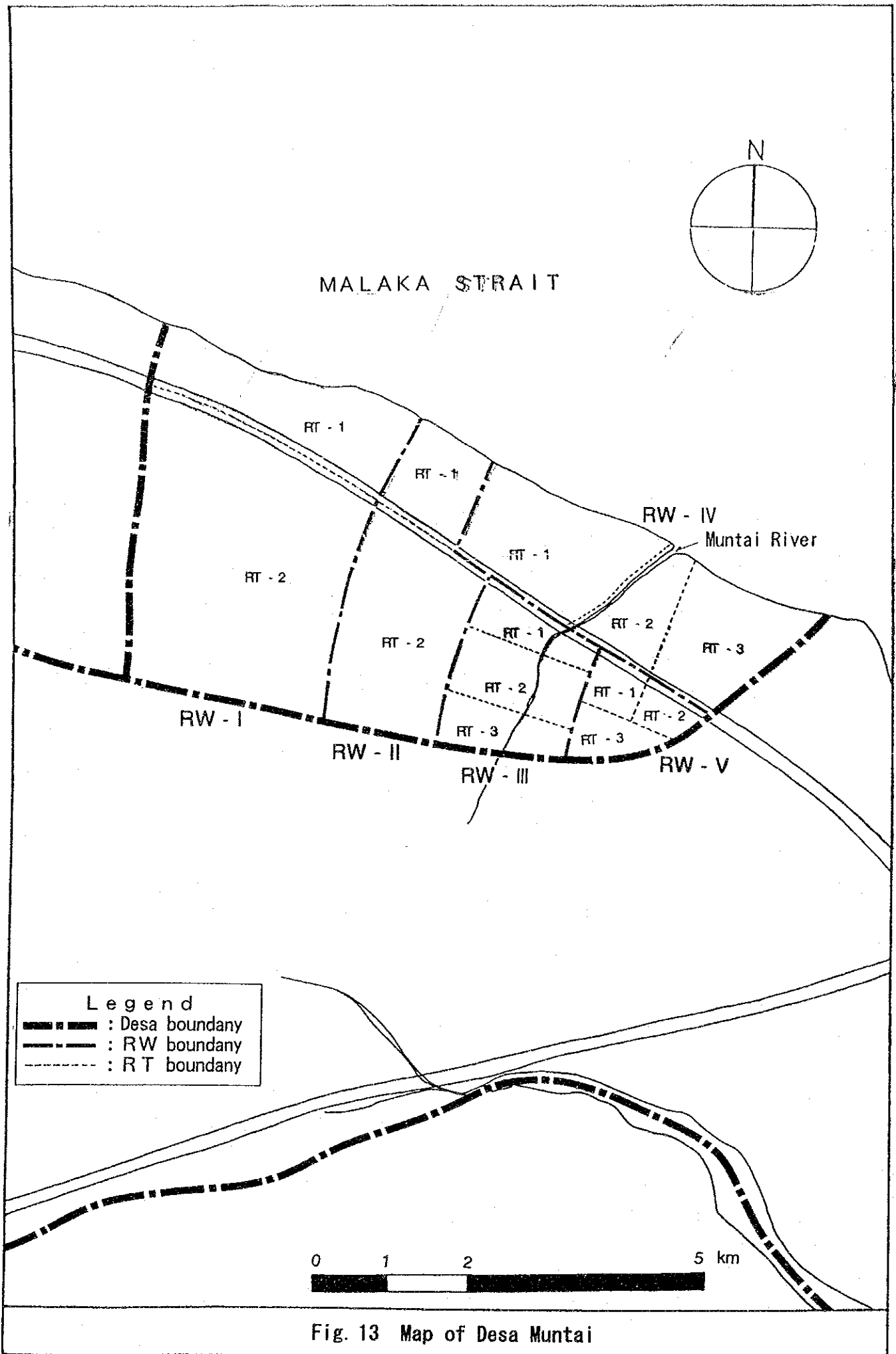


Fig. 13 Map of Desa Muntai

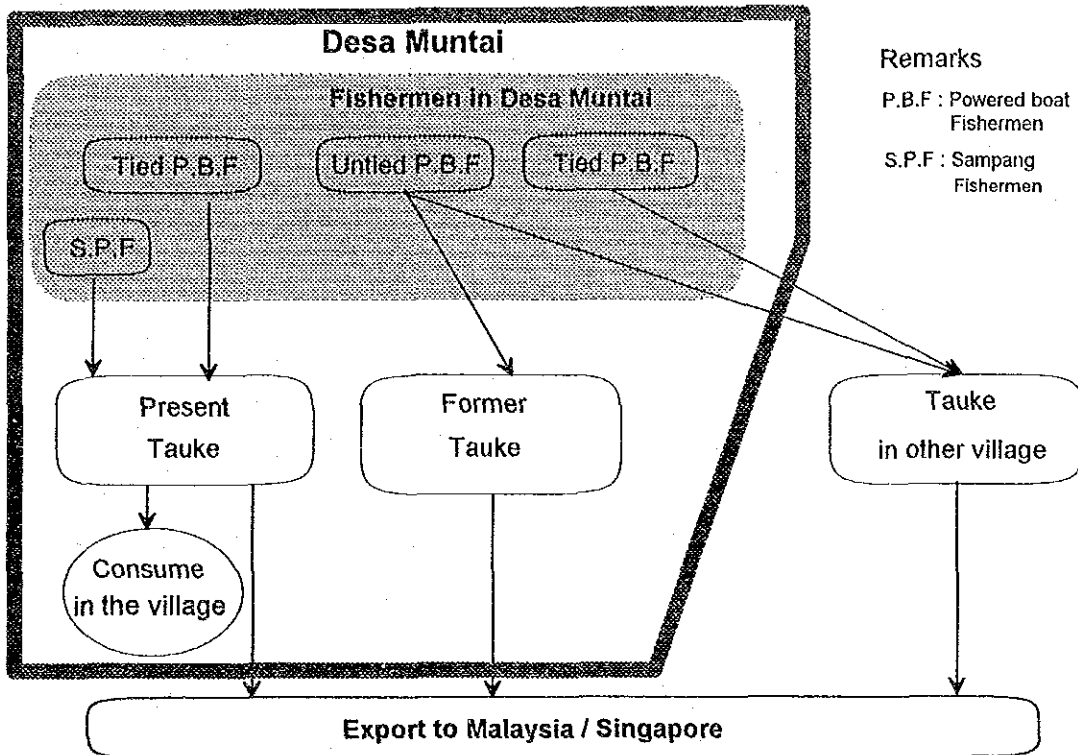


Fig. 14 Fish Marketing Structure in Desa Muntai

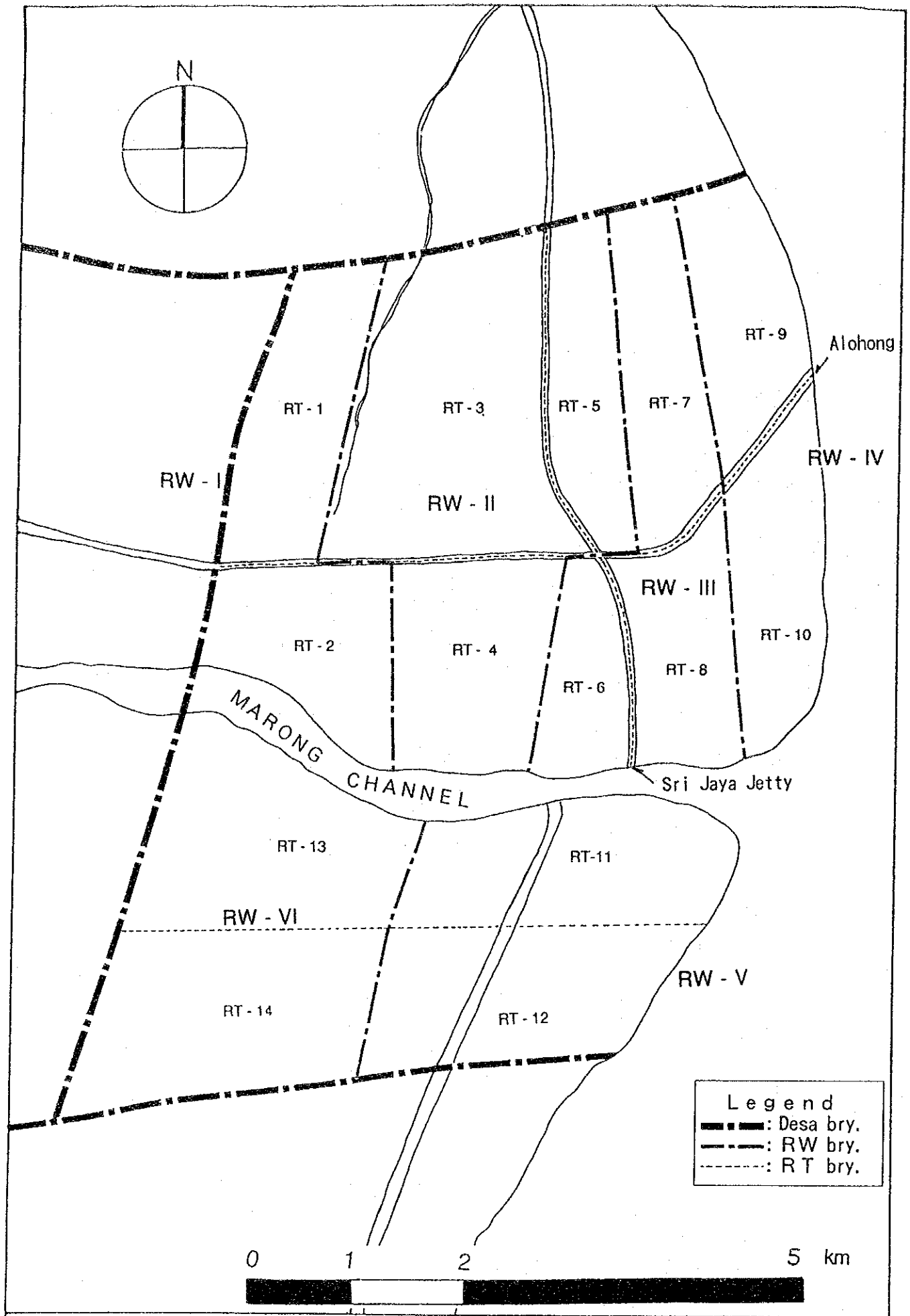


Fig. 15 Map of Desa Sei Cingam

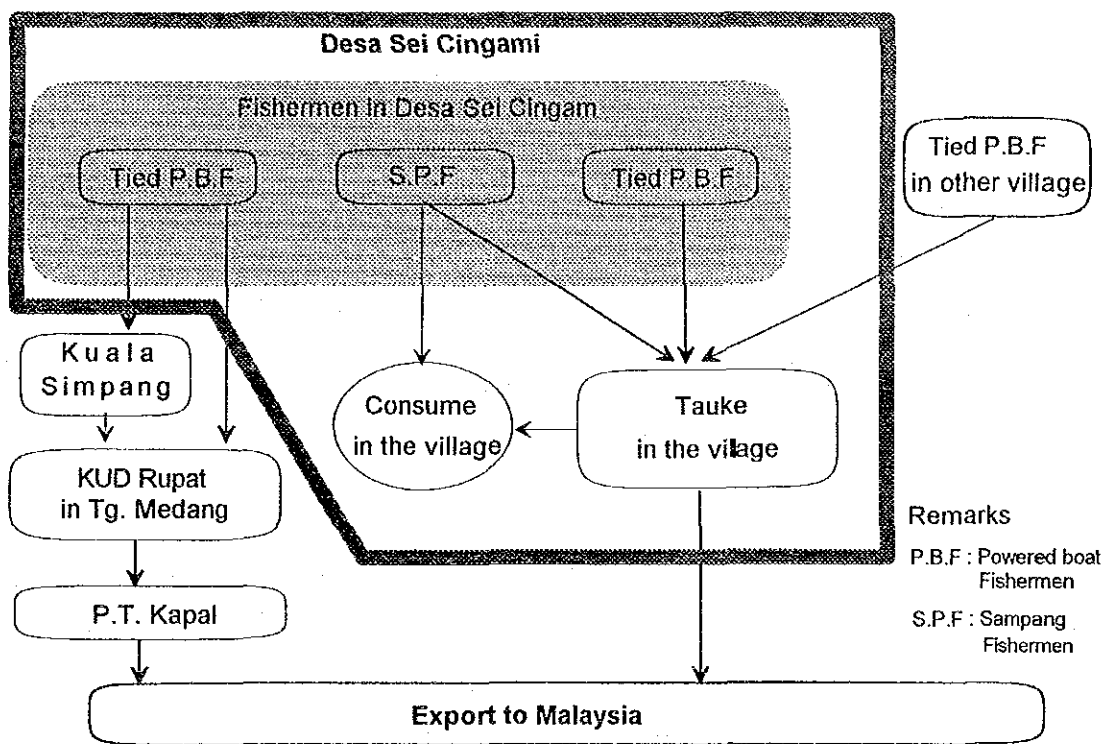


Fig. 16 Fish Marketing Structure in Desa Sei Cingami

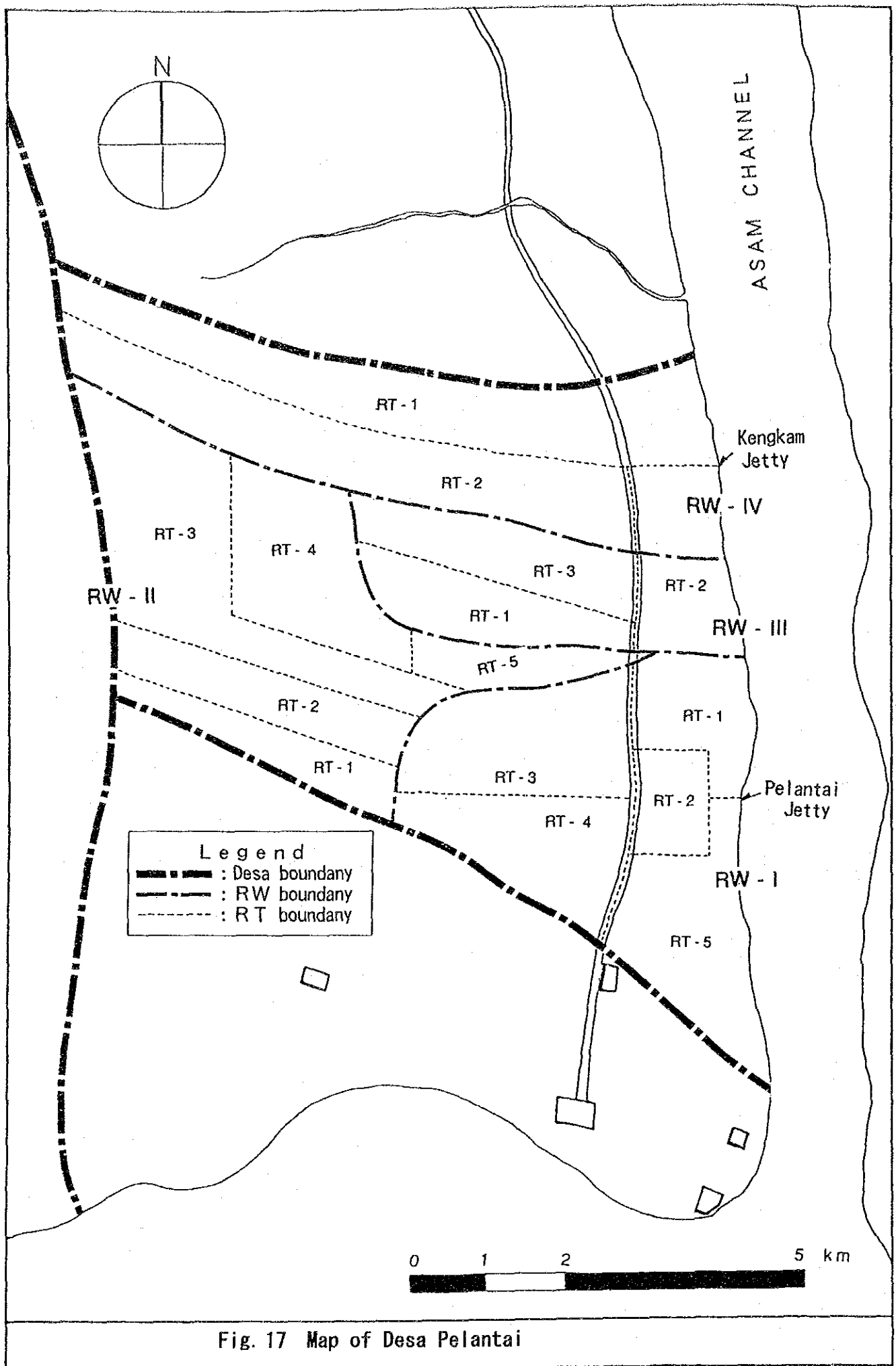


Fig. 17 Map of Desa Pelantai

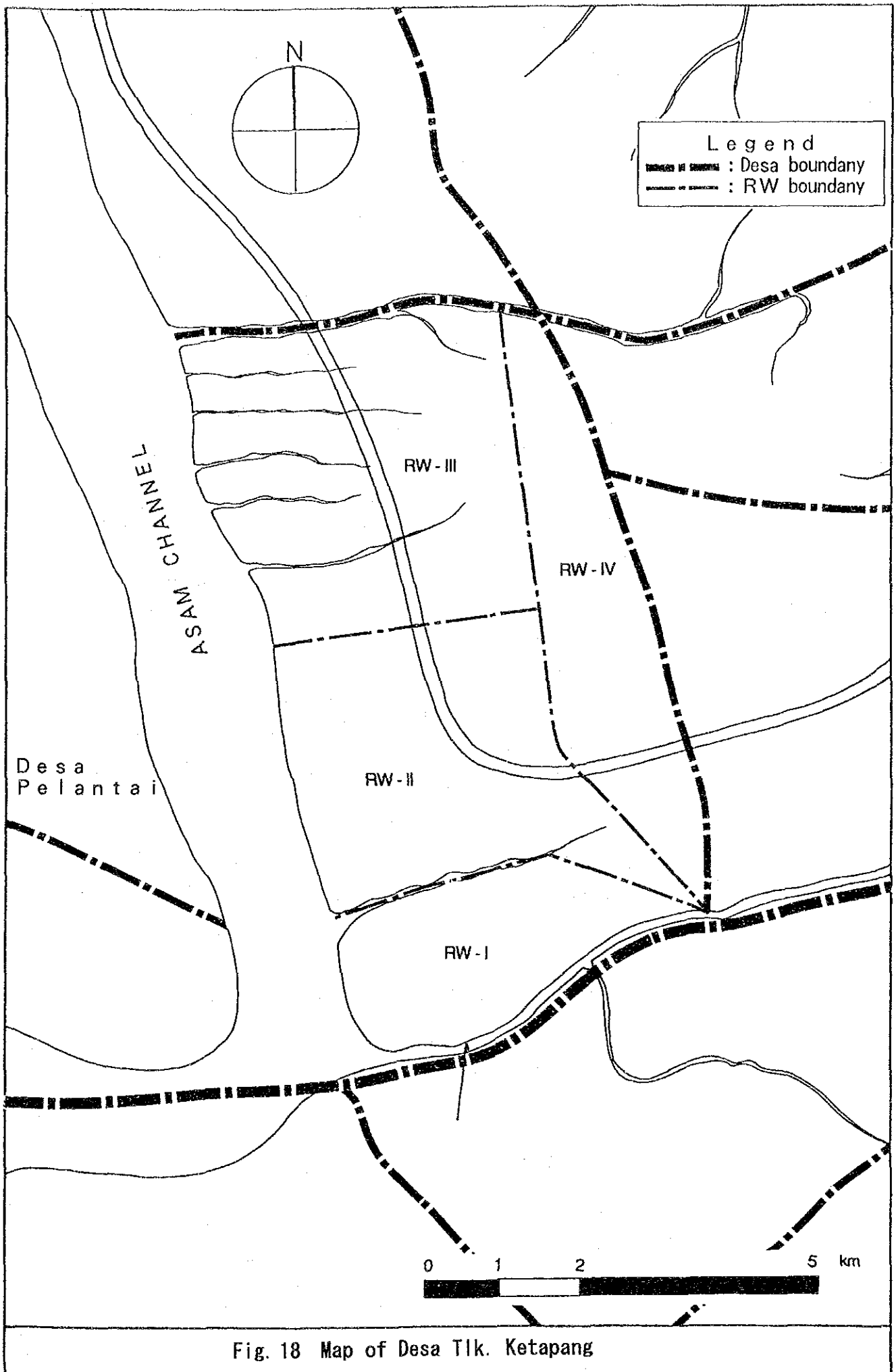


Fig. 18 Map of Desa Tik. Ketapang

