THE STUDY
ON
FISH MARKETING AND DISTRIBUTION SYSTEM
IN MALAYSIA

APPENDICES

FINAL REPORT

MARCH, 1991

JAPAN INTERNATIONAL COOPERATION AGENCY

THE STUDY ON FISH MARKETING AND DISTRIBUTION SYSTEM IN MALAYSIA APPENDICES FINAL REPORT MARCH 199

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LIST OF APPENDICES

ABBREVIATIONS

ADB : ASIAN DEVELOPMENT BANK
AFA : AREA FISHERMEN'S ASSOCIATION
AFC : AREA FISHERIES COOPERATIVES (JAPAN)
AFO : AREA FARMER'S ORGANIZATION
BPM : BANK PERTANIAN MALAYSIA
DOF : DEPARTMENT OF FISHERIES
DOS : DEPARTMENT OF STATISTICS
EPU : ECONOMIC PLANNING UNIT
FA : FISHERMEN'S ASSOCIATIONS
FAMA : FEDERAL AGRICULTURAL MARKETING AUTHORITY
FAO : FOOD AND AGRICULTURE ORGANIZATION
FCS : FISHERMEN'S COOPERATIVES
FMCA : FISH MARKETING CONTROL AREA
FMDS : FISH MARKETING AND DISTRIBUTION SYSTEM
FMR : FISH MARKETING REGULATIONS
GDP : GROSS DOMESTIC PRODUCT
GOM : GOVERNMENT OF MALAYSIA
KO-NELAYAN : SABAH MULTIPURPOSE FISHERMEN'S COOPERATIVE
LKIM : FISHERIES DEVELOPMENT AUTHORITY OF MALAYSIA
MFS : MALAYSIAN FISHERIES SOCIETY
MOA : MINISTRY OF AGRICULTURE
MOF : MINISTRY OF FINANCE
MSY : MAXIMUM SUSTAINABLE YIELD
NAP : NATIONAL AGRICULTURAL POLICY
NEP : NEW ECONOMIC POLICY
NFA : NATIONAL FISHERMEN'S ASSOCIATION (NEKMAT)
O/D : ORIGIN/DESTINATION
PLI : POVERTY LINE INCOME
SAFMA: SABAH FISH MARKETING SDN. BHD.
SADOF: SABAH DEPARTMENT OF FISHERIES
S/D : SUPPLY/DEMAND
SFA : STATE FISHERMEN'S ASSOCIATION
SPKP : SPECIAL INTEGRATED AGRICULTURE LOAN PROGRAMME
UPM : UNIVERSITI PERTANIAN MALAYSIA
IC/R : INCEPTION REPORT
P/R : PROGRESS REPORT
IT/R : INTERIM REPORT
DF/R : DRAFT FINAL REPORT
F/R : FINAL REPORT

Appendix 3.1 Per Capita Fish Consumption in Peninsular Malaysia, Sarawak and Sabah (1975-1988)

	Population (x million)	Per Capita Fish Consumption (kg/year)	Total Fish Consumption (1000 ton)	Fish Production (1000 ton)	Import of Fish (1000 ton)	Export of Fish (1000 ton)
- Peninsular Malaysia						
1975	9.9	27.5	272	278	114	120
1976	10.1	30.9	312	312	152	152
1977	10.4	39.1	407	372	148	113
1978	10.6	39.8	422	448	190	216
1979	10.9	42.5	463	450	170	157
1980	11.2	40.8	457	480	144	167
1981	11.5	42.6	490	494	135	139
1982	11.8	39.1	461	430	171	140
1983	12.0	44.7	537	482	168	114
1984	12.4	41.7	516	443	196	123
1985	12.8	33.5	428	402	180	154
1986	13.2	29.2	385	370	200	185
1987	13.6	45.6	620	571	214	165
1988	14.0	43.0	603	543	212	152
- Sarawak						
1975	1.0	58.3	58.3	56.0	3.6	1.3
1976	1.0	61.8	61.8	61.2	2.9	2.3
1977	1.1	64.4	70.8	70.8	3.6	3.6
1978	1.1	58.9	64.8	63.7	3.2	2.1
1979	1.1	63.5	69.8	66.9	6.6	3.7
1980	1.2	55.5	66.6	61.2	8.3	2.9
1981	1.2	59.3	71.1	64.3	9.4	2.6
1982	1.2	57.0	68.4	62.1	8.8	2.5
1983	1.4	48.7	67.6	63.5	8.8	4.7
1984	1.4	49.2	70.9	62.9	12.0	4.0
1985	1.5	43.0	64.4	57.9	11.3	4.7
1986	1.6	44.7	69.6	63.3	13.9	7.6
1987	1.6	43.3	70.0	62.5	14.2	6.7
1988	1.7	49.4	83.1	75.6	16.2	8.7
- Sabah						
1975	0.8	44.1	35.3	33.6	4.8	3.1
1976	0.8	41.6	33.3	31.3	6.8	4.8
1977	0.9	40.0	36.0	35.8	4.3	4.1
1978	0.9	47.7	42.9	41.4	5.9	4.4
1979	1.0	45.5	45.5	41.6	8.6	4.7
1980	1.0	40.1	40.1	34.2	9.0	3.1
1981	1.1	38.2	42.0	39.7	6.0	3.7
1982	1.1	39.9	43.9	41.7	5.8	3.6
1983	1.1	42.6	47.6	47.6	9.1	9.1
1984	1.2	45.5	53.4	53.5	9.3	9.4
1985	1.2	39.1	48.3	52.2	9.9	13.8
1986	1.3	35.7	46.4	50.9	7.6	12.1
1987	1.4	29.7	40.7	49.6	6.5	15.5
1988	1.4	35.3	50.9	53.1	10.2	12.4

Source : 1. All figures from 1975 to 1982 are taken from LKIM report 'Demand and Supply of Fish for Peninsular Malaysia, Sabah and Sarawak (1980 - 2000)'
2. Population ; Mid-Term Review of Fifth Malaysia Plan (1986-1990), GOM, and World development report (1988), World Bank
3. Production, Export and Import volume of fishery products ; Annual Fisheries Statistics (1983-1988), DOF

Appendix 3.2 Case 1 : Supply/Demand Balance of Fishery Products by State in 1990

Unit : MT

State	Fish Supply			Fish Demand			Balance
	Sub-total	Production	Import	Sub-total	Consump.	Export	
Whole Malaysia	932,330	713,310	219,020	924,218	768,508	155,710	8,112
a. Peninsular Malaysia	794,400	584,800	209,600	768,242	628,342	139,900	26,158
- West Coast	475,567	326,151	149,416	480,399	401,779	78,620	-4,832
1 Perlis	30,131	29,335	795	15,003	7,951	7,052	15,128
2 Kedah	66,530	50,818	15,712	68,536	56,320	12,216	-2,006
3 Penang	47,172	25,273	21,899	55,142	49,066	6,075	-7,970
4 Perak	157,202	148,366	8,837	124,033	88,367	35,666	33,170
5 Selangor	102,000	69,528	32,472	110,178	93,464	16,714	-8,178
6 Kuala Lumpur	36,695	0	36,695	54,859	54,859	0	-18,164
7 Negri Sembilan	19,848	771	19,077	29,176	29,176	0	-9,328
8 Melaka	15,989	2,061	13,929	22,576	22,576	0	-6,586
- East Coast	318,833	258,649	60,184	288,739	226,562	62,177	30,093
9 Johor	106,609	82,490	24,119	109,180	89,350	19,830	-2,571
10 Pahang	93,171	87,784	5,387	74,976	53,873	21,102	18,196
11 Terengganu	76,416	73,165	3,251	50,098	32,510	17,588	26,317
12 Kelantan	42,636	15,210	27,427	54,485	50,829	3,656	-11,849
b. Sarawak	76,850	72,060	4,790	93,343	86,663	6,680	-16,493
c. Sabah	61,080	56,450	4,630	62,633	53,503	9,130	-1,553

Source: Population; Mid-Term Review of Fifth Malaysia plan (1986-1990), GOM
and World Development Report (1987), World Bank

Appendix 3.3 Case 1 : Supply/Demand Balance of Fishery Products by State in 1995

Unit : MT

State	Fish Supply			Fish Demand			Balance
	Sub-total	Production	Import	Sub-total	Consump.	Export	
Whole Malaysia	998,140	779,120	219,020	1,095,168	939,458	155,710	-97,028
a. Peninsular Malaysia	860,210	650,610	209,600	904,818	764,918	139,900	-44,608
- West Coast	479,766	328,511	151,255	560,047	481,427	78,620	-80,280
1 Perlis	30,287	29,335	952	15,855	9,518	6,337	14,433
2 Kedah	67,646	50,818	16,828	76,118	65,141	10,977	-8,472
3 Penang	46,816	26,253	20,563	62,702	57,031	5,671	-15,886
4 Perak	159,186	149,116	10,070	132,913	100,704	32,209	26,273
5 Selangor	108,177	70,058	38,120	134,325	119,192	15,133	-26,147
6 Kuala Lumpur	35,640	0	35,640	70,202	70,202	0	-34,562
7 Negri Sembilan	17,673	771	16,902	33,912	33,912	0	-16,239
8 Melaka	14,341	2,161	12,180	25,727	25,727	0	-11,386
- East Coast	380,444	322,099	58,345	353,065	283,491	69,574	27,379
9 Johor	127,418	107,072	20,346	130,613	107,485	23,128	-3,195
10 Pahang	120,363	113,154	7,209	96,532	72,090	24,442	23,832
11 Terengganu	89,901	85,775	4,126	59,787	41,259	18,528	30,114
12 Kelantan	42,762	16,098	26,664	66,133	62,656	3,477	-23,371
b. Sarawak	76,850	72,060	4,790	112,989	106,309	6,680	-36,139
c. Sabah	61,080	56,450	4,630	77,361	68,231	9,130	-16,281

Source: Population; Mid-Term Review of Fifth Malaysia plan (1986-1990), GOM
and World Development Report (1987), World Bank

Appendix 3.4 Case 1 : Supply/Demand Balance of Fishery Products by State in 2000

Unit : MT

State	Fish Supply			Fish Demand			Balance
	Sub-total	Production	Import	Sub-total	Consump.	Export	
Whole Malaysia	1,006,530	787,510	219,020	1,206,586	1,050,876	155,710	-200,056
a. Peninsular Malaysia	868,600	659,000	209,600	992,288	852,388	139,900	-123,688
- West Coast	480,731	332,341	148,390	606,587	527,968	78,620	-125,856
1 Perlis	30,376	29,335	1,040	16,660	10,402	6,258	13,715
2 Kedah	67,105	50,818	16,287	79,623	68,782	10,841	-12,518
3 Penang	46,047	27,223	18,824	66,324	60,517	5,808	-20,277
4 Perak	161,633	151,156	10,477	137,016	104,769	32,247	24,616
5 Selangor	111,646	70,578	41,068	153,822	138,766	15,057	-42,177
6 Kuala Lumpur	34,977	0	34,977	81,982	81,982	0	-47,005
7 Negri Sembilan	15,871	771	15,101	35,984	35,984	0	-20,113
8 Melaka	13,076	2,461	10,616	26,766	26,766	0	-13,690
- East Coast	387,869	326,659	61,210	394,109	324,420	69,689	-6,240
9 Johor	133,309	111,632	21,677	141,857	118,042	23,815	-8,548
10 Pahang	121,961	113,154	8,807	112,206	88,066	24,140	9,755
11 Terengganu	90,555	85,775	4,780	66,102	47,803	18,299	24,453
12 Kelantan	42,044	16,098	25,946	73,943	70,509	3,434	-31,900
b. Sarawak	76,850	72,060	4,790	125,733	119,053	6,680	-48,883
c. Sabah	61,080	56,450	4,630	88,565	79,435	9,130	-27,485

Source: Population; Mid-Term Review of Fifth Malaysia plan (1986-1990), GOM
and World Development Report (1987), World Bank

Appendix 3.5 Case 2 : Supply/Demand Balance of Fishery Products by State in 1990

Unit : MT

State	Fish Supply			Fish Demand			Balance
	Sub-total	Production	Import	Sub-total	Consump.	Export	
Whole Malaysia	924,218	705,198	219,020	924,218	768,508	155,710	0
a. Peninsular Malaysia	786,288	576,688	209,600	768,242	628,342	139,900	18,046
- West Coast	472,677	323,892	148,785	480,399	401,779	78,620	-7,722
1 Perlis	29,554	28,758	795	14,962	7,951	7,011	14,592
2 Kedah	66,213	50,306	15,907	68,584	56,320	12,264	-2,371
3 Penang	46,896	25,061	21,835	55,176	49,066	6,110	-8,280
4 Perak	156,436	147,599	8,837	124,349	88,367	35,982	32,087
5 Selangor	101,753	69,346	32,407	110,370	93,464	16,906	-8,617
6 Kuala Lumpur	36,324	0	36,324	54,859	54,859	0	-18,535
7 Negri Sembilan	19,655	769	18,886	29,176	29,176	0	-9,521
8 Melaka	15,846	2,051	13,795	22,576	22,576	0	-6,730
- East Coast	313,611	252,796	60,815	288,190	226,562	61,628	25,421
9 Johor	105,429	80,479	24,951	108,969	89,350	19,619	-3,540
10 Pahang	90,696	85,309	5,387	74,670	53,873	20,797	16,026
11 Terengganu	75,136	71,885	3,251	50,035	32,510	17,524	25,101
12 Kelantan	42,350	15,124	27,226	54,516	50,829	3,687	-12,166
b. Sarawak	76,850	72,060	4,790	93,343	86,663	6,680	-16,493
c. Sabah	61,080	56,450	4,630	62,633	53,503	9,130	-1,553

Source: Population; Mid-Term Review of Fifth Malaysia Plan (1986-1990), GOM
and World Development Report (1987), World Bank

Appendix 3.6 Case 2 : Supply/Demand Balance of Fishery Products by State in 1995

Unit : MT

State	Fish Supply			Fish Demand			Balance
	Sub-total	Production	Import	Sub-total	Consump.	Export	
Whole Malaysia	1,095,168	841,540	253,628	1,095,168	939,458	155,710	0
a. Peninsular Malaysia	894,818	650,610	244,208	904,818	764,918	139,900	-10,000
- West Coast	506,576	328,511	178,064	560,047	481,427	78,620	-53,471
1 Perlis	30,287	29,335	952	15,855	9,518	6,337	14,433
2 Kedah	70,328	50,818	19,510	76,118	65,141	10,977	-5,790
3 Penang	50,679	26,253	24,426	62,702	57,031	5,671	-12,023
4 Perak	159,186	149,116	10,070	132,913	100,704	32,209	26,273
5 Selangor	114,989	70,058	44,932	134,325	119,192	15,133	-19,335
6 Kuala Lumpur	43,081	0	43,081	70,202	70,202	0	-27,121
7 Negri Sembilan	21,186	771	20,415	33,912	33,912	0	-12,726
8 Melaka	16,839	2,161	14,678	25,727	25,727	0	-8,888
- East Coast	388,242	322,099	66,144	353,065	283,491	69,574	35,178
9 Johor	129,913	107,072	22,841	130,613	107,485	23,128	-700
10 Pahang	120,363	113,154	7,209	96,532	72,090	24,442	23,832
11 Terengganu	89,901	85,775	4,126	59,787	41,259	18,528	30,114
12 Kelantan	48,065	16,098	31,968	66,133	62,656	3,477	-18,068
b. Sarawak	122,989	118,199	4,790	112,989	106,309	6,680	10,000
c. Sabah	77,361	72,731	4,630	77,361	68,231	9,130	0

Source: Population; Mid-Term Review of Fifth Malaysia Plan (1986-1990), GOM
and World Development Report (1987), World Bank

Appendix 3.7 Case 2 : Supply/Demand Balance of Fishery Products by State in 2000

Unit : MT

State	Fish Supply			Fish Demand			Balance
	Sub-total	Production	Import	Sub-total	Consump.	Export	
Whole Malaysia	1,206,586	893,878	312,708	1,206,586	1,050,876	155,710	0
a. Peninsular Malaysia	962,288	659,000	303,288	992,288	852,388	139,900	-30,000
- West Coast	552,747	332,341	220,406	606,587	527,968	78,620	-53,840
1 Perlis	30,376	29,335	1,040	16,660	10,402	6,258	13,715
2 Kedah	74,194	50,818	23,376	79,623	68,782	10,841	-5,430
3 Penang	55,669	27,223	28,446	66,324	60,517	5,808	-10,655
4 Perak	161,633	151,156	10,477	137,016	104,769	32,247	24,616
5 Selangor	132,130	70,578	61,553	153,822	138,766	15,057	-21,692
6 Kuala Lumpur	55,151	0	55,151	81,982	81,982	0	-26,831
7 Negri Sembilan	24,537	771	23,766	35,984	35,984	0	-11,448
8 Melaka	19,057	2,461	16,597	26,766	26,766	0	-7,709
- East Coast	409,541	326,659	82,882	394,109	324,420	69,689	15,432
9 Johor	140,747	111,632	29,115	141,857	118,042	23,815	-1,110
10 Pahang	121,961	113,154	8,807	112,206	88,066	24,140	9,755
11 Terengganu	90,555	85,775	4,780	66,102	47,803	18,299	24,453
12 Kelantan	56,278	16,098	40,181	73,943	70,509	3,434	-17,665
b. Sarawak	155,733	150,943	4,790	125,733	119,053	6,680	30,000
c. Sabah	88,565	83,935	4,630	88,565	79,435	9,130	0

Source: Population; Mid-Term Review of Fifth Malaysia Plan (1986-1990), GOM
and World Development Report (1987), World Bank

Appendix 3.8 Case 3 : Supply/Demand Balance of Fishery Products by State in 1990

Unit : MT

State	Fish Supply			Fish Demand			Balance
	Sub-total	Production	Import	Sub-total	Consump.	Export	
Whole Malaysia	932,330	713,310	219,020	943,910	788,200	155,710	-11,580
a. Peninsular Malaysia	794,400	584,800	209,600	784,328	644,428	139,900	10,072
- West Coast	475,022	326,151	148,871	490,657	412,038	78,620	-15,635
1 Perlis	30,151	29,335	816	15,208	8,156	7,052	14,943
2 Kedah	66,923	50,818	16,106	69,985	57,769	12,216	-3,062
3 Penang	47,082	25,273	21,808	56,404	50,328	6,075	-9,322
4 Perak	157,430	148,366	9,064	126,306	90,640	35,666	31,124
5 Selangor	102,316	69,528	32,788	112,582	95,868	16,714	-10,266
6 Kuala Lumpur	35,901	0	35,901	56,194	56,194	0	-20,293
7 Negri Sembilan	19,475	771	18,704	29,926	29,926	0	-10,452
8 Melaka	15,744	2,061	13,684	23,156	23,156	0	-7,412
- East Coast	319,378	258,649	60,729	294,567	232,390	62,177	24,811
9 Johor	107,276	82,490	24,786	111,478	91,648	19,830	-4,202
10 Pahang	93,310	87,784	5,526	76,362	55,259	21,102	16,948
11 Terengganu	76,499	73,165	3,335	50,935	33,346	17,588	25,565
12 Kelantan	42,293	15,210	27,083	55,793	52,136	3,656	-13,500
b. Sarawak	76,850	72,060	4,790	95,572	88,892	6,680	-18,722
c. Sabah	61,080	56,450	4,630	64,009	54,879	9,130	-2,929

Source: Population; Mid-term Review of Fifth Malaysia Plan (1986-1990), GOM
and World Development Report (1987), World Bank

Appendix 3.9 Case 3 : Supply/Demand Balance of Fishery Products by State in 1995

Unit : MT

State	Fish Supply			Fish Demand			Balance
	Sub-total	Production	Import	Sub-total	Consump.	Export	
Whole Malaysia	998,140	779,120	219,020	1,182,136	1,026,426	155,710	-183,996
a. Peninsular Malaysia	860,210	650,610	209,600	975,560	835,660	139,900	-115,350
- West Coast	477,199	328,511	148,688	604,435	525,815	78,620	-127,236
1 Perlis	30,376	29,335	1,040	16,740	10,403	6,337	13,636
2 Kedah	68,435	50,818	17,617	82,173	71,197	10,977	-13,739
3 Penang	46,464	26,253	20,211	68,004	62,333	5,671	-21,540
4 Perak	160,122	149,116	11,007	142,275	110,066	32,209	17,847
5 Selangor	108,311	70,058	38,253	145,405	130,273	15,133	-37,095
6 Kuala Lumpur	33,200	0	33,200	76,360	76,360	0	-43,160
7 Negri Sembilan	16,628	771	15,857	37,064	37,064	0	-20,437
8 Melaka	13,663	2,161	11,503	28,119	28,119	0	-14,456
- East Coast	383,011	322,099	60,912	379,419	309,845	69,574	3,592
9 Johor	130,046	107,072	22,974	140,605	117,478	23,128	-10,559
10 Pahang	121,033	113,154	7,879	103,234	78,792	24,442	17,800
11 Terengganu	90,284	85,775	4,509	63,622	45,095	18,528	26,662
12 Kelantan	41,647	16,098	25,549	71,958	68,481	3,477	-30,311
b. Sarawak	76,850	72,060	4,790	122,872	116,192	6,680	-46,022
c. Sabah	61,080	56,450	4,630	83,704	74,574	9,130	-22,624

Source: Population; Mid-term Review of Fifth Malaysia Plan (1986-1990), GOM
and World Development Report (1987), World Bank

Appendix 3.10 Case 3 : Supply/Demand Balance of Fishery Products by State in 2000

Unit : MT

State	Fish Supply			Fish Demand			Balance
	Sub-total	Production	Import	Sub-total	Consump.	Export	
Whole Malaysia	1,006,530	787,510	219,020	1,368,915	1,213,205	155,710	-362,385
a. Peninsular Malaysia	868,600	659,000	209,600	992,288	996,265	139,900	-123,688
- West Coast	476,845	332,341	144,504	688,653	618,442	70,211	-211,808
1 Perlis	30,472	29,335	1,137	16,660	12,114	6,258	13,812
2 Kedah	67,581	50,818	16,763	79,623	80,104	10,841	-12,042
3 Penang	45,586	27,223	18,362	66,324	70,478	5,808	-20,739
4 Perak	162,607	151,156	11,451	137,016	122,015	32,247	25,590
5 Selangor	110,998	70,578	40,420	153,822	161,608	15,057	-42,825
6 Kuala Lumpur	32,347	0	32,347	81,982	99,042	0	-49,635
7 Negri Sembilan	14,831	771	14,061	35,984	41,908	0	-21,153
8 Melaka	12,424	2,461	9,963	26,766	31,172	0	-14,342
- East Coast	391,755	326,659	65,096	447,512	377,824	69,689	-55,757
9 Johor	135,355	111,632	23,723	141,857	137,473	23,815	-6,502
10 Pahang	124,681	113,154	11,527	112,206	102,563	24,140	12,475
11 Terengganu	90,999	85,775	5,225	66,102	55,672	18,299	24,898
12 Kelantan	40,719	16,098	24,622	73,943	82,116	3,434	-33,224
b. Sarawak	76,850	72,060	4,790	125,733	130,120	6,680	-48,883
c. Sabah	61,080	56,450	4,630	88,565	86,820	9,130	-27,485

Source: Population; Mid-term Review of Fifth Malaysia Plan (1986-1990), GOM
and World Development Report (1987), World Bank

Appendix 3.11 Case 4 : Supply/Demand Balance of Fishery Products by State in 1990

Unit : MT

State	Fish Supply			Fish Demand			Balance
	Sub-total	Production	Import	Sub-total	Consump.	Export	
Whole Malaysia	943,910	713,310	230,600	943,910	788,200	155,710	0
a. Peninsular Malaysia	805,980	584,800	221,180	784,328	644,428	139,900	21,651
- West Coast	483,611	326,151	157,459	490,657	412,038	78,620	-7,047
1 Perlis	30,151	29,335	816	15,208	8,156	7,052	14,943
2 Kedah	67,747	50,818	16,930	69,985	57,769	12,216	-2,238
3 Penang	48,420	25,273	23,147	56,404	50,328	6,075	-7,984
4 Perak	157,430	148,366	9,064	126,306	90,640	35,666	31,124
5 Selangor	104,167	69,528	34,639	112,582	95,868	16,714	-8,416
6 Kuala Lumpur	38,317	0	38,317	56,194	56,194	0	-17,877
7 Negri Sembilan	20,728	771	19,957	29,926	29,926	0	-9,198
8 Melaka	16,651	2,061	14,591	23,156	23,156	0	-6,505
- East Coast	322,369	258,649	63,720	294,567	232,390	62,177	27,802
9 Johor	108,522	82,490	26,032	111,478	91,648	19,830	-2,956
10 Pahang	93,310	87,784	5,526	76,362	55,259	21,102	16,948
11 Terengganu	76,499	73,165	3,335	50,935	33,346	17,588	25,565
12 Kelantan	44,037	15,210	28,827	55,793	52,136	3,656	-11,755
b. Sarawak	76,850	72,060	4,790	95,572	88,892	6,680	-18,722
c. Sabah	61,080	56,450	4,630	64,009	54,879	9,130	-2,929

Source: Population; Mid-Term Review of Fifth Malaysia Plan (1986-1990), GOM
and World Development Report (1987), World Bank

Appendix 3 12 Case 4 : Supply/Demand Balance of Fishery Products by State in 1995

Unit : MT

State	Fish Supply			Fish Demand			Balance
	Sub-total	Production	Import	Sub-total	Consump.	Export	
Whole Malaysia	1,182,136	867,766	314,370	1,182,136	1,026,426	155,710	0
a. Peninsular Malaysia	955,560	650,610	304,950	975,560	835,660	139,900	-20,000
- West Coast	549,907	328,511	221,396	604,435	525,815	78,620	-54,527
1 Perlis	30,376	29,335	1,040	16,740	10,403	6,337	13,636
2 Kedah	76,377	50,818	25,559	82,173	71,197	10,977	-5,797
3 Penang	57,039	26,253	30,786	68,004	62,333	5,671	-10,965
4 Perak	160,122	149,116	11,007	142,275	110,066	32,209	17,847
5 Selangor	127,395	70,058	57,337	145,405	130,273	15,133	-18,011
6 Kuala Lumpur	52,541	0	52,541	76,360	76,360	0	-23,819
7 Negri Sembilan	25,820	771	25,050	37,064	37,064	0	-11,244
8 Melaka	20,238	2,161	18,077	28,119	28,119	0	-7,881
- East Coast	405,653	322,099	83,554	379,419	309,845	69,574	26,234
9 Johor	138,540	107,072	31,468	140,605	117,478	23,128	-2,066
10 Pahang	121,033	113,154	7,879	103,234	78,792	24,442	17,800
11 Terengganu	90,284	85,775	4,509	63,622	45,095	18,528	26,662
12 Kelantan	55,795	16,098	39,698	71,958	68,481	3,477	-16,163
b. Sarawak	142,872	138,082	4,790	122,872	116,192	6,680	20,000
c. Sabah	83,704	79,074	4,630	83,704	74,574	9,130	0

Source: Population; Mid-Term Review of Fifth Malaysia Plan (1986-1990), GOM
and World Development Report (1987), World Bank

Appendix 3.13 Case 4 : Supply/Demand Balance of Fishery Products by State in 2000

Unit : MT

State	Fish Supply			Fish Demand			Balance
	Sub-total	Production	Import	Sub-total	Consump.	Export	
Whole Malaysia	1,303,869	922,330	381,539	1,303,869	1,148,159	155,710	0
a. Peninsular Malaysia	1,031,119	659,000	372,119	992,288	931,219	139,900	38,832
- West Coast	598,011	332,341	265,670	655,259	576,640	78,620	-57,248
1 Perlis	30,472	29,335	1,137	16,660	11,369	6,258	13,812
2 Kedah	80,481	50,818	29,663	79,623	75,176	10,841	858
3 Penang	61,977	27,223	34,754	66,324	66,143	5,808	-4,347
4 Perak	162,607	151,156	11,451	137,016	114,509	32,247	25,590
5 Selangor	146,233	70,578	75,655	153,822	151,666	15,057	-7,589
6 Kuala Lumpur	65,035	0	65,035	81,982	89,194	0	-16,947
7 Negri Sembilan	28,963	771	28,192	35,984	39,329	0	-7,022
8 Melaka	22,243	2,461	19,783	26,766	29,254	0	-4,523
- East Coast	433,108	326,659	106,449	424,268	354,579	69,689	8,840
9 Johor	150,453	111,632	38,821	141,857	129,015	23,815	8,596
10 Pahang	127,334	113,154	14,180	112,206	96,253	24,140	15,128
11 Terengganu	90,999	85,775	5,225	66,102	52,247	18,299	24,898
12 Kelantan	64,321	16,098	48,224	73,943	77,064	3,434	-9,622
b. Sarawak	176,800	172,010	4,790	125,733	130,120	6,680	51,068
c. Sabah	95,950	91,320	4,630	88,565	86,820	9,130	7,385

Source: Population; Mid-Term Review of Fifth Malaysia Plan (1986-1990), GOM
and World Development Report (1987), World Bank

Appendix 4.1 Number of Fishing Boat by Fishing Gear in Kedah Model Area (1988)

Fishing Gear	Model Area				Total
	Kuala Kedah			Other	
	LKIM	Private	Subtotal	Area	
1. Trawl Net	140	314	454	150	604
	23.2%	52.0%	75.2%	24.8%	100.0%
> 25 t	49	108	157	133	290
	16.9%	37.2%	54.1%	45.9%	100.0%
25 - 39 t	56	126	182	8	190
	29.5%	66.3%	95.8%	4.2%	100.0%
40 - 69 t	35	80	115	9	124
	28.2%	64.5%	92.7%	7.3%	100.0%
< 70 t	0	0	0	0	0
2. Purse Seine	7	6	13	38	51
	13.7%	11.8%	25.5%	74.5%	100.0%
> 25 t	0	0	0	0	0
25 - 39 t	0	0	0	0	0
40 - 69 t	7	6	13	5	18
	38.9%	33.3%	72.2%	27.8%	100.0%
< 70 t	0	0	0	33	33
	0.0%	0.0%	0.0%	100.0%	100.0%
3. Others	2	141	143	1,069	1,212
	0.2%	11.6%	11.8%	88.2%	100.0%
Grand Total	149	461	610	1,257	1,867
	8.0%	24.7%	32.7%	67.3%	100.0%

Remarks : Model area is all the coastal area of Keda State except Lankawi Island.
Source : ANNUAL FISHERIES STATISTICS,1988, and data from State DOF/LKIM

Appendix 4.2 Landing Volume by Fishing Gear in Kedah Model Area (1988)

Unit : Ton

Fishing Gear	Model Area				Total
	Kuala Kedah			Other	
	LKIM	Private	Subtotal	Area	
1. Trawl Net	3,043	28,103	31,146	10,290	41,436
	7.3%	67.8%	75.2%	24.8%	100.0%
2. Purse Sein	536	2,605	3,141	8,767	11,908
	4.5%	21.9%	26.4%	73.6%	100.0%
3. Others	5	988	993	6,932	7,924
	0.1%	12.5%	12.5%	87.5%	100.0%
Total	3,584	31,696	35,280	25,989	61,269
	5.8%	51.7%	57.6%	42.4%	100.0%

Remarks : Model area si all the coastal area of Kedah State except Lankawi Island
Sourcc : ANNUAL FISHERIES STATISTICS,1988, and data from State DOF/LKIM

Appendix 4.3 Number of Fishing Boat by Fishing Gear in Perak Model Area (1988)

Fishing Gear	Model Area				Total
	Pulau Pangkor	Pantai Remis	Lumut	Other Area	
1. Trawl Net	142	545	0	0	687
	20.7%	79.3%	0.0%	0.0%	100.0%
> 25 t	29	515	0	0	544
	5.3%	94.7%	0.0%	0.0%	100.0%
25 - 39 t	39	16	0	0	55
	70.9%	29.1%	0.0%	0.0%	100.0%
40 - 69 t	74	12	0	0	86
	86.0%	14.0%	0.0%	0.0%	100.0%
< 70 t	0	2	0	0	2
	0.0%	100.0%	0.0%	0.0%	100.0%
2. Purse Seine	42	7	0	0	49
	85.7%	14.3%	0.0%	0.0%	100.0%
> 25 t	0	0	0	0	0
25 - 39 t	0	4	0	0	4
	0.0%	100.0%	0.0%	0.0%	100.0%
40 - 69 t	42	3	0	0	45
	93.3%	6.7%	0.0%	0.0%	100.0%
< 70 t	0	0	0	0	0
3. Others	175	280	50	362	867
	20.2%	32.3%	5.8%	41.8%	100.0%
Grand Total	359	832	50	362	1,603
	22.4%	51.9%	3.1%	22.6%	100.0%

Remarks : Model area is all the area of MANJUN district
Source : ANNUAL FISHERIES STATISTICS,1988,
and state data from DOF/LKIM

Appendix 4.4 Landing Volume by Fishing Gear in Perak Model Area (1988)

Unit : ton

Fishing Gear	Model Area				Total
	Pulau Pangkor	Pantai Remis	Lumut	Other Area	
1.Trawl Net	9,980	38,304	0	0	48,284
	20.7%	79.3%	0.0%	0.0%	100.0%
2.Purse Seine	9,981	727	0	0	10,708
	93.2%	6.8%	0.0%	0.0%	100.0%
3.Others	1,521	1,722	276	2,541	6,060
	25.1%	28.4%	4.6%	41.9%	100.0%
Total	21,482	40,752	276	2,541	65,051
	33.0%	62.6%	0.4%	3.9%	100.0%

Remarks : Model area is all area of MANJUN district.
Source : ANNUAL FISHERIES STATISTICS,1988,
and state data from DOF/LKIM

Appendix 4.5 Number of Fishing Boat by Fishing Gear in Terengganu Model Area (1988)

Fishing Gear	Model Area									Total
	K. Besut			P. Kambing			Chendering			
	LKIM	Private	Subtotal	LKIM	Private	Subtotal	LKIM	Private	Subtotal	
1. Trawl Net	71	0	71	63	0	63	58	0	58	273
	26.0%	0.0%	26.0%	23.1%	0.0%	23.1%	21.2%	0.0%	21.2%	100.0%
> 25 t	61	0	61	53	0	53	35	0	35	225
	27.1%	0.0%	27.1%	23.6%	0.0%	23.6%	15.6%	0.0%	15.6%	100.0%
25 - 39 t	6	0	6	4	0	4	8	0	8	23
	26.1%	0.0%	26.1%	17.4%	0.0%	17.4%	34.8%	0.0%	34.8%	100.0%
40 - 69 t	1	0	1	3	0	3	1	0	1	5
	20.0%	0.0%	20.0%	60.0%	0.0%	60.0%	20.0%	0.0%	20.0%	100.0%
< 70 t	3	0	3	3	0	3	14	0	14	20
	15.0%	0.0%	15.0%	15.0%	0.0%	15.0%	70.0%	0.0%	70.0%	100.0%
2. Purse Seine	69	0	69	48	0	48	24	0	24	231
	29.9%	0.0%	29.9%	20.8%	0.0%	20.8%	10.4%	0.0%	10.4%	100.0%
> 25 t	25	0	25	18	0	18	5	0	5	136
	18.4%	0.0%	18.4%	13.2%	0.0%	13.2%	3.7%	0.0%	3.7%	100.0%
25 - 39 t	21	0	21	20	0	20	4	0	4	47
	44.7%	0.0%	44.7%	42.6%	0.0%	42.6%	8.5%	0.0%	8.5%	100.0%
40 - 69 t	19	0	19	10	0	10	9	0	9	38
	50.0%	0.0%	50.0%	26.3%	0.0%	26.3%	23.7%	0.0%	23.7%	100.0%
< 70 t	4	0	4	0	0	0	6	0	6	10
	40.0%	0.0%	40.0%	0.0%	0.0%	0.0%	60.0%	0.0%	60.0%	100.0%
3. Others	187	0	187	171	0	171	110	0	110	776
	24.1%	0.0%	24.1%	22.0%	0.0%	22.0%	14.2%	0.0%	14.2%	100.0%
Grand Total	327	0	327	281	0	281	192	0	192	1,279
	25.6%	0.0%	25.6%	22.0%	0.0%	22.0%	15.0%	0.0%	15.0%	100.0%

Remarks : Model Area is all the coastal area of Terengganu State excluding Dungun and Kemaman.
There are no fishing boat landing at private jetties in the model area.
However there is some transaction outside the complex.