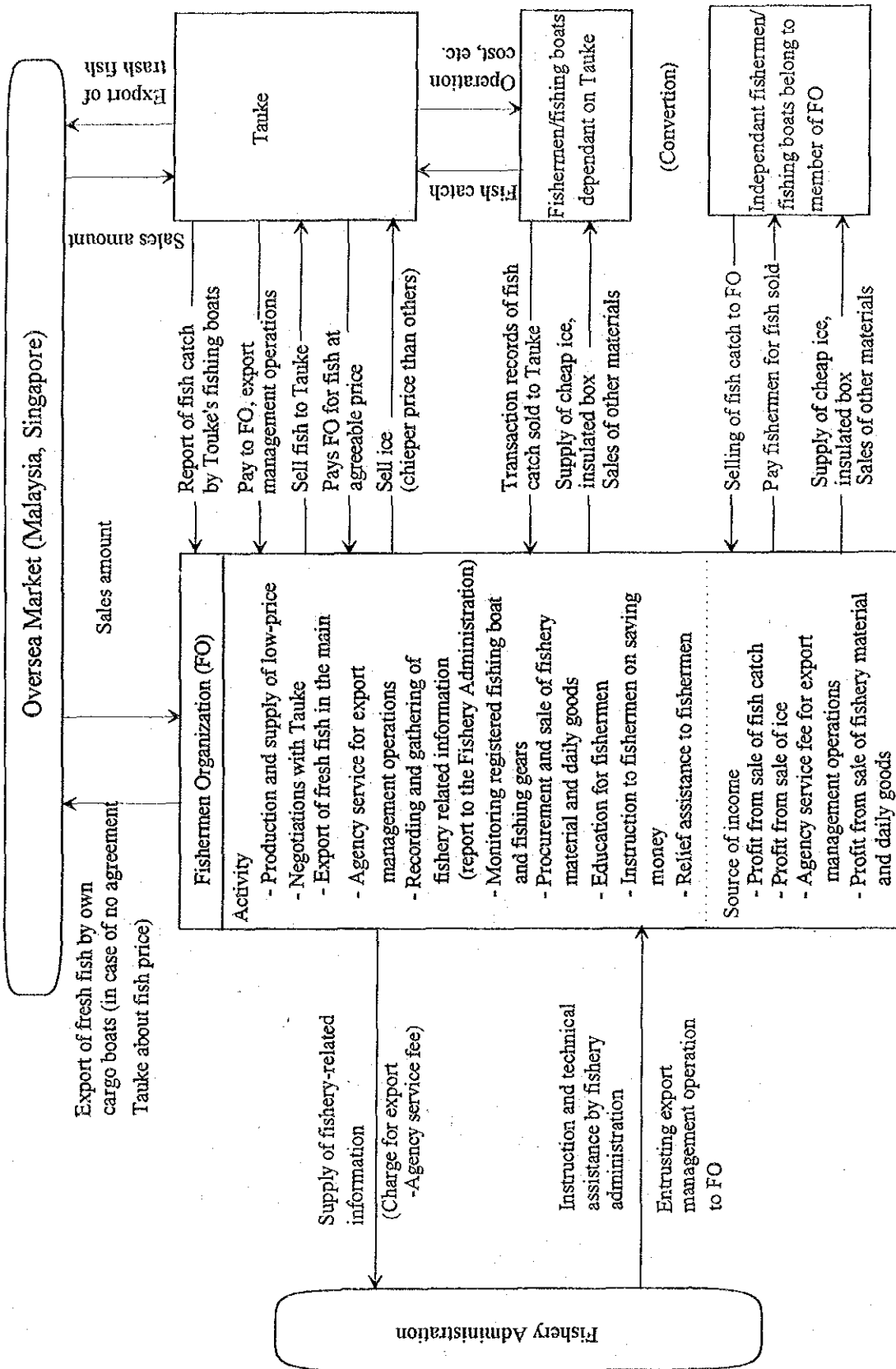
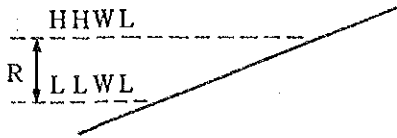
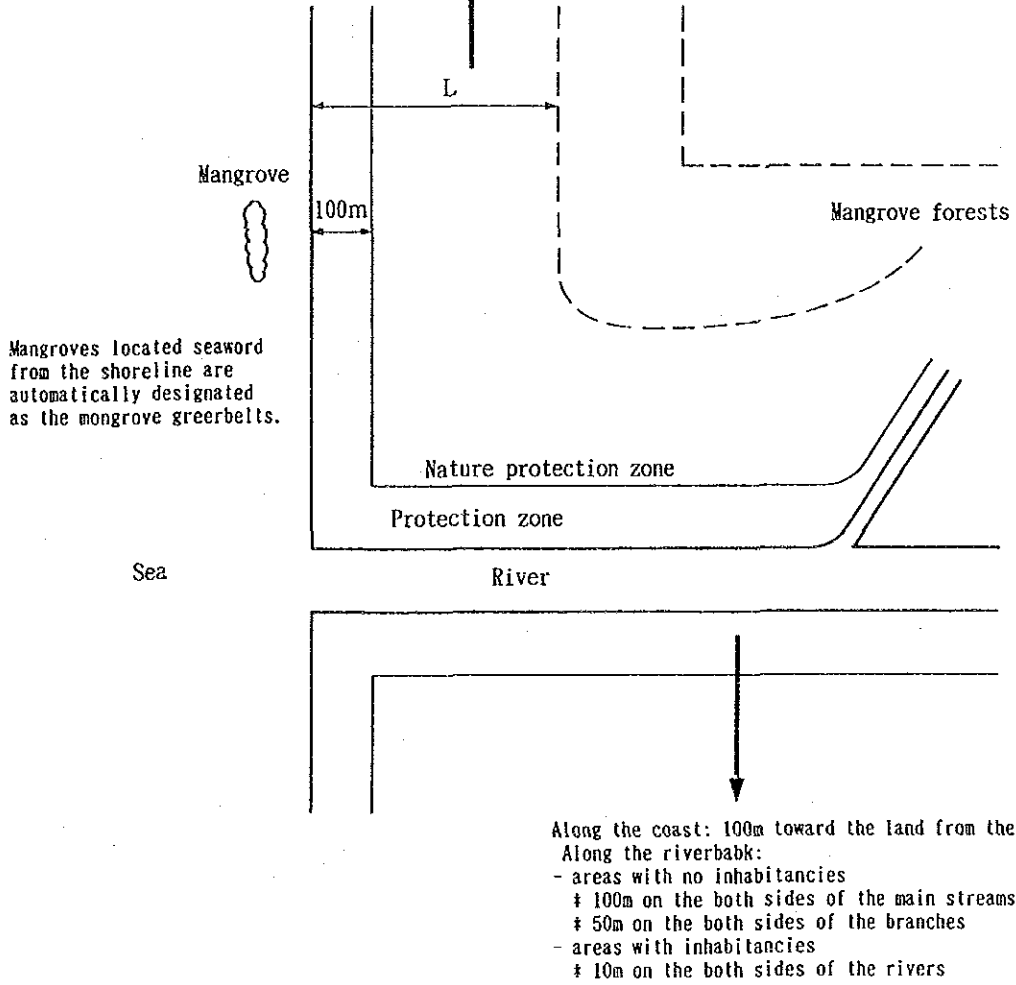


Fig. 19 Function of Fishermen Organization

$$L = 130 \times R \text{ (m)}$$



- 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 inhabitanicies: outside of 200m inner coastal protection zone
 - areas with inhabitanicies: nil



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

- Along the coast: 100m toward the land from the base tide level
- Along the riverbank:
- areas with no inhabitanicies
 - ± 100m on the both sides of the main streams
 - ± 50m on the both sides of the branches
 - areas with inhabitanicies
 - ± 10m on the both sides of the rivers

Fig. 20 Concept on Mangrove Greenbelts (based on KEPRES)

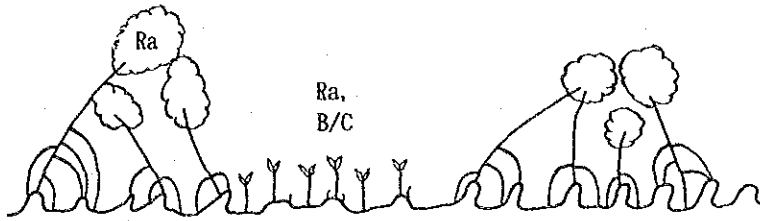
Month	1	2	3	4	5	6	7	8	9	10	11	12
Site Preparation		—	—	—								
Planting						—	—	—				
Supplementary planting								—				
Inspection on survival										—		
Seed collection/Direct seeding	—	—	—									—
Nursery practice		—	—	—	—							

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

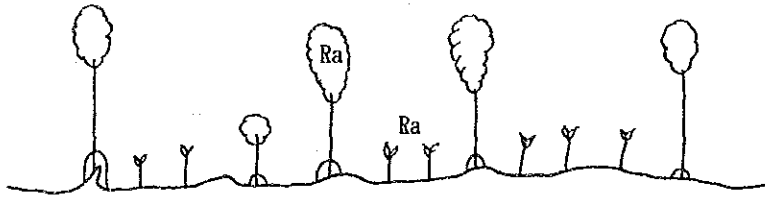
Fig. 21 Tentative Schedule for Mangrove Forestation

Sparse low Rhizophora spp. stands

LRh - S (S.Cingam model mangrove area)

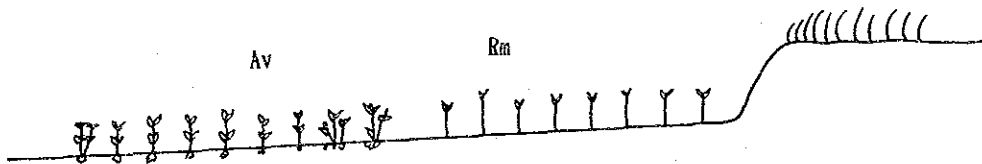


LRh - S (Except S.Cingam model mangrove area)

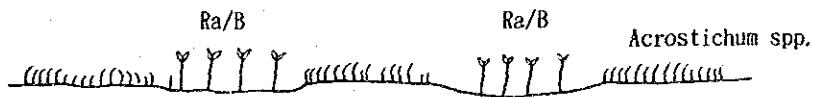


Marshlands

M1 (non-low vegetation cover)



M2 (with low vegetation cover)