Sources : ANNUAL FISHERIES STATISTICS,1988, and data from state DOF/LKIM

Appendix 4.6 Landing Volume by Fishing Gear in Terengganu Model Area (1988)

Unit : ton

Fishing Gear	Model Area									Total
	K. Besut			P. Kambing			Chendering			
	LKIM	Private	Subtotal	LKIM	Private	Subtotal	LKIM	Private	Subtotal	
1. Trawl Net	3,029	1,805	4,834	3,173	1,116	4,289	2,799	1,150	3,949	13,072
	23.2%	13.8%	37.0%	24.3%	8.5%	32.8%	21.4%	8.8%	30.2%	100.0%
2. Purse Seine	10,133	6,081	16,214	8,151	2,893	11,044	3,978	1,653	5,631	32,889
	30.8%	18.5%	49.3%	24.8%	8.8%	33.6%	12.1%	5.0%	17.1%	100.0%
3. Others	1,319	793	2,112	1,589	564	2,153	942	391	1,333	5,598
	23.6%	14.2%	37.7%	28.4%	10.1%	38.5%	16.8%	7.0%	23.8%	100.0%
Grand Total	14,481	8,679	23,160	12,913	4,573	17,486	7,719	3,194	10,913	51,559
	28.1%	16.8%	44.9%	25.0%	8.9%	33.9%	15.0%	6.2%	21.2%	100.0%

Remarks : Model Area is all the coastal area of Terengganu State excluding Dungun and Kemaman.
There are no fishing boat landing at private jetties in the model area.
However there is some transaction outside the complex.

Sources : ANNUAL FISHERIES STATISTICS,1988, and data from state DOF/LKIM

Appendix 4.7 Number of Fishing Boat by Fishing Gear in Johor Model Area (1988)

Fishing Gear	Model Area									Other Area	Total
	Endau			Mersing			K. Sedeli				
	LIKM	Private	Subtotal	LIKM	Private	Subtotal	LIKM	Private	Subtotal		
1. Trawl Net	15	139	154	53	34	87	113	52	165	182	588
	2.6%	23.6%	26.2%	9.0%	5.8%	14.8%	19.2%	8.8%	28.1%	31.0%	100.0%
25 t >	0	21	21	31	3	34	113	0	113	148	316
	0.0%	6.6%	6.6%	9.8%	0.9%	10.8%	35.8%	0.0%	35.8%	46.8%	100.0%
25 - 39 t	0	34	34	18	11	29	0	16	16	16	95
	0.0%	35.8%	35.8%	18.9%	11.6%	30.5%	0.0%	16.8%	16.8%	16.8%	100.0%
40 - 69 t	10	64	74	2	10	12	0	30	30	18	134
	7.5%	47.8%	55.2%	1.5%	7.5%	9.0%	0.0%	22.4%	22.4%	13.4%	100.0%
70 t <	5	20	25	2	10	12	0	6	6	0	43
	11.6%	46.5%	58.1%	4.7%	23.3%	27.9%	0.0%	14.0%	14.0%	0.0%	100.0%
2. Purse Seine	10	5	15	8	14	22	6	9	15	0	52
	19.2%	9.6%	28.8%	15.4%	26.9%	42.3%	11.5%	17.3%	28.8%	0.0%	100.0%
25 t >	2	0	2	0	2	2	0	0	0	0	4
	50.0%	0.0%	50.0%	0.0%	50.0%	50.0%	0.0%	0.0%	0.0%	0.0%	100.0%
25 - 39 t	5	0	5	4	3	7	0	0	0	0	12
	41.7%	0.0%	41.7%	33.3%	25.0%	58.3%	0.0%	0.0%	0.0%	0.0%	100.0%
40 - 69 t	3	5	8	4	9	13	6	9	15	0	36
	8.3%	13.9%	22.2%	11.1%	25.0%	36.1%	16.7%	25.0%	41.7%	0.0%	100.0%
70 t <	0	0	0	0	0	0	0	0	0	0	0
	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
3. Other	0	19	19	55	211	266	24	80	104	500	889
	0.0%	2.1%	2.1%	6.2%	23.7%	29.9%	2.7%	9.0%	11.7%	56.2%	100.0%
Grand Total	25	163	188	116	259	375	143	141	284	682	1,529
	1.6%	10.7%	12.3%	7.6%	16.9%	24.5%	9.4%	9.2%	18.6%	44.6%	100.0%

Remarks : Model area is all area of east coast area in Johor
Sources : ANNUAL FISHERIES STATISTICS,1988, and data from DOF/LKIM

Appendix 4.8 Landing Volume by Fishing Gear in Johor Model Area (1988)

Unit : ton

Fishing Gear	Model Area									Other Area	Total
	Endau			Mersing			K. Sedeli				
	LIKM	Private	Subtotal	LIKM	Private	Subtotal	LIKM	Private	Subtotal		
1. Trawl Net	757	10,498	11,255	1,252	5,107	6,359	1,308	10,751	12,059	13,301	42,974
	1.8%	24.4%	26.2%	2.9%	11.9%	14.8%	3.0%	25.0%	28.1%	31.0%	100.0%
2. Purse Seine	1,033	1,210	2,243	325	2,964	3,289	142	2,101	2,243	0	7,775
	13.3%	15.6%	28.8%	4.2%	38.1%	42.3%	1.8%	27.0%	28.8%	0.0%	100.0%
3. Other	0	384	384	159	1,926	2,085	39	785	823	13,714	17,006
	0.0%	2.3%	2.3%	0.9%	11.3%	12.3%	0.2%	4.6%	4.8%	80.6%	100.0%
Grand Total	1,790	12,092	13,882	1,736	9,997	11,733	1,489	13,637	15,125	27,015	67,755
	2.6%	17.8%	20.5%	2.6%	14.8%	17.3%	2.2%	20.1%	22.3%	39.9%	100.0%

Remarks : Model area is all area of east coast area in Johor

Sources : ANNUAL FISHERIES STATISTICS,1988, and data from DOF/LKIM

Appendix 4.9 Number of Fishing Boat by Fishing Gear in Sarawak Model Area (1988)

Fishing Gear	Model Area				Total
	Kuching			Mukah	
	LKIM	Others	Subtotal		
1. Trawl Net	22	80	102	46	148
	14.9%	54.1%	68.9%	31.1%	100.0%
> 25 t	0	24	24	44	68
	0.0%	35.3%	35.3%	64.7%	100.0%
25 - 39 t	0	14	14	1	15
	0.0%	93.3%	93.3%	6.7%	100.0%
40 - 69 t	0	34	34	1	35
	0.0%	97.1%	97.1%	2.9%	100.0%
< 70 t	22	8	30	0	30
	73.3%	26.7%	100.0%	0.0%	100.0%
2. Purse Seine	2	10	12	7	19
	10.5%	52.6%	63.2%	36.8%	100.0%
> 25 t	0	1	1	2	3
	0.0%	33.3%	33.3%	66.7%	100.0%
25 - 39 t	0	0	0	3	3
	0.0%	0.0%	0.0%	100.0%	100.0%
40 - 69 t	2	9	11	2	13
	15.4%	69.2%	84.6%	15.4%	100.0%
< 70 t	0	0	0	0	0
3. Others	13	374	413	365	778
	1.7%	48.1%	53.1%	46.9%	100.0%
Grand Total	37	464	527	418	945
	3.9%	49.1%	55.8%	44.2%	100.0%

Remarks : Model area consists of Kuchin and Mukah.
Sources : ANNUAL FISHERIES STATISTICS,1988,
and data from DOF/LKIM

Appendix 4.10 Landing Volume by Fishing Gear in Sarawak Model Area (1988)

Unit : ton

Fishing Gear	Model Area				Total
	Kuching			Mukah	
	LKIM	Others	Subtotal		
1. Trawl Net	2,240	8,457	10,697	453	11,150
	20.1%	75.9%	95.9%	4.1%	100.0%
2. Purse Sein	328	1,700	2,029	146	2,175
	15.1%	78.2%	93.3%	6.7%	100.0%
3. Others	51	1,482	1,533	1,324	2,857
	1.8%	51.9%	53.7%	46.3%	100.0%
Taoal	2,619	11,640	14,259	1,923	16,182
	16.2%	71.9%	88.1%	11.9%	100.0%

Remarks : Model area consists of Kuchin and Mukah.
Sources : ANNUAL FISHERIES STATISTICS,1988,
and data from DOF/LKIM

Appendix 4.11 Number of Fishing Boat by Fishing Gear in Sabah Model Area (1988)

Fishing Gear	Model Area									Total
	Kota Kinabaru			Kudat			Lahad Datu			
	SAFMA	Others	Subtotal	KONELAYA	Others	Subtotal	KONELAYA	Others	Subtotal	
1. Trawl Net	58	97	155	12	180	192	0	65	65	412
	14.1%	23.5%	37.6%	2.9%	43.7%	46.6%	0.0%	15.8%	15.8%	100.0%
> 25 t	13	63	76	11	166	177	0	59	59	312
	4.2%	20.2%	24.4%	3.5%	53.2%	56.7%	0.0%	18.9%	18.9%	100.0%
25 - 39 t	31	4	35	1	8	9	0	3	3	47
	66.0%	8.5%	74.5%	2.1%	17.0%	19.1%	0.0%	6.4%	6.4%	100.0%
40 - 69 t	14	23	37	0	3	3	0	2	2	42
	33.3%	54.8%	88.1%	0.0%	7.1%	7.1%	0.0%	4.8%	4.8%	100.0%
< 70 t	0	7	7	0	3	3	0	1	1	11
	0.0%	63.6%	63.6%	0.0%	27.3%	27.3%	0.0%	9.1%	9.1%	100.0%
2. Purse Seine	3	5	8	0	14	14	0	5	5	27
	11.1%	18.5%	29.6%	0.0%	51.9%	51.9%	0.0%	18.5%	18.5%	100.0%
> 25 t	0	5	5	0	13	13	0	5	5	23
	0.0%	21.7%	21.7%	0.0%	56.5%	56.5%	0.0%	21.7%	21.7%	100.0%
25 - 39 t	0	0	0	0	1	1	0	0	0	1
	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%	0.0%	0.0%	0.0%	100.0%
40 - 69 t	3	0	3	0	0	0	0	0	0	3
	100.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
< 70 t	0	0	0	0	0	0	0	0	0	0
3. Others	33	107	122	15	215	230	0	76	76	428
	7.7%	25.0%	28.5%	3.5%	50.2%	53.7%	0.0%	17.8%	17.8%	100.0%
Grand Total	84	159	243	27	409	436	0	146	146	825
	10.2%	19.3%	29.5%	3.3%	49.6%	52.8%	0.0%	17.7%	17.7%	100.0%

Remarks : Model area consists of Kota kinabalu, Kudat and Lahad Datu.
Sources : ANNUAL FISHERIES STATISTICS,1988, and data from DOF

Appendix 4.12 Landing Volume by Fishing Gear in Sabah Model Area (1988)

Unit : ton

Fishing Gear	Model Area									Total
	Kota Kinabaru			Kudat			Lahad Datu			
	SAFMA	Others	Subtotal	KONELAYA	Others	Subtotal	KONELAYA	Others	Subtotal	
1.Trawl Net	238	803	1,041	121	1,840	1,961	0	657	657	3,660
	6.5%	21.9%	28.5%	3.3%	50.3%	53.6%	0.0%	18.0%	18.0%	100.0%
2.Purse Seine	124	441	565	0	1,318	1,318	0	471	471	2,353
	5.3%	18.7%	24.0%	0.0%	56.0%	56.0%	0.0%	20.0%	20.0%	100.0%
3.Others	493	2,098	2,591	269	4,577	4,846	0	1,608	1,608	9,045
	5.5%	23.2%	28.6%	3.0%	50.6%	53.6%	0.0%	17.8%	17.8%	100.0%
Total	855	3,342	4,197	390	7,735	8,125	0	2,735	2,735	15,057
	5.7%	22.2%	27.9%	2.6%	51.4%	54.0%	0.0%	18.2%	18.2%	100.0%

Remarks : Model area consists of Kota kinabalu, Kudat and Lahad Datu.
Sources : ANNUAL FISHERIES STATISTICS,1988, and data from DOF

Appendix 4.13 Inflow Volume of Fishery Products to KL Wholesale Market by by OriginandType of Supplier

Unit : MT

Origin	Total	Importer	Fishermen	Wholesaler
1. Import	8,105 (66.1%)	64 (0.5%)	- (-)	8,041 (65.5%)
1) Thailand	8,041 (65.5%)	- (-)	- (-)	8,041 (65.5%)
2) Bangladesh	30 (0.2%)	30 (0.2%)	- (-)	- (-)
3) India	34 (0.3%)	34 (0.3%)	- (-)	- (-)
2. Domestic Production	4,165 (33.9%)	89 (0.7%)	72 (0.6%)	4,004 (32.6%)
(1) West Coast	2,759 (22.5%)	89 (0.7%)	72 (0.6%)	2,598 (21.2%)
1) Perlis	561 (4.6%)	- (-)	- (-)	561 (4.6%)
2) Kedah	173 (1.4%)	- (-)	- (-)	173 (1.4%)
3) P. Pinang	510 (4.2%)	89 (0.7%)	- (-)	421 (3.4%)
4) Perak	795 (6.5%)	- (-)	72 (0.6%)	723 (5.9%)
5) Selangor	720 (5.9%)	- (-)	- (-)	720 (5.9%)
(2) East Coast	1,406 (11.5%)	- (-)	- (-)	1,406 (11.5%)
1) Kelantan	54 (0.4%)	- (-)	- (-)	54 (0.4%)
2) Terengganu	590 (4.8%)	- (-)	- (-)	590 (4.8%)
3) Pahang	762 (6.2%)	- (-)	- (-)	762 (6.2%)
3. Total	12,270 (100.0%)	153 (1.2%)	72 (0.6%)	12,045 (98.2%)

Remarks: 1) Figure shows the sum of the volume from interview survey of wholesalers.
2) Value in parenthesis is percentage to the total sum of the volume.
3) Based of FMDS Phase II field survey (Feb.- March, 1990).

Appendix 4.14 Inflow Volume of Fishery Products by Wholesalers in Kedah by Origin andType of Supplier

Unit : MT

Origin	Total	Fishermen	Aqua. Operator Auctioneer	Wholesaler
1. Import	-	-	-	-
2. Domestic Production	8,347 (100.0%)	5,746 (68.8%)	1,264 (15.1%)	1,338 (16.0%)
(1) West Coast	8,347 (100.0%)	5,746 (68.8%)	1,264 (15.1%)	1,338 (16.0%)
1) Perlis	1,243 (14.9%)	238 (2.8%)	117 (1.4%)	889 (10.7%)
2) Kedah	7,056 (84.5%)	5,508 (66.0%)	1,147 (13.7%)	401 (4.8%)
3) Perak	48 (0.6%)	- (-)	- (-)	48 (0.6%)
(2) East Coast	- -	- -	- -	- -
3. Total	8,347 (100.0%)	5,746 (68.8%)	1,264 (15.1%)	1,338 (16.0%)

Remarks: 1) Figure shows the sum of the volume from interview survey of wholesalers.
2) Value in parenthesis is percentage to the total sum of the volume.
3) Based of FMDS Phase II field survey (Feb.- March, 1990).

Appendix 4.15 Outflow Volume of Fishery Products by Wholesalers in Kedah by Destination andType of Buyer

Unit : MT

Destination	Total	Exporter	Wholesaler	Processor	Retailer
1. Export					
1) Singapole	590 (7.1%)	- (-)	590 (7.1%)	- (-)	- (-)
2. Domestic Production	7,757 (92.9%)	50 (0.6%)	5,152 (61.7%)	2,015 (24.1%)	541 (6.5%)
(1) West Coast	7,487 (89.7%)	50 (0.6%)	4,882 (58.5%)	2,015 (24.1%)	541 (6.5%)
1) Perlis	90 (1.1%)	- (-)	60 (0.7%)	30 (0.4%)	- (-)
2) Kedah	4,507 (54.0%)	50 (0.6%)	2,083 (24.9%)	1,834 (22.0%)	541 (6.5%)
3) P. Pinang	831 (10.0%)	- (-)	831 (10.0%)	- (-)	- (-)
4) Perak	730 (8.7%)	- (-)	730 (8.7%)	- (-)	- (-)
5) Kuala Lumpur	1,329 (15.9%)	- (-)	1,178 (14.1%)	151 (1.8%)	- (-)
(2) East Coast	270 (3.2%)	- (-)	270 (3.2%)	- (-)	- (-)
1) Johor	270 (3.2%)	- (-)	270 (3.2%)	- (-)	- (-)
3. Total	8,347 (100.0%)	50 (0.6%)	5,742 (68.8%)	2,015 (24.1%)	541 (6.5%)

Remarks: 1) Figure shows the sum of the volume from interview survey of wholesalers.
2) Value in parenthesis is percentage to the total sum of the volume.
3) Based of FMDS Phase II field survey (Feb.- March, 1990).

Appendix 4.16 Inflow Volume of Fishery Products in Kuala Kedah LKIM Complex by Origin and Type of Supplier

Unit : MT

Origin	Total	Fishermen	Wholesaler	Auctioneer
Local production				
(1) West Coast				
- Kuala Kedah	3,199 (100.0%)	1,650 (51.6%)	685 (21.4%)	864 (27.0%)
(2) East Coast	-	-	-	-
Total	3,199 (100.0%)	1,650 (51.6%)	685 (21.4%)	864 (27.0%)

Remarks: 1) Figure shows the sum of the volume from interview survey of wholesalers.
2) Value in parenthesis is percentage to the total sum of the volume.
3) Based of FMDS Phase III field survey (Sept., 1990).