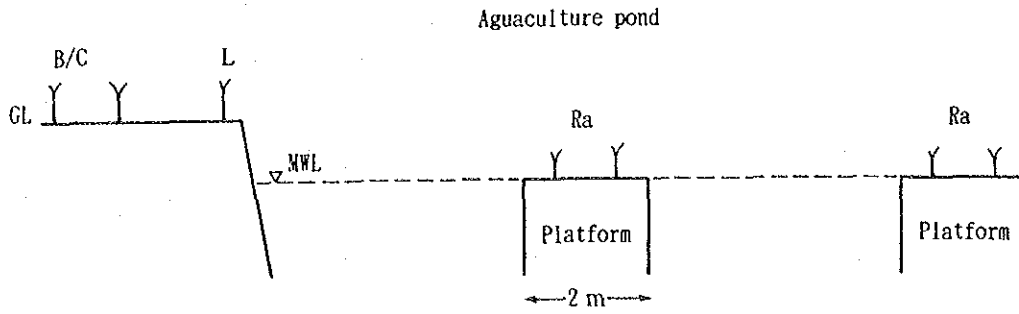


Candidate species

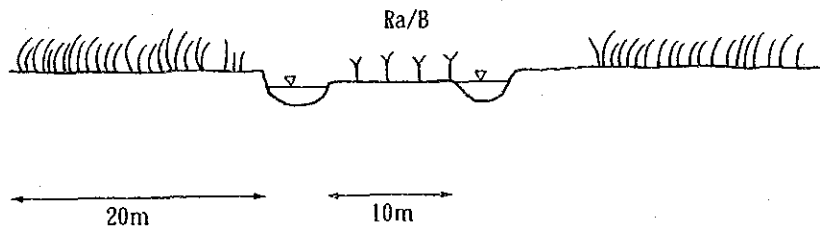
- | | |
|---------------------|---------------------------|
| Av : Avicennia spp. | Ra : Rhizophora apiculata |
| B : Bruguiera spp. | Rm : Rhizophora mucronata |
| C : Ceriops spp. | |

Fig. 22 Illustration on Plantation Concept of Mangrove Trees

Forestation for aguaculture



Forestation for fishery resources



Candidate species

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

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

Fig. 23 Illustration on Layout of Trees for Silvofishery in Marshland with Low Vegetation Cover

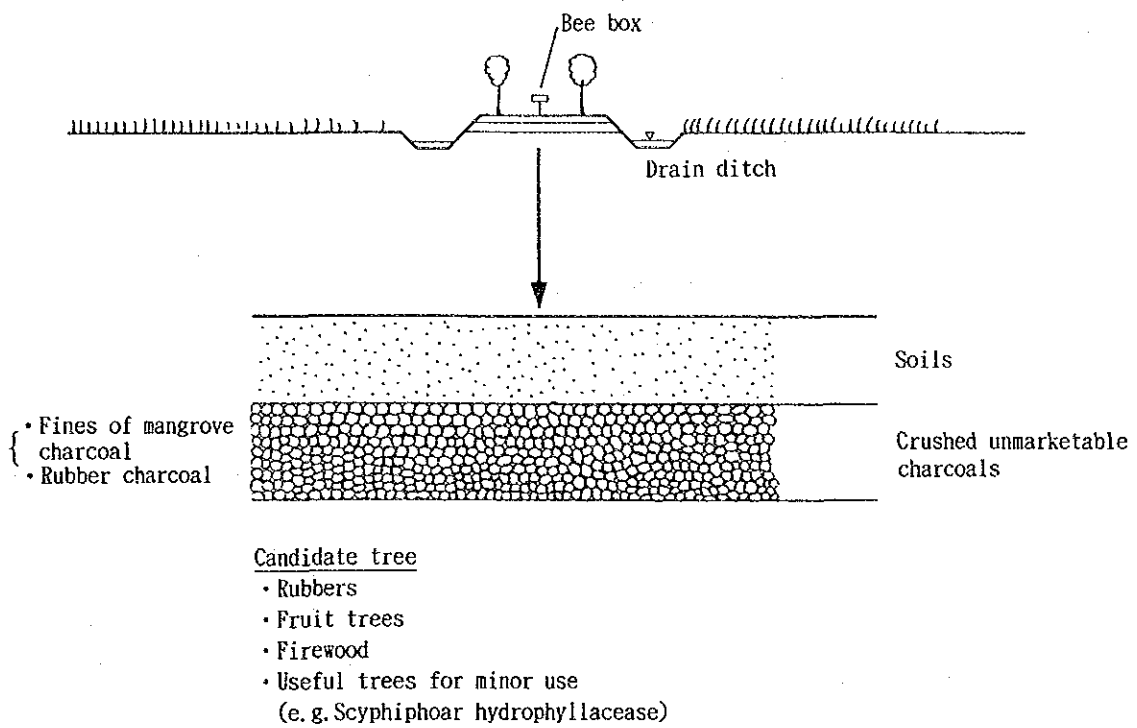


Fig. 24 Illustration on Planting Concept in Grasslands

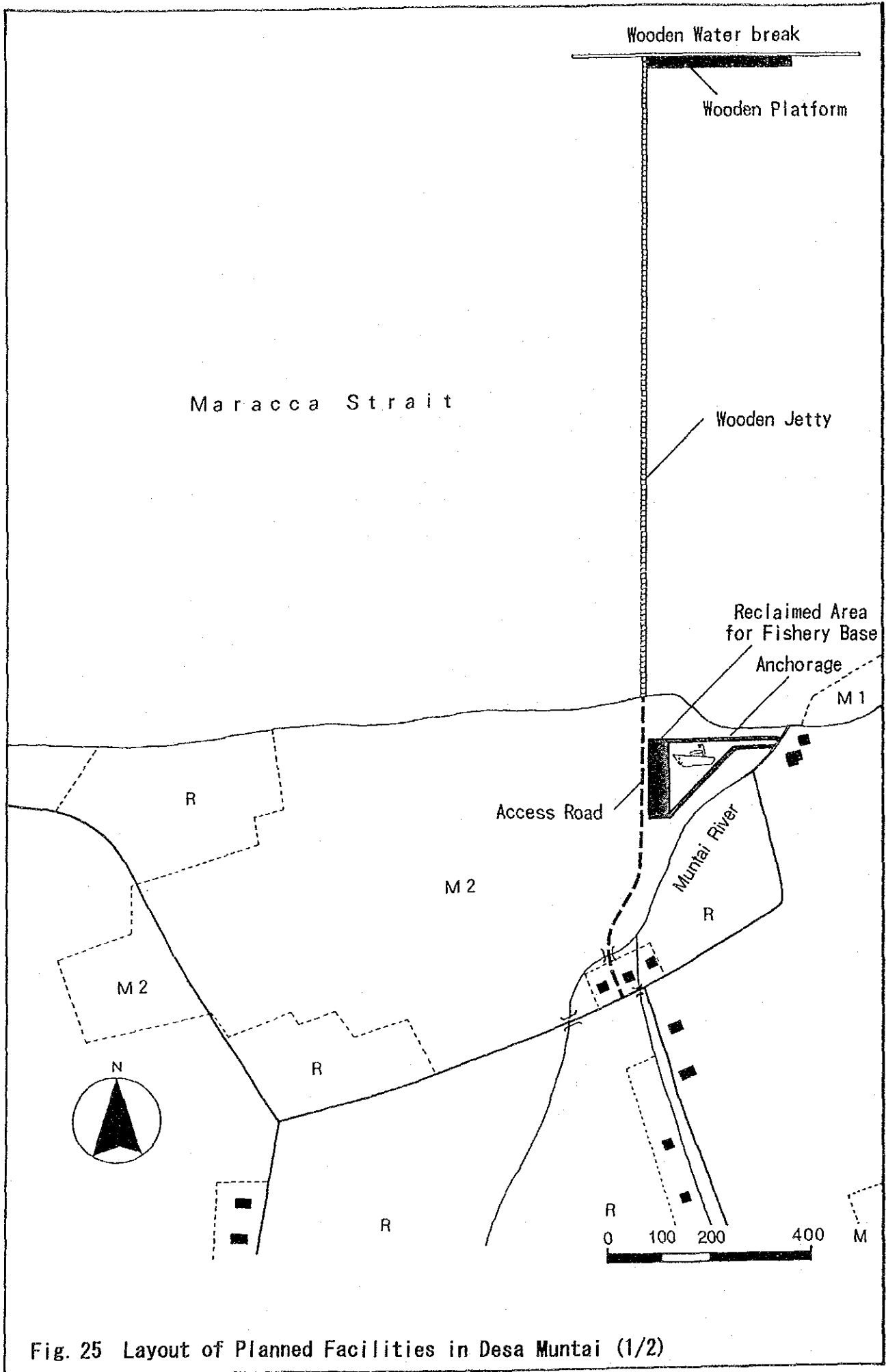


Fig. 25 Layout of Planned Facilities in Desa Muntai (1/2)