Appendix 4.17 Outflow Volume of Fishery Products in Kuala Kedah,LKIM Complex by Destination andType of Buyer

Unit : MT

Destination	Total	Exporter	Wholesaler	Retailer
1. Export	-	-	-	-
2. Domestic consumption	3,199 (100.0%)	300 (9.4%)	1,547 (48.4%)	1,352 (42.3%)
(1) West Coast	3,199 (100.0%)	300 (9.4%)	1,547 (48.4%)	1,352 (42.3%)
1) Kedah	2,752 (86.0%)	195 (6.1%)	1,381 (43.2%)	1,177 (36.8%)
- Kota Setar	2,500 (78.1%)	195 (6.1%)	1,381 (43.2%)	924 (28.9%)
- Kuala Muda	253 (7.9%)	- (-)	- (-)	253 (7.9%)
2) P. Pinang				
- Bukit Mertajam	210 (6.6%)	- (-)	52 (1.6%)	157 (4.9%)
3) Perak	132 (4.1%)	- (-)	114 (3.6%)	18 (0.6%)
- Kerian	18 (0.6%)	- (-)	- (-)	18 (0.6%)
- Larut dan Matang	14 (0.4%)	- (-)	14 (0.4%)	- (-)
- Perak Tengah	100 (3.1%)	- (-)	100 (3.1%)	- (-)
4) Kuala Lumpur	105 (3.3%)	105 (3.3%)	- (-)	- (-)
(2) East Coast	-	-	-	-
3. Total	3,199 (100.0%)	300 (9.4%)	1,547 (48.4%)	1,352 (42.3%)

Remarks: 1) Figure shows the sum of the volume from interview survey of wholesalers.
2) Value in parenthesis is percentage to the total sum of the volume.
3) Based of FMDS Phase III field survey (Sept., 1990).

Appendix 4.18 Inflow Volume of Fishery Products in Kuala Kedah Private Jetties by Origin and Type of Supplier

Unit : MT

Origin	Total	Fishermen	Wholesaler
Local Production			
(1) West Coast			
- Kuala Kedah	6,351 (100.0%)	5,018 (79.0%)	1,333 (21.0%)
(2) East Coast	-	-	-
Total	6,351 (100.0%)	5,018 (79.0%)	1,333 (21.0%)

Remarks: 1) Figure shows the sum of the volume from interview survey of wholesalers.
2) Value in parenthesis is percentage to the total sum of the volume.
3) Based of FMDS Phase III field survey (Sept., 1990).

Appendix 4.19 Outflow Volume of Fishery Products in Kuala Kedah, Private Jetties by Destination andType of Buyer

Unit : MT

Destination	Total	Wholesaler	Retailer
1. Export	-	-	-
2. Domestic consumption	6,351 (100.0%)	6,180 (97.3%)	171 (2.7%)
(1) West Coast	6,351 (100.0%)	6,180 (97.3%)	171 (2.7%)
1) Kedah	2,487 (39.2%)	2,487 (39.2%)	- (-)
- Kota Setar	2,290 (36.1%)	2,290 (36.1%)	- (-)
- Kuala Muda	197 (3.1%)	197 (3.1%)	- (-)
2) P. Pinang	1,063 (16.7%)	892 (14.0%)	171 (2.7%)
- Bukit Mertajam	817 (12.9%)	646 (10.2%)	171 (2.7%)
- Butterworth	246 (3.9%)	246 (3.9%)	- (-)
3) Perak			
- Perak Tengah	171 (2.7%)	171 (2.7%)	- (-)
4) Kuala Lumpur	2,630 (41.4%)	2,630 (41.4%)	- (-)
(2) East Coast	-	-	-
3. Total	6,351 (100.0%)	6,180 (97.3%)	171 (2.7%)

Remarks: 1) Figure shows the sum of the volume from interview survey of wholesalers.
2) Value in parenthesis is percentage to the total sum of the volume.
3) Based of FMDS Phase III field survey (Sept., 1990).

Appendix 4.20 Inflow Volume of Fishery Products by Wholesalers in Johor Bahru by Origin andType of Supplier

Unit : MT

Origin	Total	Fishermen	Aqua. Operator Auctioneer	Wholesaler
1. Import	-	-	-	-
2. Domestic production	4,419 (100.0%)	1,489 (33.7%)	1,069 (24.2%)	1,861 (42.1%)
(1) West Coast	-	-	-	-
(2) East Coast	4,419 (100.0%)	1,489 (33.7%)	1,069 (24.2%)	1,861 (42.1%)
1) Johor	3,139 (71.0%)	1,489 (33.7%)	852 (19.3%)	799 (18.1%)
2) Kelantan	398 (9.0%)	- (-)	- (-)	398 (9.0%)
3) Terengganu	417 (9.4%)	- (-)	217 (4.9%)	200 (4.5%)
4) Pahang	464 (10.5%)	- (-)	- (-)	464 (10.5%)
3. Total	4,419 (100.0%)	1,489 (33.7%)	1,069 (24.2%)	1,861 (42.1%)

Remarks: 1) Figure shows the sum of the volume from interview survey of wholesalers.
2) Value in parenthesis is percentage to the total sum of the volume.
3) Based of FMDS Phase II field survey (Feb.- March, 1990).

Appendix 4.21 Outflow Volume of Fishery Products by Wholesalers in Johor Bahru by Destination andType of Buyer

Unit : MT

Destination	Total	Exporter	Wholesaler	Processor	Retailer Hotel/Restaurant
1. Export	432 (9.8%)	- (-)	241 (5.5%)	- (-)	191 (4.3%)
1) Singapore	289 (6.5%)	- (-)	241 (5.5%)	- (-)	48 (1.1%)
2) Hong Kong	143 (3.2%)	- (-)	-	- (-)	143 (3.2%)
2. Domestic consumption	3,987 (90.2%)	46 (1.0%)	2,638 (59.7%)	150 (3.4%)	1,153 (26.1%)
(1) West coast	-	-	-	-	-
(2) East coast	3,987 (90.2%)	46 (1.0%)	2,638 (59.7%)	150 (3.4%)	1,153 (26.1%)
1) Johor	3,987 (90.2%)	46 (1.0%)	2,638 (59.7%)	150 (3.4%)	1,153 (26.1%)
3. Total	4,419 (100.0%)	46 (1.0%)	2,879 (65.2%)	150 (3.4%)	1,344 (30.4%)

Remarks: 1) Figure shows the sum of the volume from interview survey of wholesalers.
2) Value in parenthesis is percentage to the total sum of the volume.
3) Based of FMDS Phase II field survey (Feb.- March, 1990).

Appendix 4.22 Inflow Volume of Fishery Products in Endau LKIM Complex by Origin and Type of Supplier

Unit : MT

Origin	Total	Fishermen	Wholesaler
Local Production			
(1) West Coast	-	-	-
(2) East Coast			
- Endau	10,886 (100.0%)	9,600 (88.2%)	1,286 (11.8%)
Total	10,886 (100.0%)	9,600 (88.2%)	1,286 (11.8%)

Remarks: 1) Figure shows the sum of the volume from interview survey of wholesalers.
2) Value in parenthesis is percentage to the total sum of the volume.
3) Based of FMDS Phase III field survey (Sept., 1990).

Appendix 4.23 Outflow Volume of Fishery Products in Endau,LKIM Complex by Destination andType of Buyer

Unit : MT

Destination	Total	Exporter	Wholesaler	Processor	Retailer
1. Export					
1) Singapore	2,612 (24.0%)	- (-)	2,612 (24.0%)	- (-)	- (-)
2. Domestic consumption	8,274 (76.0%)	5 (0.0%)	2,361 (21.7%)	5,760 (52.9%)	149 (1.4%)
(1) West Coast	-	-	-	-	-
(2) East Coast	8,274 (76.0%)	5 (0.0%)	2,361 (21.7%)	5,760 (52.9%)	149 (1.4%)
1) Johor	8,274 (76.0%)	5 (0.0%)	2,361 (21.7%)	5,760 (52.9%)	149 (1.4%)
- Johor Bahru	2,248 (20.6%)	5 (0.0%)	2,238 (20.6%)	- (-)	5 (0.0%)
- Keluang	165 (1.5%)	- (-)	123 (1.1%)	- (-)	42 (0.4%)
- Kota Tinggi	15 (0.1%)	- (-)	- (-)	- (-)	15 (0.1%)
- Mersing	5,847 (53.7%)	- (-)	- (-)	5,760 (52.9%)	87 (0.8%)
3. Total	10,886 (100.0%)	5 (0.0%)	4,972 (45.7%)	5,760 (52.9%)	149 (1.4%)

Remarks: 1) Figure shows the sum of the volume from interview survey of wholesalers.
2) Value in parenthesis is percentage to the total sum of the volume.
3) Based of FMDS Phase III field survey (Sept., 1990).

Appendix 4.24 Inflow Volume of Fishery Products in Mersing LKIM Complex by Origin and Type of Supplier

Unit : MT

Origin	Total	Wholesaler
Local Production		
(1) West Coast	-	-
(2) East Coast		
- Mersing	3,482 (100.0%)	3,482 (100.0%)
Total	3,482 (100.0%)	3,482 (100.0%)

Remarks: 1) Figure shows the sum of the volume from interview survey of wholesalers.
2) Value in parenthesis is percentage to the total sum of the volume.
3) Based of FMDS Phase III field survey (Sept., 1990).

Appendix 4.25 Outflow Volume of Fishery Products in Mersing,LKIM Complex by Destination andType of Buyer

Unit : MT

Destination	Total	Exporter	Wholesaler	Retailer
1. Export				
1) Singapore	780 (22.4%)	18 (0.5%)	762 (21.9%)	- (-)
2. Domestic consumption	2,702 (77.6%)	- (-)	1,942 (55.8%)	760 (21.8%)
(1) West Coast	381 (10.9%)	- (-)	381 (10.9%)	- (-)
1) Kuala Lumpur	381 (10.9%)	- (-)	381 (10.9%)	- (-)
(2) East Coast	2,321 (66.7%)	- (-)	1,561 (44.8%)	760 (21.8%)
1) Johor	2,321 (66.7%)	- (-)	1,561 (44.8%)	760 (21.8%)
- Batu Pahat	180 (5.2%)	- (-)	162 (4.7%)	18 (0.5%)
- Johor Bahru	1,252 (36.0%)	- (-)	1,252 (36.0%)	- (-)
- Keluang	591 (17.0%)	- (-)	127 (3.7%)	464 (13.3%)
- Kota Tinggi	67 (1.9%)	- (-)	20 (0.6%)	47 (1.3%)
- Mersing	70 (2.0%)	- (-)	- (-)	70 (2.0%)
- Muar	162 (4.7%)	- (-)	- (-)	162 (4.7%)
3. Total	3,482 (100.0%)	18 (0.5%)	2,704 (77.7%)	760 (21.8%)

Remarks: 1) Figure shows the sum of the volume from interview survey of wholesalers.
2) Value in parenthesis is percentage to the total sum of the volume.
3) Based of FMDS Phase III field survey (Sept., 1990).

Appendix 4.26 Inflow Volume of Fishery Products in Kuala Sedili LKIM Complex by Origin and Type of Supplier

Unit : MT

Origin	Total	Fishermen	Wholesaler
Local Production			
(1) West Coast	-	-	-
(2) East Coast			
- Kuala Sedeli	4,192 (100.0%)	196 (4.7%)	3,996 (95.3%)
Total	4,192 (100.0%)	196 (4.7%)	3,996 (95.3%)

Remarks: 1) Figure shows the sum of the volume from interview survey of wholesalers.
2) Value in parenthesis is percentage to the total sum of the volume.
3) Based of FMDS Phase III field survey (Sept., 1990).

Appendix 4.27 Outflow Volume of Fishery Products in Kuala Sedili LKIM Complex by Destination and Type of Buyer

Unit : MT

Destination	Total	Wholesaler	Processor	Retailer
1. Export				
1) Singapore	1,461 (34.8%)	1,461 (34.8%)	- (-)	- (-)
2. Domestic consumption	2,731 (65.2%)	1,754 (41.8%)	449 (10.7%)	529 (12.6%)
(1) West Coast	-	-	-	-
(2) East Coast	2,731 (65.2%)	1,754 (41.8%)	449 (10.7%)	529 (12.6%)
1) Johor	2,731 (65.2%)	1,754 (41.8%)	449 (10.7%)	529 (12.6%)
- Johor Bahru	1,845 (44.0%)	1,754 (41.8%)	- (-)	91 (2.2%)
- Keluang	37 (0.9%)	- (-)	- (-)	37 (0.9%)
- Kota Tinggi	369 (8.8%)	- (-)	- (-)	369 (8.8%)
- Mersing	449 (10.7%)	- (-)	449 (10.7%)	- (-)
- Segamat	31 (0.7%)	- (-)	- (-)	31 (0.7%)
3. Total	4,192 (100.0%)	3,214 (76.7%)	449 (10.7%)	529 (12.6%)

Remarks: 1) Figure shows the sum of the volume from interview survey of wholesalers.
2) Value in parenthesis is percentage to the total sum of the volume.
3) Based of FMDS Phase III field survey (Sept., 1990).

Appendix 4.28 Inflow Volume of Fishery Products in Kuantan Complex by Origin and Type of Supplier

Unit : MT

Origin	Total	Fishermen	Aqua. Operator Auctioneer	Wholesaler
1. Import	-	-	-	-
2. Domestic production	5,751 (100.0%)	3,950 (68.7%)	837 (14.6%)	964 (16.8%)
(1) West coast	28 (0.5%)	28 (0.5%)	- (-)	- (-)
1) P. Pinang	28 (0.5%)	28 (0.5%)	- (-)	- (-)
(2) East coast	5,723 (99.5%)	3,922 (68.2%)	837 (14.6%)	964 (16.8%)
1) Kelantan	512 (8.9%)	- (-)	160 (2.8%)	352 (6.1%)
2) Pahang	5,211 (90.6%)	3,922 (68.2%)	677 (11.8%)	612 (10.6%)
3. Total	5,751 (100.0%)	3,950 (68.7%)	837 (14.6%)	964 (16.8%)

Remarks: 1) Figure shows the sum of the volume from interview survey of wholesalers.
2) Value in parenthesis is percentage to the total sum of the volume.
3) Based of FMDS Phase II field survey (Feb.- March, 1990).

Appendix 4.29 Outflow Volume of Fishery Products in Kuantan Complex by Destination andType of Buyer

Unit : MT

Destination	Total	Exporter	Wholesaler	Processor	Retailer Hotel/Restaurant
1. Export					
1) Singapore	345 (6.0%)	-	345 (6.0%)	-	-
2. Domestic Production	5,406 (94.0%)	360 (6.3%)	1,327 (23.1%)	171 (3.0%)	3,548 (61.7%)
(1) West Coast	1,244 (21.6%)	180 (3.1%)	617 (10.7%)	- (-)	447 (7.8%)
1) Kuala Lumpur	942 (16.4%)	108 (1.9%)	615 (10.7%)	- (-)	219 (3.8%)
2) Melaka	262 (4.6%)	72 (1.3%)	2 (0.0%)	- (-)	188 (3.3%)
3) N. Sembilan	40 (0.7%)	- (-)	- (-)	- (-)	40 (0.7%)
(2) East Coast	4,162 (72.4%)	180 (3.1%)	710 (12.3%)	171 (3.0%)	3,101 (53.9%)
1) Pahang	3,426 (59.6%)	- (-)	590 (10.3%)	171 (3.0%)	2,665 (46.3%)
2) Johor	736 (12.8%)	180 (3.1%)	120 (2.1%)	- (-)	436 (7.6%)
3. Total	5,751 (100.0%)	360 (6.3%)	1,672 (29.1%)	171 (3.0%)	3,548 (61.7%)

Remarks: 1) Figure shows the sum of the volume from interview survey of wholesalers.
2) Value in parenthesis is percentage to the total sum of the volume.
3) Based of FMDS Phase II field survey (Feb.- March, 1990).

Appendix 4.30 Inflow Volume of Fishery Products in Chendering LKIM Complex by Origin and Type of Supplier

Unit : MT

Origin	Total	Fishermen	Wholesaler
Local Production			
(1) West Coast	-	-	-
(2) East Coast			
- Chendering	1,711 (100.0%)	1,635 (95.6%)	76 (4.4%)
Total	1,711 (100.0%)	1,635 (95.6%)	76 (4.4%)

Remarks: 1) Figure shows the sum of the volume from interview survey of wholesalers.
2) Value in parenthesis is percentage to the total sum of the volume.
3) Based of FMDS Phase III field survey (Sept., 1990).

Appendix 4.31 Outflow Volume of Fishery Products in Chendering LKIM Complex by Destination and Type of Buyer

Unit : MT

Destination	Total	Wholesaler	Processor	Retailer
1. Export				
1) Singapore	390 (22.8%)	390 (22.8%)	- (-)	- (-)
2. Domestic consumption	1,322 (77.2%)	936 (54.7%)	331 (19.3%)	55 (3.2%)
(1) West Coast	466 (27.2%)	311 (18.1%)	155 (9.1%)	- (-)
1) P. Pinang				
- Bukit Mertajam	155 (9.1%)	- (-)	155 (9.1%)	- (-)
2) Kuala Lumpur	311 (18.1%)	311 (18.1%)	- (-)	- (-)
(2) East Coast	856 (50.0%)	625 (36.5%)	176 (10.3%)	55 (3.2%)
1) Terengganu	645 (37.7%)	414 (24.2%)	176 (10.3%)	55 (3.2%)
- Dungun	35 (2.0%)	35 (2.0%)	- (-)	- (-)
- Kuala Terengganu	592 (34.6%)	379 (22.1%)	158 (9.2%)	55 (3.2%)
- Marang	18 (1.1%)	- (-)	18 (1.1%)	- (-)
2) Johor				
- Johor Bahru	212 (12.4%)	212 (12.4%)	- (-)	- (-)
3. Total	1,711 (100.0%)	1,325 (77.4%)	331 (19.3%)	55 (3.2%)

Remarks: 1) Figure shows the sum of the volume from interview survey of wholesalers.
2) Value in parenthesis is percentage to the total sum of the volume.
3) Based of FMDS Phase III field survey (Sept., 1990).

Appendix 4.32 Inflow Volume of Fishery Products in Kuala Besut LKIM Complex by Origin and Type of Supplier

Unit : MT

Origin	Total	Fishermen
Local Production		
(1) West Coast	-	-
(2) East Coast		
- Besut	2,712 (100.0%)	2,712 (100.0%)
Total	2,712 (100.0%)	2,712 (100.0%)

Remarks: 1) Figure shows the sum of the volume from interview survey of wholesalers.
2) Value in parenthesis is percentage to the total sum of the volume.
3) Based of FMDS Phase III field survey (Sept.,1990).

Appendix 4.33 Outflow Volume of Fishery Products in Kuala Besut LKIM Complex by Destination and Type of Buyer

Unit : MT

Destination	Total	Wholesaler	Processor	Retailer
1. Export	1,056 (38.9%)	721 (26.6%)	335 (12.4%)	- (-)
1) Singapole	721 (26.6%)	721 (26.6%)	- (-)	- (-)
2) Thailand	335 (12.4%)	- (-)	335 (12.4%)	- (-)
2. Domestic consumption	1,656 (61.1%)	1,361 (50.2%)	255 (9.4%)	40 (1.5%)
(1) West Coast	1,051 (38.7%)	901 (33.2%)	150 (5.5%)	- (-)
1) P. Pinang	239 (8.8%)	89 (3.3%)	150 (5.5%)	- (-)
- Bukit Mertajam	89 (3.3%)	89 (3.3%)	- (-)	- (-)
- Butterworth	150 (5.5%)	- (-)	150 (5.5%)	- (-)
2) Kuala Lumpur	812 (29.9%)	812 (29.9%)	- (-)	- (-)
(2) East Coast	605 (22.3%)	460 (17.0%)	105 (3.9%)	40 (1.5%)
1) Kelantan				
- Kuala Krai	50 (1.8%)	40 (1.5%)	- (-)	10 (0.4%)
2) Pahang				
- Kuantan	144 (5.3%)	144 (5.3%)	- (-)	- (-)
3) Terengganu				
- Besut	135 (5.0%)	- (-)	105 (3.9%)	30 (1.1%)
4) Johor				
- Johor Bahru	276 (10.2%)	276 (10.2%)	- (-)	- (-)
3. Total	2,712 (100.0%)	2,082 (76.8%)	590 (21.8%)	40 (1.5%)

Remarks: 1) Figure shows the sum of the volume from interview survey of wholesalers.
2) Value in parenthesis is percentage to the total sum of the volume.
3) Based of FMDS Phase III field survey (Sept., 1990).

Appendix 4.34 Inflow Volume of Fishery Products in Bintawa LKIM Complex by Origin and Type of Supplier

Unit : MT

Origin	Total	Fishermen	Wholesaler
1. Import			
1) Indonesia	70 (3.0%)	- (-)	70 (3.0%)
2. Local Production			
1) Sarawak			
- Kuching	2,278 (97.0%)	1,365 (58.1%)	913 (38.9%)
Total	2,349 (100.0%)	1,365 (32.6%)	984 (41.9%)

Remarks: 1) Figure shows the sum of the volume from interview survey of wholesalers.
2) Value in parenthesis is percentage to the total sum of the volume.
3) Based of FMDS Phase III field survey (Sept., 1990).

Appendix 4.35 Outflow Volume of Fishery Products in Bintawa LKIM Complex by Destination and Type of Buyer

Unit : MT

Destination	Total	Wholesaler	Retailer
1. Export	1,078 (45.9%)	1,078 (45.9%)	- (-)
1) Brunei	484 (20.6%)	484 (20.6%)	- (-)
2) New Zealand	169 (7.2%)	169 (7.2%)	- (-)
3) Singapore	199 (8.5%)	199 (8.5%)	- (-)
4) Taiwan	226 (9.6%)	226 (9.6%)	- (-)
2. Domestic consumption	1,271 (54.1%)	623 (26.5%)	648 (27.6%)
(1) West Coast	101 (4.3%)	101 (4.3%)	- (-)
1) Selangor			
- Kelang	101 (4.3%)	101 (4.3%)	- (-)
(2) East Coast	23 (1.0%)	23 (1.0%)	- (-)
1) Johor			
- Johor Bahru	23 (1.0%)	23 (1.0%)	- (-)
(3) Sarawak	1,147 (48.8%)	499 (21.2%)	648 (27.6%)
1) Bau	150 (6.4%)	94 (4.0%)	56 (2.4%)
2) Bintulu	271 (11.6%)	271 (11.6%)	- (-)
3) Kuching	383 (16.3%)	- (-)	383 (16.3%)
4) Limbang	65 (2.8%)	- (-)	65 (2.8%)
5) Lundu	112 (4.8%)	88 (3.8%)	24 (1.0%)
6) Sri Aman	165 (7.0%)	45 (1.9%)	120 (5.1%)
3. Total	2,349 (100.0%)	1,701 (72.4%)	648 (27.6%)

Remarks: 1) Figure shows the sum of the volume from interview survey of wholesalers.
2) Value in parenthesis is percentage to the total sum of the volume.
3) Based of FMDS Phase III field survey (Sept., 1990).

Appendix 4.36 Inflow Volume of Fishery Products in Private Jetties Around Kuching by Origin and Type of Supplier

Unit : MT

Origin	Total	Fishermen	Wholesaler
Sarawak			
- Kuching	855 (92.6%)	776 (84.1%)	79 (8.5%)
- Lundu	24 (2.6%)	24 (2.6%)	- (-)
- Sarikei	24 (2.6%)	- (-)	24 (2.6%)
- Sibu	20 (2.2%)	- (-)	20 (2.2%)
Total	923 (100.0%)	800 (86.7%)	123 (13.3%)

Remarks: 1) Figure shows the sum of the volume from interview survey of wholesalers.
2) Value in parenthesis is percentage to the total sum of the volume.
3) Based of FMDS Phase III field survey (Sept., 1990).

Appendix 4.37 Outflow Volume of Fishery Products in Private Jetties Around Kuching by Destination and Type of Buyer

Unit : MT

Destination	Total	Exporter	Wholesaler	Retailer
1. Export	111 (12.0%)	- (-)	111 (12.0%)	- (-)
1) Singapore	54 (5.9%)	- (-)	54 (5.9%)	- (-)
2) Taiwan	56 (6.1%)	- (-)	56 (6.1%)	- (-)
2. Domestic consumption	812 (88.0%)	531 (57.6%)	180 (19.5%)	101 (10.9%)
(1) West Coast	-	-	-	-
(2) East Coast	-	-	-	-
(3) Sarawak	812 (88.0%)	531 (57.6%)	180 (19.5%)	101 (10.9%)
1) Kuching	812 (88.0%)	531 (57.6%)	180 (19.5%)	101 (10.9%)
3. Total	923 (100.0%)	531 (57.6%)	291 (31.5%)	101 (10.9%)

Remarks: 1) Figure shows the sum of the volume from interview survey of wholesalers.
2) Value in parenthesis is percentage to the total sum of the volume.
3) Based of FMDS Phase III field survey (Sept., 1990).

Appendix 4.38 Inflow Volume of Fishery Products in Kota Kinabalu by Origin and Type of Supplier

Unit : MT

Origin	Total	Fishermen	Wholesaler	Auctioneer
Sabah				
- Kota Belud	100 (3.3%)	100 (3.3%)	- (-)	- (-)
- Kota Kinabalu	472 (15.6%)	121 (4.0%)	120 (4.0%)	231 (7.6%)
- Kudat	1,044 (34.5%)	709 (23.4%)	196 (6.5%)	140 (4.6%)
- Sandakan	120 (4.0%)	- (-)	90 (3.0%)	30 (1.0%)
- Semporna	192 (6.3%)	192 (6.3%)	- (-)	- (-)
- Sipitang	260 (8.6%)	260 (8.6%)	- (-)	- (-)
- Tuaran	840 (27.7%)	488 (16.1%)	352 (11.6%)	- (-)
Total	3,029 (100.0%)	1,870 (61.7%)	758 (25.0%)	401 (13.2%)

Remarks: 1) Figure shows the sum of the volume from interview survey of wholesalers.
2) Value in parenthesis is percentage to the total sum of the volume.
3) Based of FMDS Phase III field survey (Sept., 1990).

Appendix 4.39 Outflow Volume of Fishery Products in Kota Kinabalu by Destination andType of Buyer

Unit : MT

Destination	Total	Wholesaler	Retailer Hotel/Resturant
1. Export	-	-	-
2. Domestic consumption	3,029 (100.0%)	639 (21.1%)	2,391 (78.9%)
(1) West Coast	-	-	-
(2) East Coast	-	-	-
(3) Sabah	3,029 (100.0%)	639 (21.1%)	2,391 (78.9%)
- Kota Kinabalu	3,017 (99.6%)	639 (21.1%)	2,379 (78.5%)
- Kudat	12 (0.4%)	- (-)	12 (0.4%)
3. Total	3,029 (100.0%)	639 (21.1%)	2,391 (78.9%)

Remarks: 1) Figure shows the sum of the volume from interview survey of wholesalers.
2) Value in parenthesis is percentage to the total sum of the volume.
3) Based of FMDS Phase III field survey (Sept., 1990).

Appendix 4.40 Inflow Volume of Fishery Products in Kudat by Origin and Type of Supplier

Unit : MT

Origin	Total	Fishermen	Wholesaler
Sabah			
- Kudat	1,054 (100.0%)	1,027 (97.4%)	28 (2.6%)
Total	1,054 (100.0%)	1,027 (97.4%)	28 (2.6%)

Remarks: 1) Figure shows the sum of the volume from interview survey of wholesalers.
2) Value in parenthesis is percentage to the total sum of the volume.
3) Based of FMDS Phase III field survey (Sept., 1990).

Appendix 4.41 Outflow Volume of Fishery Products in Kudat by Destination and Type of Buyer

Unit : MT

Destination	Total	Wholesaler	Processor	Retailer Hotel/Resturant
1. Export	222 (21.1%)	- (-)	- (-)	222 (21.1%)
1) Brunei	222 (21.1%)	- (-)	- (-)	222 (21.1%)
2. Domestic consumption	832 (78.9%)	271 (25.7%)	16 (1.5%)	546 (51.7%)
(1) West Coast	-	-	-	-
(2) East Coast	-	-	-	-
(3) Sabah	832 (78.9%)	271 (25.7%)	16 (1.5%)	546 (51.7%)
1) Keningau	87 (8.3%)	87 (8.3%)	- (-)	- (-)
2) Kota Belud	148 (14.1%)	4 (0.4%)	- (-)	145 (13.7%)
3) Kota Kinabalu	511 (48.5%)	144 (13.6%)	- (-)	368 (34.9%)
4) Kudat	70 (6.7%)	36 (3.4%)	16 (1.5%)	19 (1.8%)
5) Ranau	12 (1.1%)	- (-)	- (-)	12 (1.1%)
6) Tenom	3 (0.3%)	- (-)	- (-)	3 (0.3%)
3. Total	1,054 (100.0%)	271 (25.7%)	16 (1.5%)	768 (72.8%)

Remarks: 1) Figure shows the sum of the volume from interview survey of wholesalers.
2) Value in parenthesis is percentage to the total sum of the volume.
3) Based of FMDS Phase III field survey (Sept., 1990).

Appendix 4.42 Inflow Volume of Fishery Products in Lahad Datu by Origin and Type of Supplier

Unit : MT

Origin	Total	Fishermen	Wholesaler
Sabah			
- Lahad Datu	881 (99.6%)	633 (71.6%)	248 (28.0%)
- Semporna	3 (0.4%)	3 (0.3%)	0 (0.0%)
Total	884 (100.0%)	636 (71.9%)	248 (28.1%)

Remarks: 1) Figure shows the sum of the volume from interview survey of wholesalers.
2) Value in parenthesis is percentage to the total sum of the volume.
3) Based of FMDS Phase III field survey (Sept., 1990).

Appendix 4.43 Outflow Volume of Fishery Products in Lahad Datu by Destination and Type of Buyer

Unit : MT

Destination	Total	Exporter	Wholesaler	Retailer
1. Export	-	-	-	-
2. Domestic consumption	884 (100.0%)	10 (1.2%)	569 (64.4%)	305 (34.5%)
(1) West Coast	-	-	-	-
(2) East Coast	-	-	-	-
(3) Sabah	884 (100.0%)	10 (1.2%)	569 (64.4%)	305 (34.5%)
1) Lahad Datu	732 (82.7%)	- (-)	510 (57.6%)	222 (25.1%)
2) Sandakan	126 (14.2%)	10 (1.2%)	33 (3.7%)	83 (9.3%)
3) Tawau	27 (3.0%)	- (-)	27 (3.0%)	- (-)
3. Total	884 (100.0%)	10 (1.2%)	569 (64.4%)	305 (34.4%)

Remarks: 1) Figure shows the sum of the volume from interview survey of wholesalers.
2) Value in parenthesis is percentage to the total sum of the volume.
3) Based of FMDS Phase III field survey (Sept., 1990).

Appendix 4.44 Inflow Volume of Fishery Products in Labuan by Origin and Type of Supplier

Unit : MT

Origin	Total	Fishermen
Sabah		
- Labuan	4,458 (100.0%)	4,458 (100.0%)
Total	4,458 (100.0%)	4,458 (100.0%)

Remarks: 1) Figure shows the sum of the volume from interview survey of wholesalers.
2) Value in parenthesis is percentage to the total sum of the volume.
3) Based of FMDS Phase III field survey (Sept., 1990).

Appendix 4.45 Outflow Volume of Fishery Products in Labuan by Destination and Type of Buyer

Unit : MT

Destination	Total	Processor
1. Export	-	-
2. Domestic consumption	2,100 (100.0%)	2,100 (100.0%)
(1) West Coast	-	-
(2) East Coast	-	-
(3) Sabah	2,100 (100.0%)	2,100 (100.0%)
1) Kota Kinabalu	2,100 (100.0%)	2,100 (100.0%)
3. Total	2,100 (100.0%)	2,100 (100.0%)

Remarks: 1) Figure shows the sum of the volume from interview survey of wholesalers.
2) Value in parenthesis is percentage to the total sum of the volume.

Appendix 4.46 Inflow and Outflow of Fishery Products by Exporter in Kuala Lumpur

a. Inflow

Unit : MT

Origin	Volume
1. Domestic Production	821.4 (55.3%)
(1) West Coast	741.4 (49.9%)
1) Kedah	114.0 (7.7%)
2) Pulau Pinang	118.0 (7.9%)
3) Perak	80.8 (5.4%)
4) Selangor	344.6 (23.2%)
5) Kuala Lumpur	84.0 (5.7%)
(2) East Coast	80.0 (5.4%)
1) Terengganu	24.0 (1.6%)
2) Pahang	32.0 (2.2%)
3) Johor	24.0 (1.6%)
2. Import	664.0 (44.7%)
1) Thailand	337.6 (22.7%)
2) Australia	123.2 (8.3%)
3) Hong Kong	40.0 (2.7%)
4) India	123.2 (8.3%)
5) Others	40.0 (2.7%)
Total	1,485.4 (100.0%)

b. Outflow

Unit : MT

Destination	Volume
1. Domestic Consumption	720 (48.5%)
1) Terengganu	10.0 (0.7%)
2) Sarawak	710.0 (47.8%)
2. Export	685.8 (46.2%)
1) Singapore	379.0 (25.5%)
2) Brunei	76.8 (5.2%)
3) Hong Kong	10.0 (0.7%)
4) Australia	20.0 (1.3%)
5) Netherland	98.0 (6.6%)
6) New Zealand	10.0 (0.7%)
7) Spain	20.0 (1.3%)
8) United Kingdom	72.0 (4.8%)
3. Miscellaneous	79.6 (5.4%)
Total	1,485.4 (100.0%)

Remarks : 1) Figure shows the sum of the volume from interview survey of exporters.
2) Based on FMDS Phase II field survey (Feb. - March, 1990).

Appendix 4.47 Inflow and Outflow of Fishery Products by Exporter in Kedah

a. Inflow

Unit : MT

Origin	Volume
1. Domestic Production	1218.2 (96.0%)
1) Kedah	1,136.1 (89.6%)
2) Perak	82.1 (6.5%)
2. Import	
1) Thailand	50.4 (4.0%)
Total	1,268.6 (100.0%)

b. Outflow

Unit : MT

Destination	Volume
1. Export	
1) Singapore	1,268.6 100.0%

Remarks : 1) Figure shows the sum of the volume from interview survey of exporters.
2) Based on FMDS Phase II field survey (Feb. - March, 1990).

Appendix 4.48 Inflow and Outflow of Fishery Products by Exporter in East Johor

a. Inflow

Unit : MT

Origin	Volume
1. Domestic Production	
1) Johor	1,077.9 (85.2%)
2) Kelantan	60.0 (4.7%)
3) Pahang	127.2 (10.1%)
Total	1,265.1 (100.0%)

b. Outflow

Unit : MT

Destination	Volume
1. Export	
1) Singapore	1,193.6 (94.3%)
2) United Kingdom	71.5 (5.7%)
Total	1,265.1 (100.0%)

Remarks : 1) Figure shows the sum of the volume from interview survey of exporters.
2) Based on FMDS Phase II field survey (Feb. - March, 1990).

Appendix 4.49 Inflow and Outflow of Fishery Products by Exporter in Kuantan

a. Inflow

Unit : MT

Origin	Volume
1. Domestic Production	
1) Pahang	1,342.9 (100.0%)

b. Outflow

Unit : MT

Destination	Volume
1. Export	
1) Singapore	1,342.9 (100.0%)

Remarks : 1) Figure shows the sum of the volume from interview survey of exporters.
2) Based on FMDS Phase II field survey (Feb. - March, 1990).