Maracca Strait

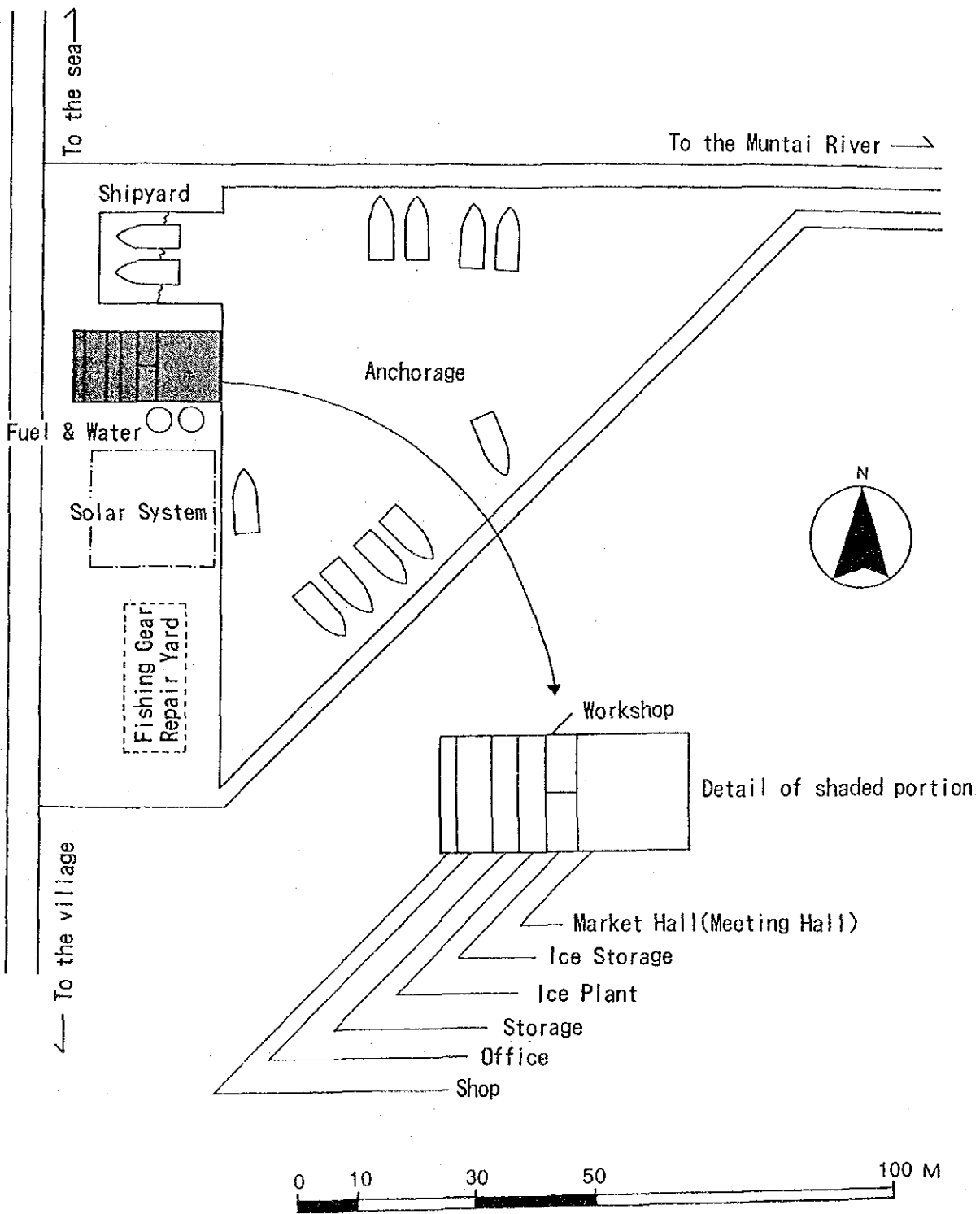


Fig. 25 Layout of Planned Facilities in Desa Muntai (2/2)