Appendix 4.50 Inflow and Outflow of Fishery Products by Exporter in Terengganu

a. Inflow

Unit : MT

Origin	Volume
1. Domestic Production	
1) Terengganu	497.0 (100.0%)

b. Outflow

Unit : MT

Destination	Volume
1. Export	
1) Singapore	497.0 (100.0%)

Remarks : 1) Figure shows the sum of the volume from interview survey of exporters.
2) Based on FMDS Phase II field survey (Feb. - March, 1990).

Appendix 4.51 Inflow and Outflow of Fishery Products by Exporter in Sarawak

a. Inflow

Unit : MT

Origin	Volume
1. Domestic Production	
1) Sarawak	1,389.3 (100.0%)

b. Outflow

Unit : MT

Destination	Volume
1. Domestic Consumption	150.9 (10.9%)
1) Kuala Lumpur	150.9 (10.9%)
2. Export	1238.3 (89.1%)
1) Singapore	292.5 (21.1%)
2) Brunei	140.0 (10.1%)
3) Japan	72.0 (5.2%)
4) Korea	24.0 (1.7%)
5) Taiwan	24.0 (1.7%)
6) Hong Kong	3.6 (0.3%)
7) Australia	293.7 (21.1%)
8) Denmark	125.0 (9.0%)
9) Spain	125.0 (9.0%)
10) West Germany	18.0 (1.3%)
11) Belgium	118.0 (8.5%)
12) Others	2.5 (0.2%)
Total	1,389.2 (100.0%)

Remarks : 1) Figure shows the sum of the volume from interview survey of exporters.
2) Based on FMDS Phase II field survey (Feb. - March, 1990).

Appendix 4.52 Inflow and Outflow of Fishery Products by Exporter in Kota Kinabalu

a. Inflow

Unit : MT

Origin	Volume
1. Domestic Production	
1) Sabah	1,314.3 (100.0%)

b. Outflow

Unit : MT

Destination	Volume
1. Domestic Consumption	
1) Sabah	1,234.4 (93.9%)
2) Terengganu	80.0 (6.1%)
Total	1,314.4 (100.0%)

Remarks : 1) Figure shows the sum of the volume from interview survey of exporters.
2) Based on FMDS Phase II field survey (Feb. - March, 1990).

Appendix 4.53 Inflow and Outflow of Fishery Products by Importer in Kuala Lumpur

Unit : MT

Origin	Destination	Volume
1) Thailand	1) Kuala Lumpur	4,555.3 (100.0%)

Remarks : 1) Figure shows the sum of the volume from interview survey of importers.
2) Based on FMDS Phase II field survey (Feb. - March, 1990).

Appendix 4.54 Inflow and Outflow of Fishery Products by Importer in Kedah

Unit : MT

Origin	Destination	Volume
1) Thailand	1) Kedah	1,053.8 (100.0%)

Remarks : 1) Figure shows the sum of the volume from interview survey of importers.
2) Based on FMDS Phase II field survey (Feb. - March, 1990).

Appendix 4.55 Inflow and Outflow of Fishery Products by Importer in East Johor

Unit : MT

Origin	Destination	Volume
1) Indonesia	1) Johor	260.0 (15.3%)
2) Thailand	1) Johor	1,440.0 (84.7%)
Total		1,700.0 (100.0%)

Remarks : 1) Figure shows the sum of the volume from interview survey of importers.
2) Based on FMDS Phase II field survey (Feb. - March, 1990).

Appendix 4.56 Inflow and Outflow of Fishery Products by Importer in Kuantan

Unit : MT

Origin	Destination	Volume
1) Brunei	1) Pahang	3.7 (1.7%)
2) Thailand	1) Pahang	220.1 (98.3%)
Total		223.8 (100.0%)

Remarks : 1) Figure shows the sum of the volume from interview survey of importers.
2) Based on FMDS Phase II field survey (Feb. - March, 1990).

Appendix 4.57 Inflow and Outflow of Fishery Products by Importer in Terengganu

Unit : MT

Origin	Destination	Volume
1) Thailand	1) Johor	160.0 (50.0%)
	2) Terengganu	160.0 (50.0%)
Total		320.0 (100.0%)

Remarks : 1) Figure shows the sum of the volume from interview survey of importers.
2) Based on FMDS Phase II field survey (Feb. - March, 1990).

Appendix 4.58 Inflow and Outflow of Fishery Products by Importer in Sarawak

Unit : MT

Origin	Destination	Volume
1) Indonesia	1) Sarawak	100.0 (8.5%)
2) New Zealand	1) Sarawak	12.0 (1.0%)
3) Singapore	1) Sarawak	1,060.2 (90.4%)
Total		1,172.2 (100.0%)

Remarks : 1) Figure shows the sum of the volume from interview survey of importers.
2) Based on FMDS Phase II field survey (Feb. - March, 1990).

Appendix 4.59 Wholesale Price of Spanish Mackerel at Major Wholesale Markets in Malaysia

Minimum Price Unit; M$/kg

	1988												Mean
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	
Kuala Lumpur	3.96	4.05	4.43	3.79	4.36	3.95	3.01	4.28	4.21	4.31	4.00	4.37	4.06
Johor Bharu	2.80	2.73	2.66	3.13	3.26	3.11	3.36	2.65	2.25	3.33	3.56	3.42	3.02
Kota Bharu	4.05	4.45	4.14	4.68	4.46	4.75	5.41	5.09	5.18	5.37	5.85	5.77	4.93
Kuala Terengganu	5.08	4.40	4.52	5.11	6.00	5.37	5.09	5.17	4.81	4.95	5.46	5.70	5.14
Kuantan	6.12	5.51	4.90		5.32	5.06							5.38
Alor Star	3.90	4.02	4.15	4.34	4.70	4.78	4.60	4.66	4.68	4.37	4.83	4.57	4.47
Ipoh	3.90	4.21	4.28	4.60	4.50	5.09	4.50	5.53	4.91	5.44	6.08	5.36	4.87
Pulau Pinang													
Mean Price	4.26	4.20	4.15	4.28	4.66	4.59	4.33	4.56	4.34	4.63	4.96	4.87	4.55

Mean Price Unit; M$/kg

	1988												Mean
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	
Kuala Lumpur	4.72	4.44	4.92	4.81	5.00	4.90	4.65	5.60	5.37	5.37	4.96	5.40	5.01
Johor Bharu	3.79	3.83	3.72	4.17	4.24	4.02	4.15	3.97	3.89	4.32	4.41	4.64	4.10
Kota Bharu	4.27	4.77	4.43	4.90	4.78	4.97	5.66	5.27	5.30	5.54	6.01	5.95	5.15
Kuala Terengganu	5.34	4.50	5.03	5.73	6.37	6.17	5.97	5.72	5.35	5.48	6.20	6.52	5.70
Kuantan	6.66	6.15	5.49		5.65	5.38							5.87
Alor Star	4.07	4.18	4.32	4.59	4.93	4.99	4.78	4.81	4.88	4.54	5.00	4.77	4.66
Ipoh	4.52	4.77	4.92	5.15	5.30	5.73	5.56	6.14	5.60	5.99	6.63	5.97	5.52
Pulau Pinang													
Mean Price	4.77	4.66	4.69	4.89	5.18	5.17	5.13	5.25	5.07	5.21	5.54	5.54	5.14

Maximum Price Unit; M$/kg

	1988												Mean
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	
Kuala Lumpur	5.47	4.83	5.40	5.84	5.65	5.84	6.29	6.92	6.53	6.44	5.93	6.43	5.96
Johor Bharu	4.78	4.93	4.79	5.21	5.21	4.93	4.93	5.28	5.02	5.31	5.26	5.87	5.13
Kota Bharu	4.49	5.08	4.71	5.11	5.09	5.19	5.90	5.44	5.41	5.71	6.17	6.12	5.37
Kuala Terengganu	5.61	5.30	5.52	6.36	6.75	6.97	6.86	6.27	5.89	6.02	6.93	7.33	6.32
Kuantan	7.20	6.78	6.07		5.97	5.69							6.34
Alor Star	4.25	4.35	4.50	4.84	5.17	5.20	4.96	4.97	5.08	4.71	5.16	4.97	4.85
Ipoh	5.14	5.34	5.56	5.70	6.09	6.38	6.24	6.75	6.06	6.53	7.21	6.58	6.13
Pulau Pinang													
Mean Price	5.28	5.23	5.22	5.51	5.70	5.74	5.86	5.94	5.67	5.79	6.11	6.22	5.73

Source; Fish Price & Quantity Monitoring Report, Peninsular Malaysisa 1988, LKIM

Appendix 4.60 Wholesale Price of White Shrimp at Major Wholesale Markets in Malaysia

Minimum Price

Unit; M$/kg

	1988												Mean
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	
Kuala Lumpur	15.33	17.27	15.41	11.16	15.85	12.10	10.65	16.81	16.87	16.98	18.56	18.80	15.48
Johor Bharu	16.21	19.34	15.92	14.40	14.55	13.45	13.09	12.50	13.76	17.05	14.65	15.33	15.02
Kota Bharu	18.33	18.62	18.26	19.98	19.84	19.79	19.69	20.24	20.66	20.86	21.88	26.38	20.38
Kuala Terengganu	19.00	19.33	20.00	20.08	22.04	20.00	20.00	20.00	20.00	18.95	19.81	20.00	19.93
Kuantan	14.16	14.00	15.00		19.15	17.92							16.05
Alor Star													
Ipoh	16.88	16.73	16.47	16.10	17.30	17.64	16.53	17.38	16.43	16.74	16.88	16.44	16.79
Pulau Pinang													
Mean Price	16.65	17.55	16.84	16.34	18.12	16.82	15.99	17.39	17.54	18.12	18.36	19.39	17.28

Mean Price

Unit; M$/kg

	1988												Mean
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	
Kuala Lumpur	17.18	19.11	16.54	13.25	17.98	12.10	14.84	18.96	19.38	19.43	20.21	20.28	17.44
Johor Bharu	18.72	22.26	18.57	18.25	18.27	16.48	17.61	17.78	18.16	20.23	19.15	21.25	18.89
Kota Bharu	19.74	20.00	19.74	20.72	20.69	20.61	20.65	20.73	21.07	21.37	22.42	27.00	21.23
Kuala Terengganu	19.50	20.03	20.00	20.08	22.29	20.00	20.00	20.00	20.00	19.47	19.81	20.00	20.10
Kuantan	16.16	15.73	18.00		20.22	18.20							17.66
Alor Star													
Ipoh	8.15	17.03	17.77	17.48	18.64	18.82	17.63	18.80	18.88	19.22	19.83	19.19	17.62
Pulau Pinang													
Mean Price	16.58	19.03	18.44	17.96	19.68	17.70	18.15	19.25	19.50	19.94	20.28	21.54	18.82

Maximum Price

Unit; M$/kg

	1988												Mean
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	
Kuala Lumpur	18.85	20.96	17.67	15.34	20.12	15.87	19.02	21.12	21.89	21.88	21.86	21.76	19.70
Johor Bharu	21.24	25.17	21.22	22.11	21.99	19.51	22.12	23.05	22.56	23.41	23.16	27.17	22.73
Kota Bharu	21.15	21.17	21.23	21.47	21.54	21.44	21.61	21.21	21.49	21.88	22.97	27.63	22.07
Kuala Terengganu	20.00	20.73	20.00	20.08	22.54	20.00	20.00	20.00	20.00	20.00	19.89	20.00	20.27
Kuantan	18.16	17.46	21.00		21.30	18.69							19.32
Alor Star													
Ipoh	19.41	19.75	19.07	18.86	19.98	20.00	18.72	20.05	21.34	21.71	22.78	21.93	20.30
Pulau Pinang													
Mean Price	19.80	20.87	20.03	19.57	21.25	19.25	20.29	21.09	21.46	21.78	22.13	23.70	20.73

Source; Fish Price & Quantity Monitoring Report, Peninsular Malaysisa 1988, LKIM

Appendix 4.61 Wholesale Price of Indian Mackerel at Major Wholesale Markets in Malaysia

Minimum Price

Unit; M$/kg

	1988												Mean
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	
Kuala Lumpur	1.82	1.91	2.08	1.48	1.70	1.59	2.35	1.59	1.52	2.08	2.04	1.50	1.81
Johor Bharu	2.25	2.51	2.25	2.29	2.27	2.52	2.30	2.16	2.02	2.12	2.10	2.30	2.26
Kota Bharu	1.69	2.01	1.80	2.16	2.04	2.14	2.49	2.24	2.20	2.24	2.58	2.59	2.18
Kuala Terengganu	1.78	2.32	2.31	2.57	2.48	2.48	2.48	2.45	1.85	2.05	2.52	2.96	2.35
Kuantan	2.75	2.63	2.05		2.46	2.86							2.55
Alor Star	1.65		1.80	1.80	2.20	2.10	2.01	1.85	1.96	1.81	2.07	2.33	1.96
Ipoh	1.77	2.36	1.13	2.05	2.17	2.09	2.51	2.34	2.07	2.25	2.84	2.58	2.18
Pulau Pinang													
Mean Price	1.96	2.29	1.92	2.06	2.19	2.25	2.36	2.11	1.94	2.09	2.36	2.38	2.18

Mean Price

Unit; M$/kg

	1988												Mean
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	
Kuala Lumpur	2.21	2.18	2.31	2.07	2.15	2.22	2.68	2.50	2.24	2.51	2.40	2.15	2.30
Johor Bharu	2.51	2.83	2.57	2.67	2.63	2.88	2.73	2.59	2.56	2.71	2.80	3.11	2.72
Kota Bharu	1.85	2.14	1.99	2.30	2.22	2.25	2.71	2.43	2.34	2.35	2.68	2.73	2.33
Kuala Terengganu	2.00	2.72	2.54	2.81	2.78	2.73	2.85	2.94	2.37	2.43	2.85	3.21	2.69
Kuantan	3.36	3.06	2.53		2.74	3.08							2.95
Alor Star	1.77		1.95	1.94	2.30	2.23	2.09	1.93	2.08	1.93	2.21	2.43	2.08
Ipoh	2.26	3.06	2.78	2.63	2.77	2.67	3.04	2.89	2.68	2.85	3.47	3.13	2.85
Pulau Pinang													
Mean Price	2.28	2.67	2.38	2.40	2.51	2.58	2.68	2.55	2.38	2.46	2.74	2.79	2.56

Maximum Price

Unit; M$/kg

	1988												Mean
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	
Kuala Lumpur	2.59	2.45	2.54	2.67	2.61	2.84	3.00	2.52	2.96	2.94	2.77	2.80	2.72
Johor Bharu	2.77	3.14	2.89	3.06	2.98	3.25	3.15	2.72	3.09	3.30	3.50	3.92	3.15
Kota Bharu	2.01	2.27	2.19	2.44	2.40	2.36	2.93	2.51	2.47	2.45	2.78	2.83	2.47
Kuala Terengganu	2.22	2.82	2.78	3.05	2.89	3.04	3.21	2.39	2.90	2.82	3.28	3.45	2.90
Kuantan	3.97	3.49	3.00		3.01	3.30							3.35
Alor Star	1.90		2.10	2.08	2.40	2.37	2.18	1.87	2.21	2.06	2.35	2.52	2.19
Ipoh	2.74	3.75	3.42	3.20	3.41	3.26	3.57	3.32	3.27	3.43	4.10	3.68	3.43
Pulau Pinang													
Mean Price	2.60	2.99	2.70	2.75	2.81	2.92	3.01	2.56	2.82	2.83	3.13	3.20	2.89

Source; Fish Price & Quantity Monitoring Report, Peninsular Malaysisa 1988, LKIM

Appendix 4.62 Wholesale Price of Squid at Major Wholesale Markets in Malaysia

Minimum Price

Unit; M$/kg

	1988												Mean
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	
Kuala Lumpur	2.69	2.59	2.73	3.00	2.75	2.94	2.14	2.69	2.83	2.89	3.06	2.90	2.77
Johor Bharu	2.84	2.82	2.57	2.34	2.56	2.65	2.63	2.50	2.29	2.24	1.98	2.24	2.47
Kota Bharu	2.27	2.29	2.41	3.62	2.92	3.51	3.34	3.04	2.94	2.84	2.99	3.72	2.99
Kuala Terengganu		4.03	3.18	3.17	3.23	3.00	3.17	2.93	3.12	3.03	3.63	3.74	3.29
Kuantan	2.95	3.42	3.01		3.00	3.06							3.09
Alor Star	3.01	2.87	3.38	3.29	3.47	3.64	3.60	3.32	3.30	2.72	3.13	3.40	3.26
Ipoh	2.13	2.27	1.94	1.58	1.95	1.94	2.22	2.62	2.20	2.08	2.65	2.38	2.16
Pulau Pinang													
Mean Price	2.65	2.90	2.75	2.83	2.84	2.96	2.85	2.85	2.78	2.63	2.91	3.06	2.86

Mean Price

Unit; M$/kg

	1988												Mean
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	
Kuala Lumpur	3.32	3.13	3.20	4.00	3.36	3.60	3.05	3.70	3.75	3.75	3.92	3.75	3.54
Johor Bharu	3.43	3.47	3.25	3.04	3.23	3.12	3.27	3.33	3.17	3.24	3.00	3.42	3.25
Kota Bharu	2.39	2.46	2.55	3.78	3.07	3.67	3.52	3.17	2.98	2.98	3.15	3.85	3.13
Kuala Terengganu		4.45	3.40	3.63	3.64	3.51	3.67	3.45	3.54	3.52	4.16	4.44	3.76
Kuantan	3.59	3.92	3.40		3.36	3.35							3.52
Alor Star	3.09	2.97	3.49	3.48	3.59	3.73	3.68	3.43	3.40	2.85	3.23	3.53	3.37
Ipoh	2.89	3.22	2.78	2.47	2.77	2.67	2.91	3.22	3.11	3.22	3.41	3.23	2.99
Pulau Pinang													
Mean Price	3.12	3.37	3.15	3.40	3.29	3.38	3.35	3.38	3.33	3.26	3.48	3.70	3.37

Maximum Price

Unit; M$/kg

	1988												Mean
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	
Kuala Lumpur	3.95	3.68	3.68	5.00	3.93	4.88	3.95	4.05	4.66	4.60	4.77	4.60	4.31
Johor Bharu	4.03	4.11	3.94	3.74	3.89	3.59	3.91	4.13	4.04	4.25	4.03	4.60	4.02
Kota Bharu	2.51	2.62	2.69	3.93	3.22	3.82	3.70	3.48	3.11	3.12	3.30	3.98	3.29
Kuala Terengganu		4.88	4.00	4.09	4.22	4.02	4.17	4.03	3.96	4.03	4.68	5.13	4.29
Kuantan	4.23	4.42	3.80		3.72	3.65							3.96
Alor Star	3.17	3.07	3.61	3.67	3.72	3.82	3.77	4.46	3.50	2.98	3.33	3.66	3.56
Ipoh	3.64	4.17	3.61	3.35	3.60	3.41	3.61	4.78	4.02	3.59	4.17	4.07	3.84
Pulau Pinang													
Mean Price	3.59	3.85	3.62	3.96	3.76	3.88	3.85	4.16	3.88	3.76	4.05	4.34	3.90

Source; Fish Price & Quantity Monitoring Report, Peninsular Malaysisa 1988, LKIM

Appendix 4.63 Wholesale Price of Roundscad at Major Wholesale Markets in Malaysia

Minimum Price

Unit; M$/kg

	1988												Mean
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	
Kuala Lumpur	1.01	0.89	1.24	0.73	1.06	0.71	1.00	0.95	0.85	0.87	0.79	0.75	0.90
Johor Bharu	0.98	1.02	0.88	0.80	0.88	0.87	0.97	0.82	0.97	0.69	0.92	1.13	0.91
Kota Bharu	1.20	1.33	1.23	1.63	1.54	1.55	1.68	1.55	1.46	1.53	1.77	1.92	1.53
Kuala Terengganu	0.93	0.93	0.96	1.23	1.46	0.69	0.90	0.53	0.60	0.52	0.97	1.23	0.91
Kuantan	0.78	0.80	0.68		0.70	0.70							0.73
Alor Star	0.58	0.60	0.58	0.64	0.61	0.74	0.65	0.75	0.69	0.70	0.76	0.89	0.68
Ipoh	0.45	0.52	0.45	0.49	0.40	0.47	0.61	0.47	0.46	0.72	0.88	0.92	0.57
Pulau Pinang													
Mean Price	0.85	0.87	0.86	0.92	0.95	0.82	0.97	0.85	0.84	0.84	1.02	1.14	0.89

Mean Price

Unit; M$/kg

	1988												Mean
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	
Kuala Lumpur	1.22	1.08	1.55	0.85	1.26	0.95	1.23	1.08	0.93	0.93	0.80	0.88	1.06
Johor Bharu	1.24	1.33	1.15	1.06	1.08	1.09	1.19	1.02	1.03	0.89	1.21	1.46	1.15
Kota Bharu	1.34	1.47	1.35	1.74	1.70	1.67	1.80	1.66	1.57	1.63	1.86	2.06	1.65
Kuala Terengganu	1.05	1.06	1.08	1.41	1.56	0.85	1.04	0.63	0.76	0.69	1.16	1.42	1.06
Kuantan	0.92	0.41	0.84		0.85	0.85							0.77
Alor Star	0.68	0.66	0.70	0.71	0.69	0.80	0.75	0.77	0.77	0.72	0.83	0.95	0.75
Ipoh	0.65	0.80	0.71	0.68	0.59	0.61	0.85	0.71	0.67	1.00	1.26	1.29	0.82
Pulau Pinang													
Mean Price	1.01	0.97	1.05	1.08	1.10	0.97	1.14	0.98	0.96	0.98	1.19	1.34	1.04

Maximum Price

Unit; M$/kg

	1988												Mean
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	
Kuala Lumpur	1.43	1.28	1.75	0.97	1.47	1.19	1.46	1.22	1.01	0.99	0.81	1.00	1.22
Johor Bharu	1.49	1.63	1.43	1.32	1.28	1.32	1.40	1.21	1.07	1.06	1.50	1.80	1.38
Kota Bharu	1.48	1.61	1.46	1.85	1.86	1.79	1.92	1.76	1.67	1.72	1.95	2.20	1.77
Kuala Terengganu	1.12	1.19	1.19	1.59	1.66	1.02	1.18	0.72	0.93	0.81	1.34	1.61	1.20
Kuantan	1.07	1.11	1.00		1.00	1.00							1.04
Alor Star	0.78	0.72	0.83	0.78	0.76	0.87	0.84	0.85	0.85	0.85	0.90	1.00	0.84
Ipoh	0.85	1.08	0.97	0.86	0.79	0.75	1.09	0.95	0.88	1.34	1.51	1.65	1.06
Pulau Pinang													
Mean Price	1.17	1.23	1.23	1.23	1.26	1.13	1.32	1.12	1.07	1.13	1.34	1.54	1.21

Source; Fish Price & Quantity Monitoring Report, Peninsular Malaysisa 1988, LKIM

Appendix 4.64 Wholesale Price of Threadfin Bream at Major Wholesale Markets in Malaysia

Minimum Price

Unit; M$/kg

	1988												Mean
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	
Kuala Lumpur	1.11	1.54	1.74	1.29	1.56	1.45	1.45	1.51	1.30	1.74	1.57	1.55	1.48
Johor Bharu	1.10	1.59	1.47	1.57	1.29	1.68	1.41	1.28	1.04	1.22	1.24	1.94	1.40
Kota Bharu		2.16	2.07	2.18	2.22	2.22	2.22	2.09	2.46	2.51	3.10	2.94	2.38
Kuala Terengganu	0.67	1.46	1.29	1.59	1.72	1.36	1.46	1.30	1.12	1.23	1.97	2.22	1.45
Kuantan		3.03	2.73		2.85	2.98							2.90
Alor Star	1.27	1.37	1.26	1.68	1.68	1.90	1.64	1.68	1.70	1.48	1.70	1.98	1.61
Ipoh	1.11	2.11	1.80	1.94	1.96	2.09	2.14	2.15	1.98	2.04	2.24	0.97	1.88
Pulau Pinang													
Mean Price	1.05	1.89	1.77	1.71	1.90	1.95	1.72	1.67	1.60	1.70	1.97	1.93	1.87

Mean Price

Unit; M$/kg

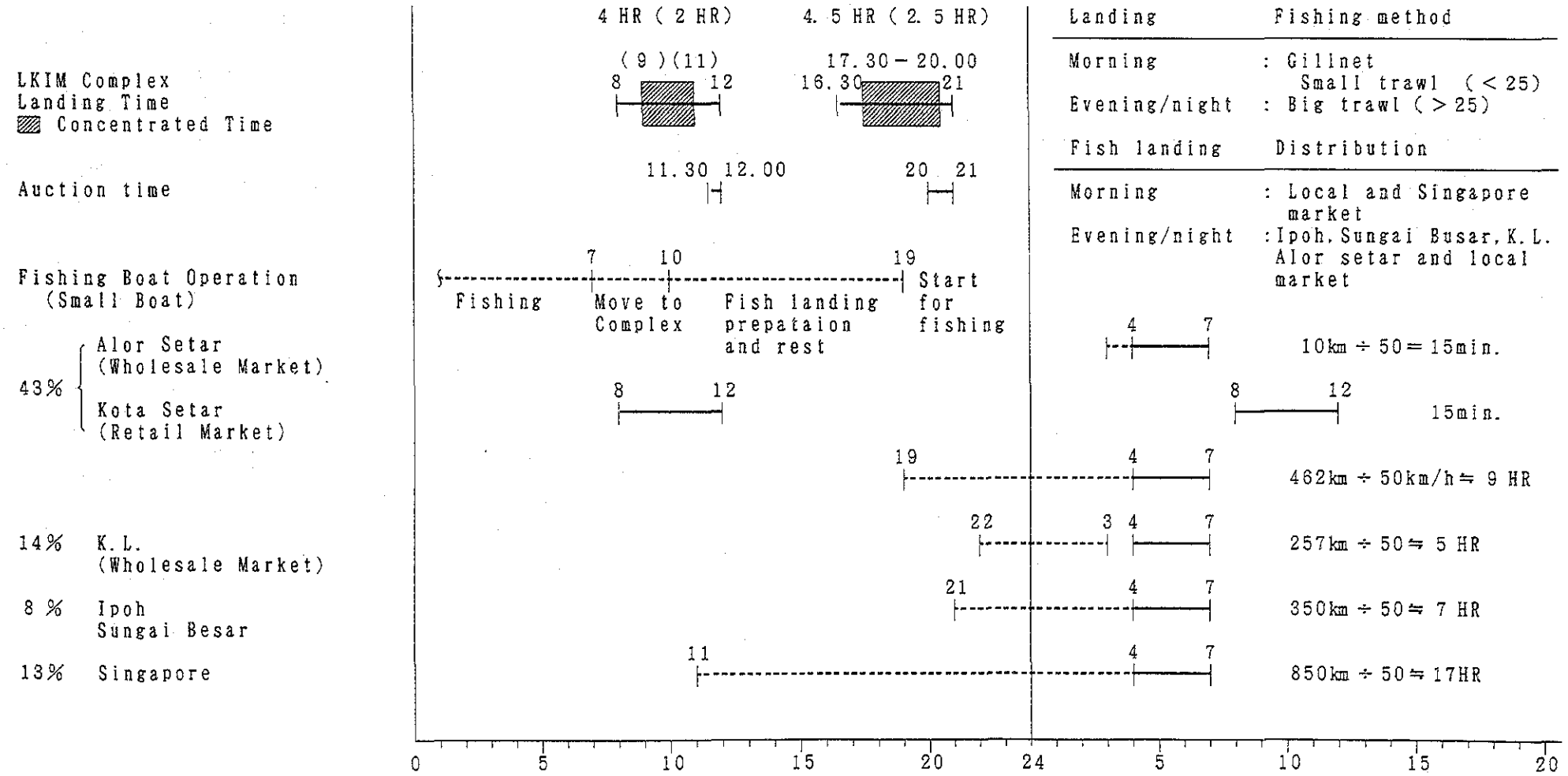
	1988												Mean
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	
Kuala Lumpur	1.43	1.96	1.89	1.96	1.95	1.99	2.13	2.19	1.89	2.11	1.86	1.84	1.93
Johor Bharu	1.44	1.93	1.70	1.86	1.62	1.86	1.68	1.64	1.43	1.61	1.66	2.45	1.74
Kota Bharu		2.24	2.18	2.31	2.38	2.34	2.45	2.31	2.60	2.68	3.21	3.10	2.53
Kuala Terengganu	0.76	1.76	1.56	1.88	1.93	1.77	1.82	1.76	1.75	1.84	2.36	2.60	1.82
Kuantan		3.58	3.42		3.18	3.23							3.35
Alor Star	1.40	1.51	1.38	1.88	1.88	2.05	1.79	1.81	1.87	1.66	1.85	2.13	1.77
Ipoh	1.56	2.66	2.33	2.51	2.51	2.55	2.61	2.65	2.50	2.54	2.81	1.43	2.39
Pulau Pinang													
Mean Price	1.32	2.23	2.07	2.07	2.21	2.26	2.08	2.06	2.01	2.07	2.29	2.26	2.22

Maximum Price

Unit; M$/kg

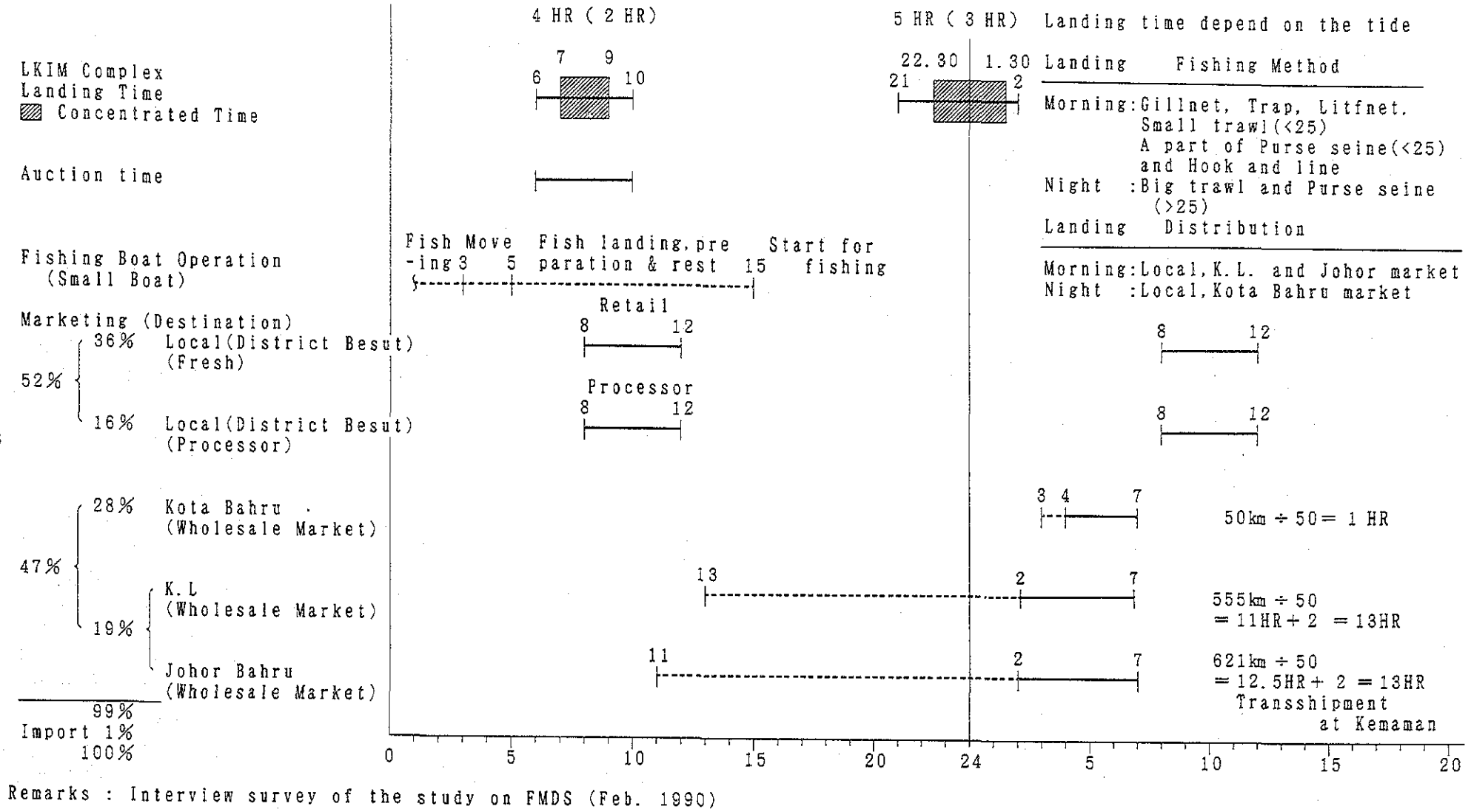
	1988												Mean
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	
Kuala Lumpur	1.75	2.38	2.04	2.54	2.35	2.53	2.80	2.87	2.48	2.48	2.15	2.13	2.38
Johor Bharu	1.78	2.27	1.94	2.15	1.94	2.05	1.95	2.00	1.81	2.00	2.09	2.96	2.08
Kota Bharu		2.32	2.28	2.43	2.53	2.46	2.65	2.53	2.73	2.85	3.32	3.25	2.67
Kuala Terengganu	0.86	2.06	1.88	2.17	2.13	2.13	2.17	2.22	2.37	2.50	2.74	2.97	2.18
Kuantan		4.15	4.12		3.52	3.48							3.82
Alor Star	1.53	1.65	1.50	2.08	1.27	2.21	1.94	1.95	2.05	1.84	2.00	2.28	1.86
Ipoh	2.03	3.21	2.86	3.08	3.07	3.01	3.08	3.13	3.02	3.03	3.42	1.89	2.90
Pulau Pinang													
Mean Price	1.59	2.58	2.37	2.41	2.40	2.55	2.43	2.45	2.41	2.45	2.62	2.58	2.55

Source; Fish Price & Quantity Monitoring Report, Peninsular Malaysisa 1988, LKIM



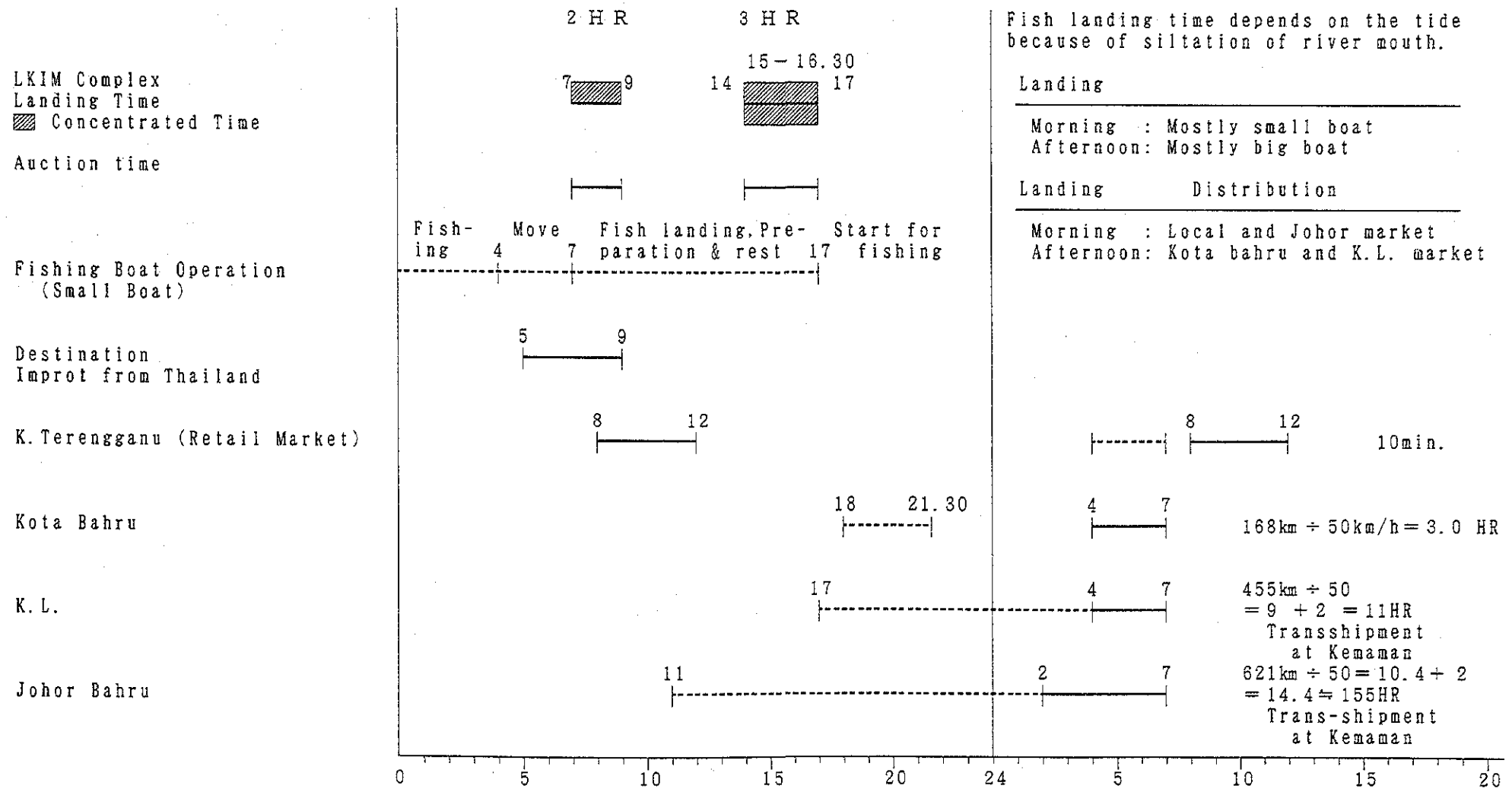
Remarks : Interview survey of the study on FMDS (Feb. 1990)