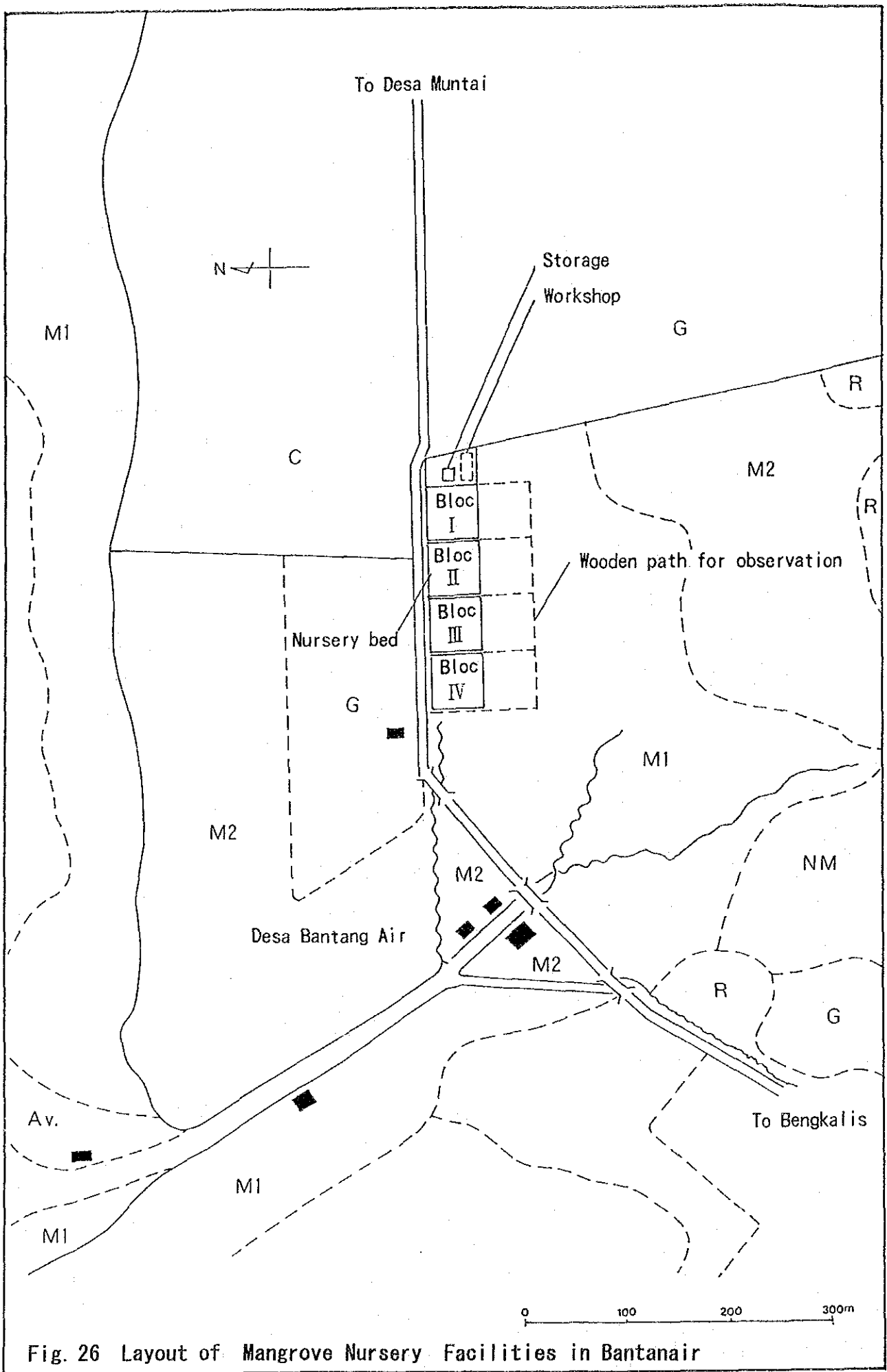
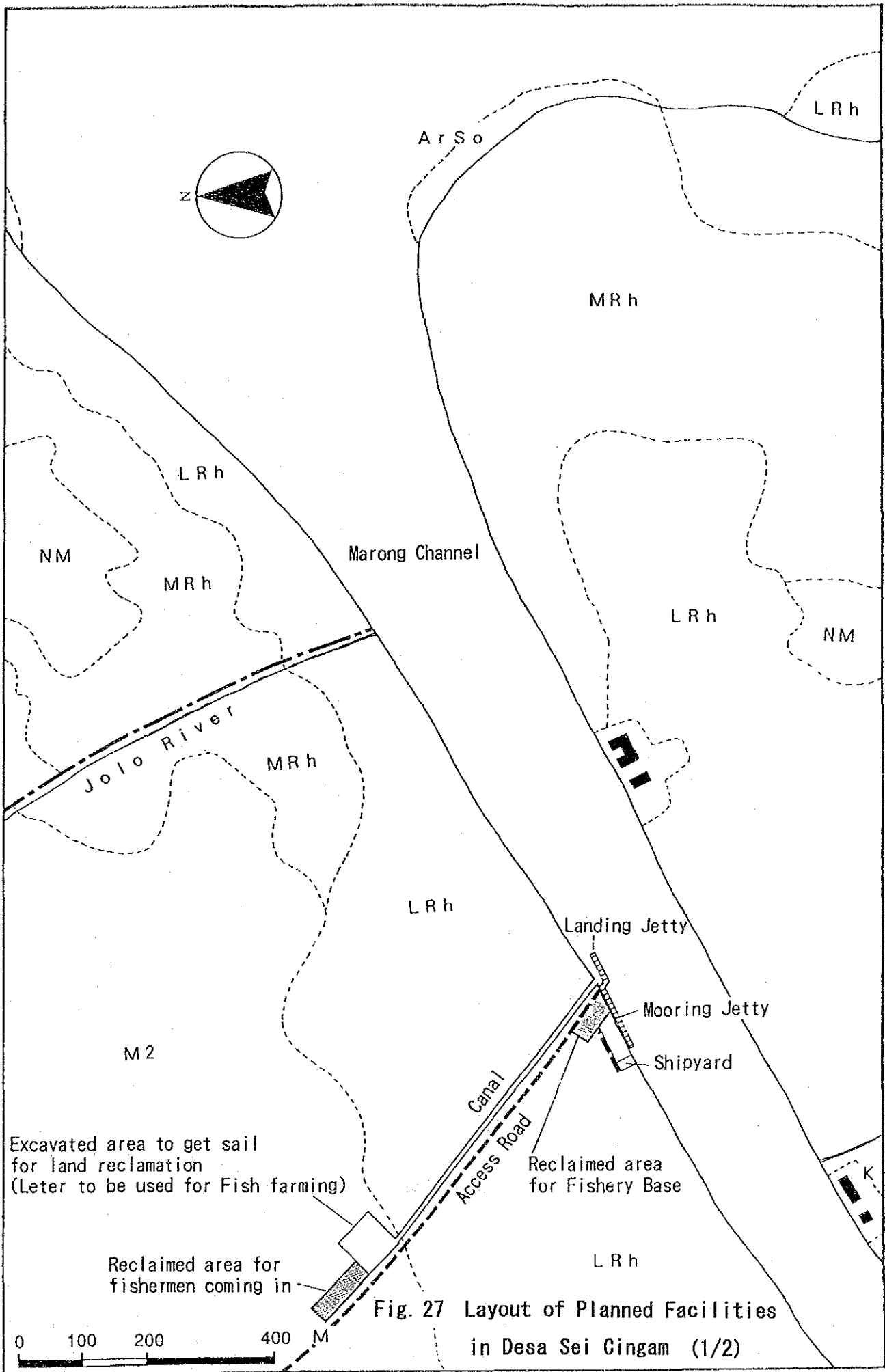


Fig. 26 Layout of Mangrove Nursery Facilities in Bantanair



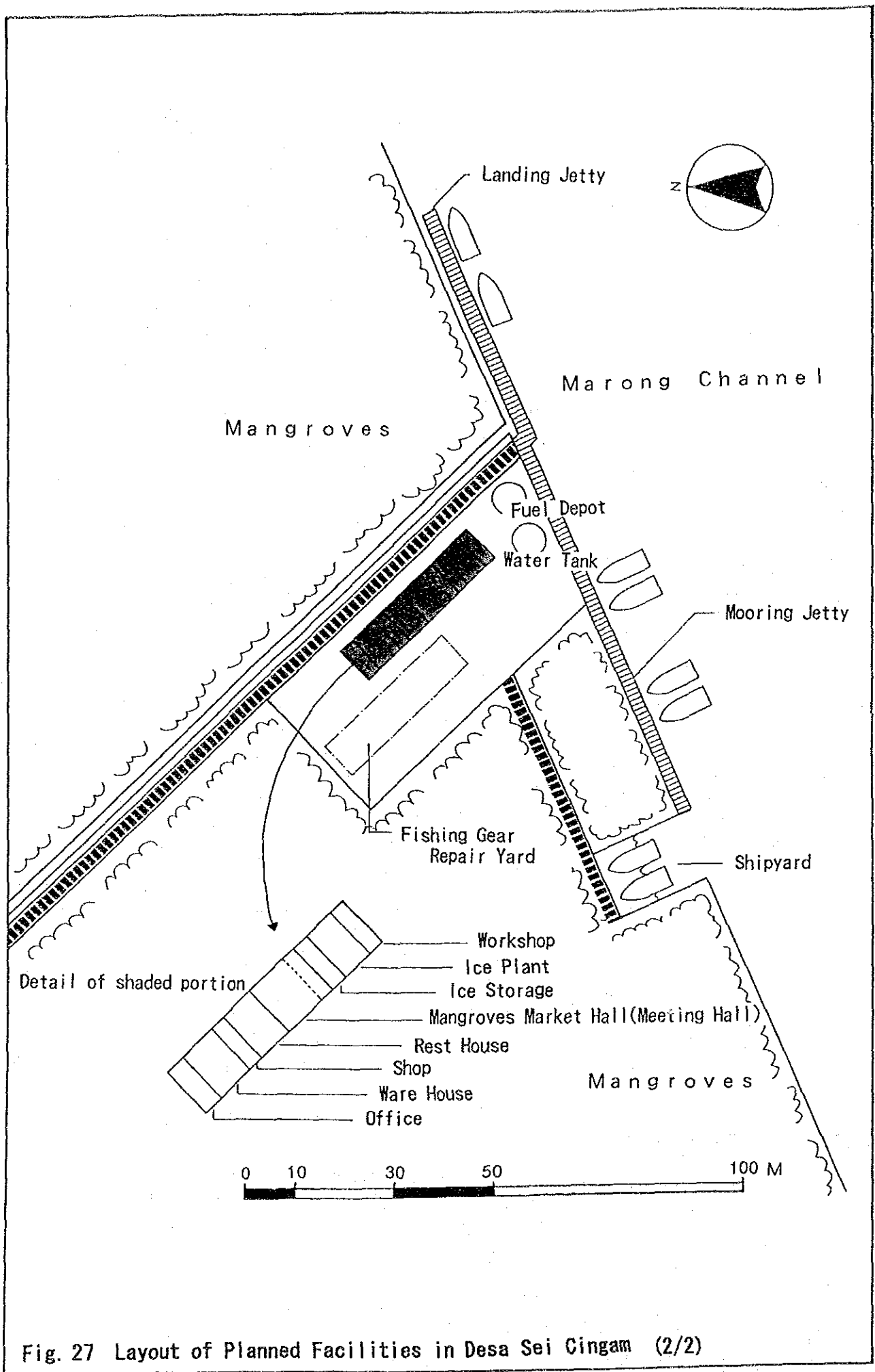


Fig. 27 Layout of Planned Facilities in Desa Sei Cingam (2/2)

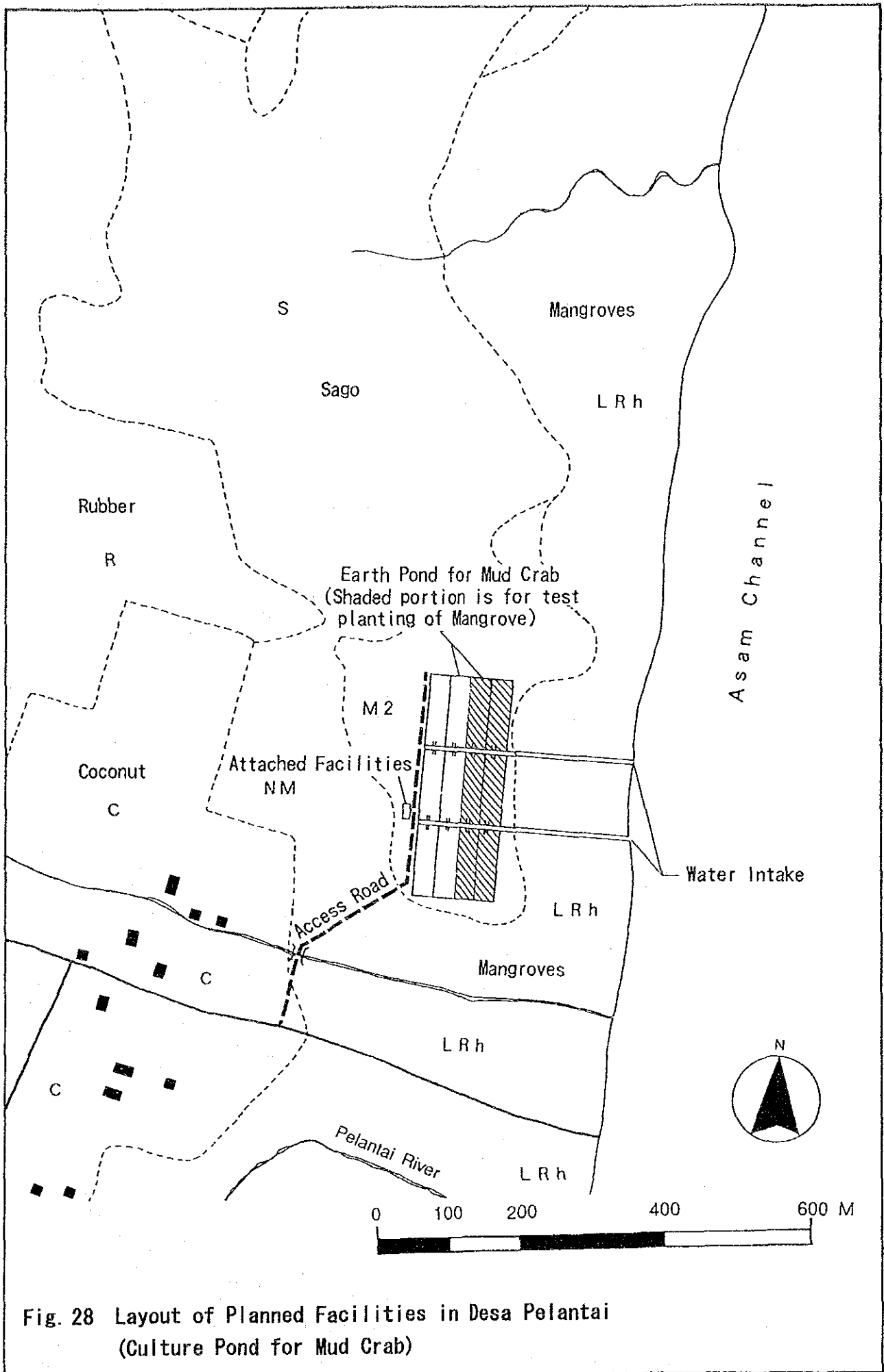


Fig. 28 Layout of Planned Facilities in Desa Pelantai
(Culture Pond for Mud Crab)

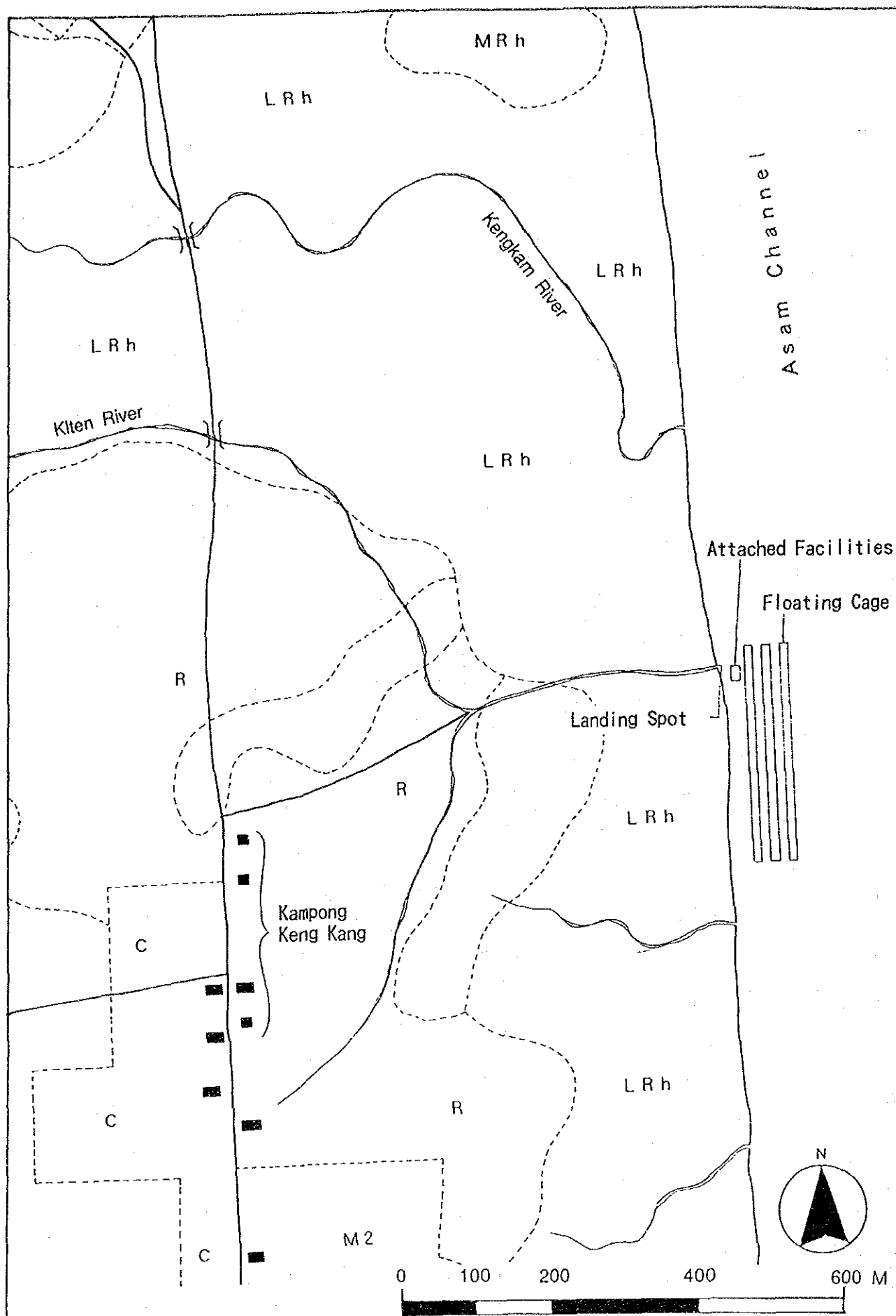


Fig. 29 Layout of Planned Facilities in Desa Pelantai
(Floating Cage for Giant Sea Perch)