Appendix 4.65 Relation Between Fish Landing/Auction of LKIM Complex and Operational Time of Wholesale/Retail Market
KUALA KEDAH



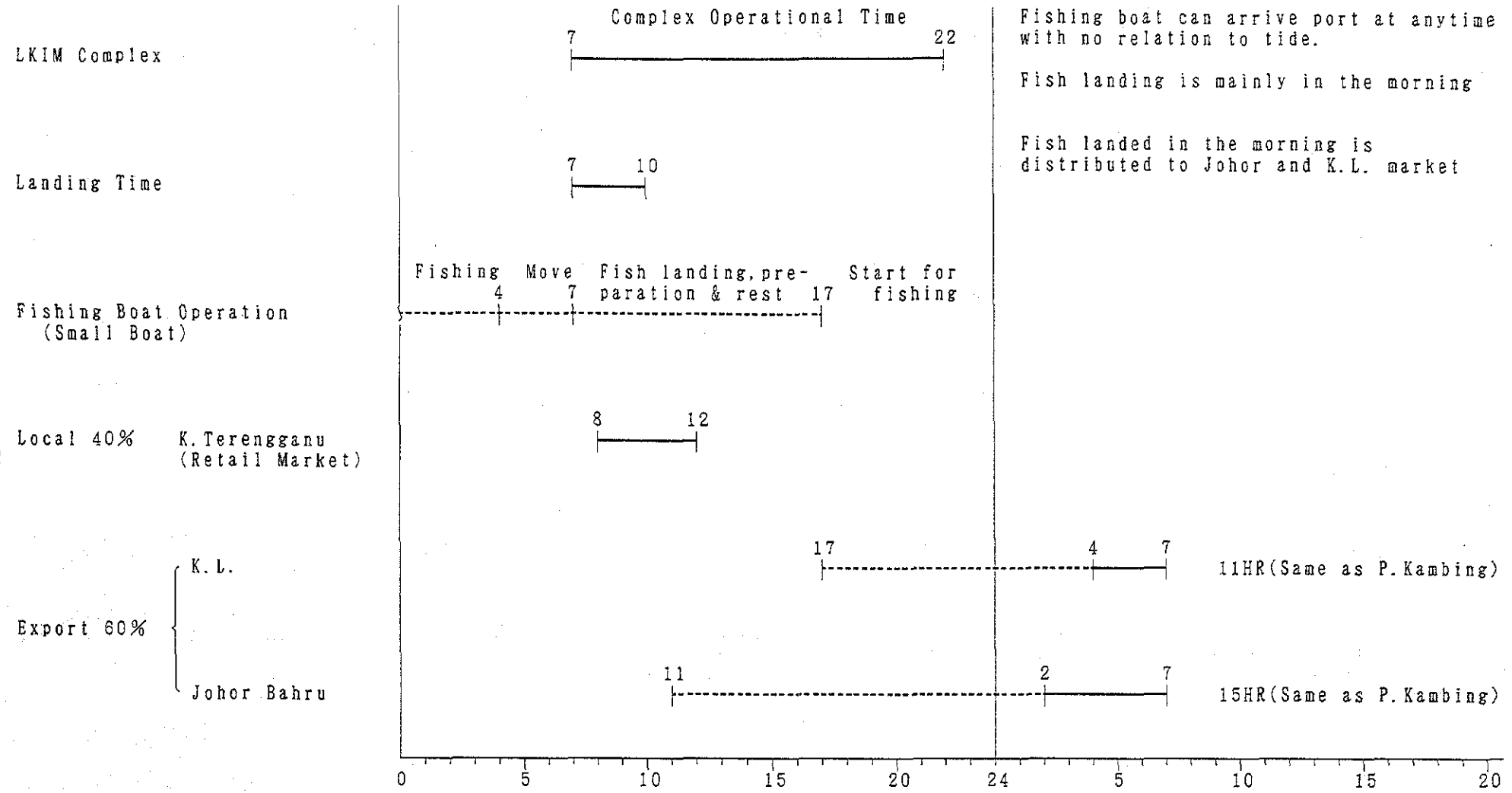
Remarks : Interview survey of the study on FMDS (Feb. 1990)

Appendix 4.66 Relation Between Fish Landing/Auction of LKIM Complex and Operational Time of Wholesale/Retail Market
KUALA BESUT



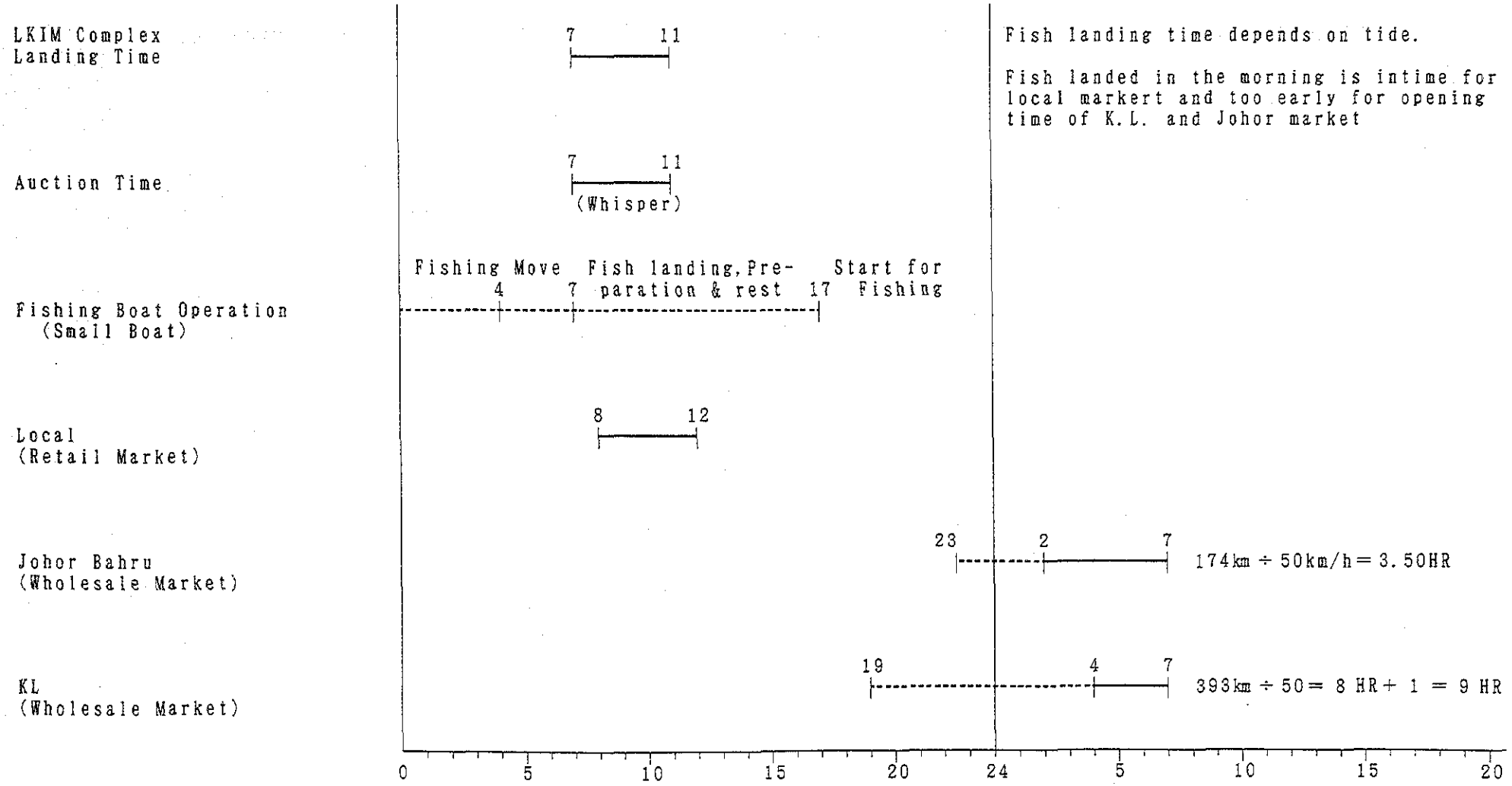
Remarks : Interview survey of the study on FMDS (Feb. 1990)

Appendix 4.67 Relation Between Fish Landing/Auction of LKIM Complex and Operational Time of Wholesale/Retail Market
PULAU KAMBING



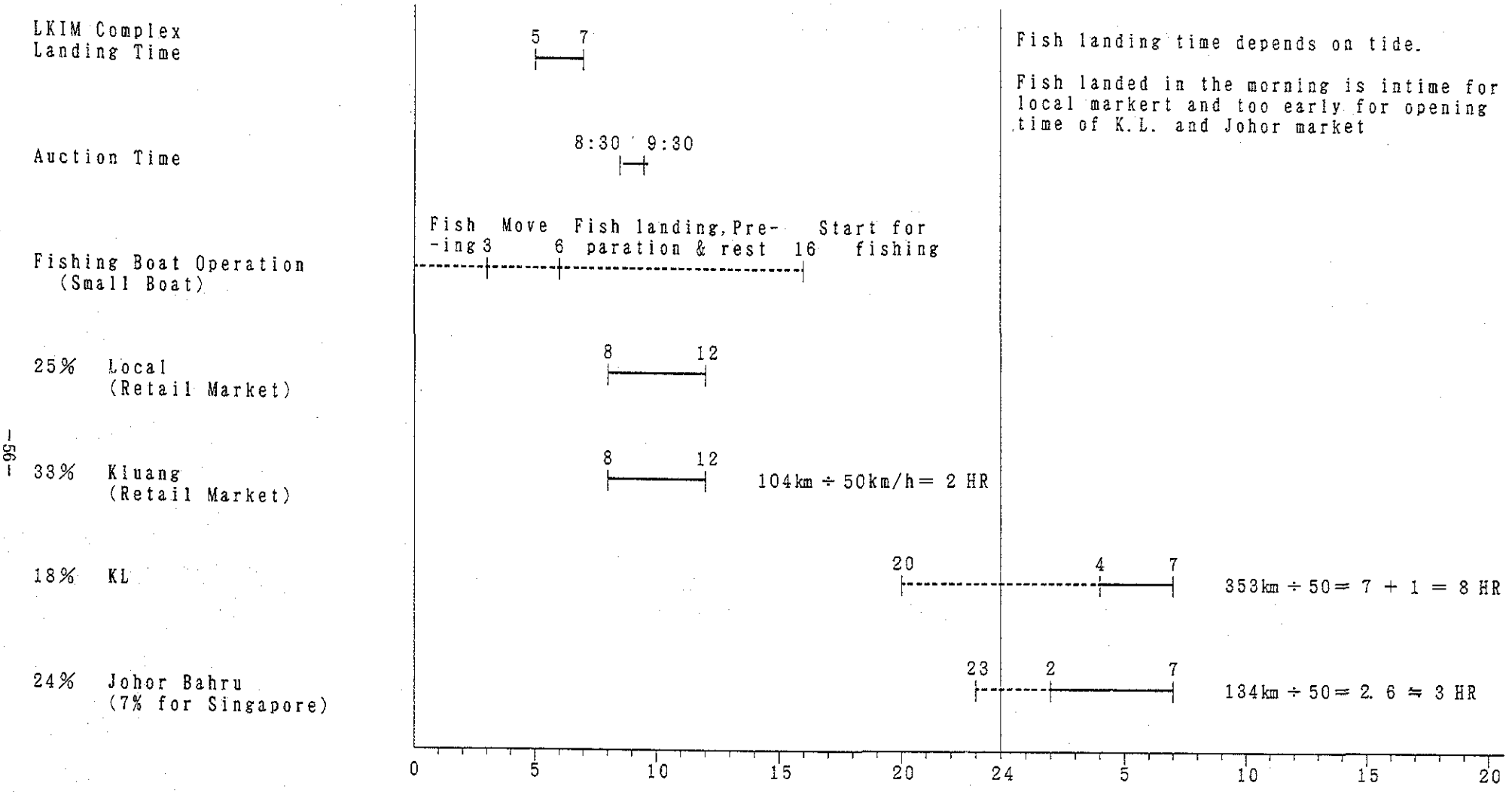
Remarks : Interview survey of the study on FMDS (Feb. 1990)

Appendix 4.68 Relation Between Fish Landing/Auction of LKIM Complex and Operational Time of Wholesale/Retail Market CHENDERING



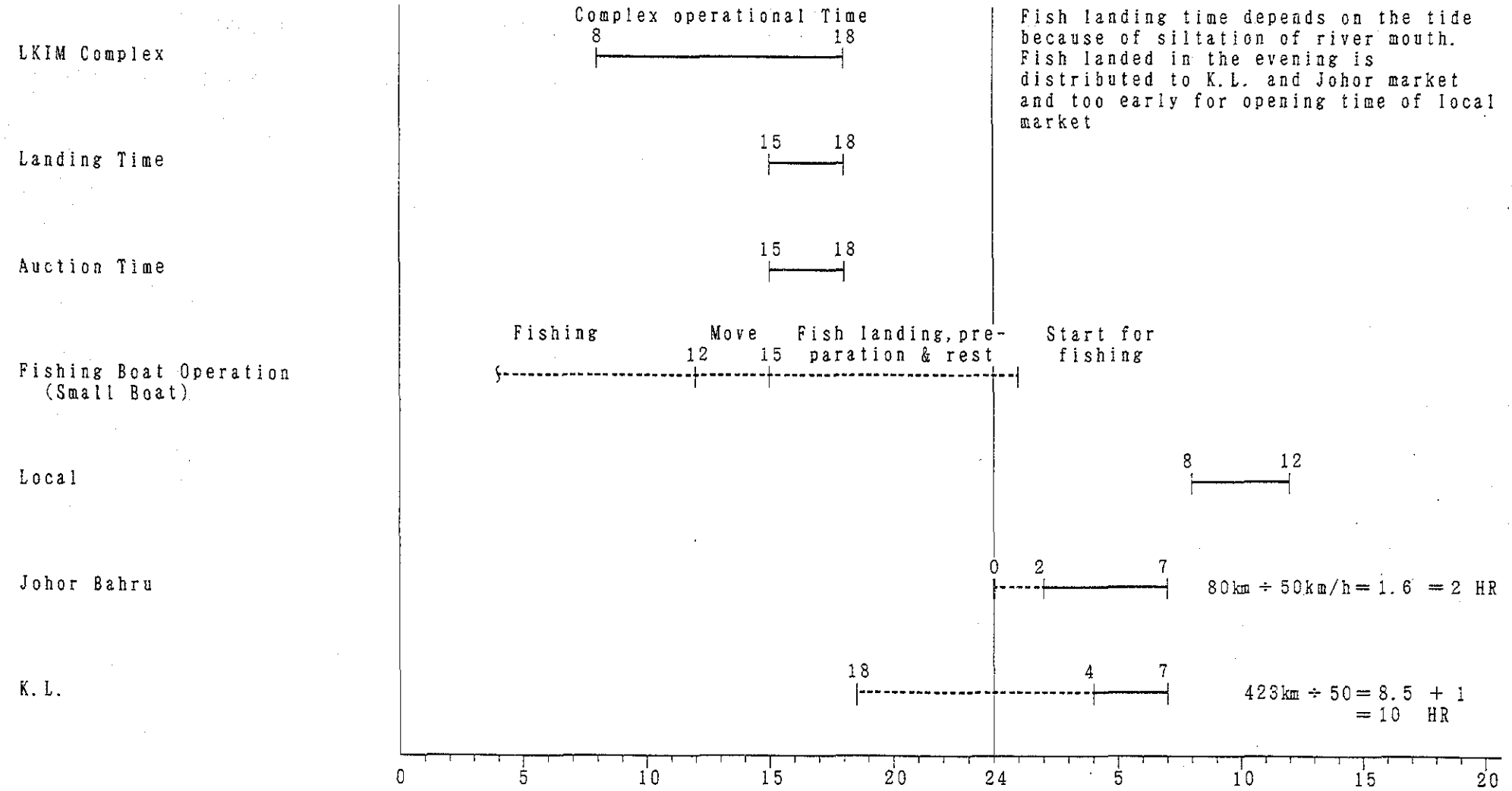
Remarks : Interview survey of the study on FMDS (Feb. 1990)

Appendix 4.69 Relation Between Fish Landing/Auction of LKIM Complex and Operational Time of Wholesale/Retail Market
ENDAU



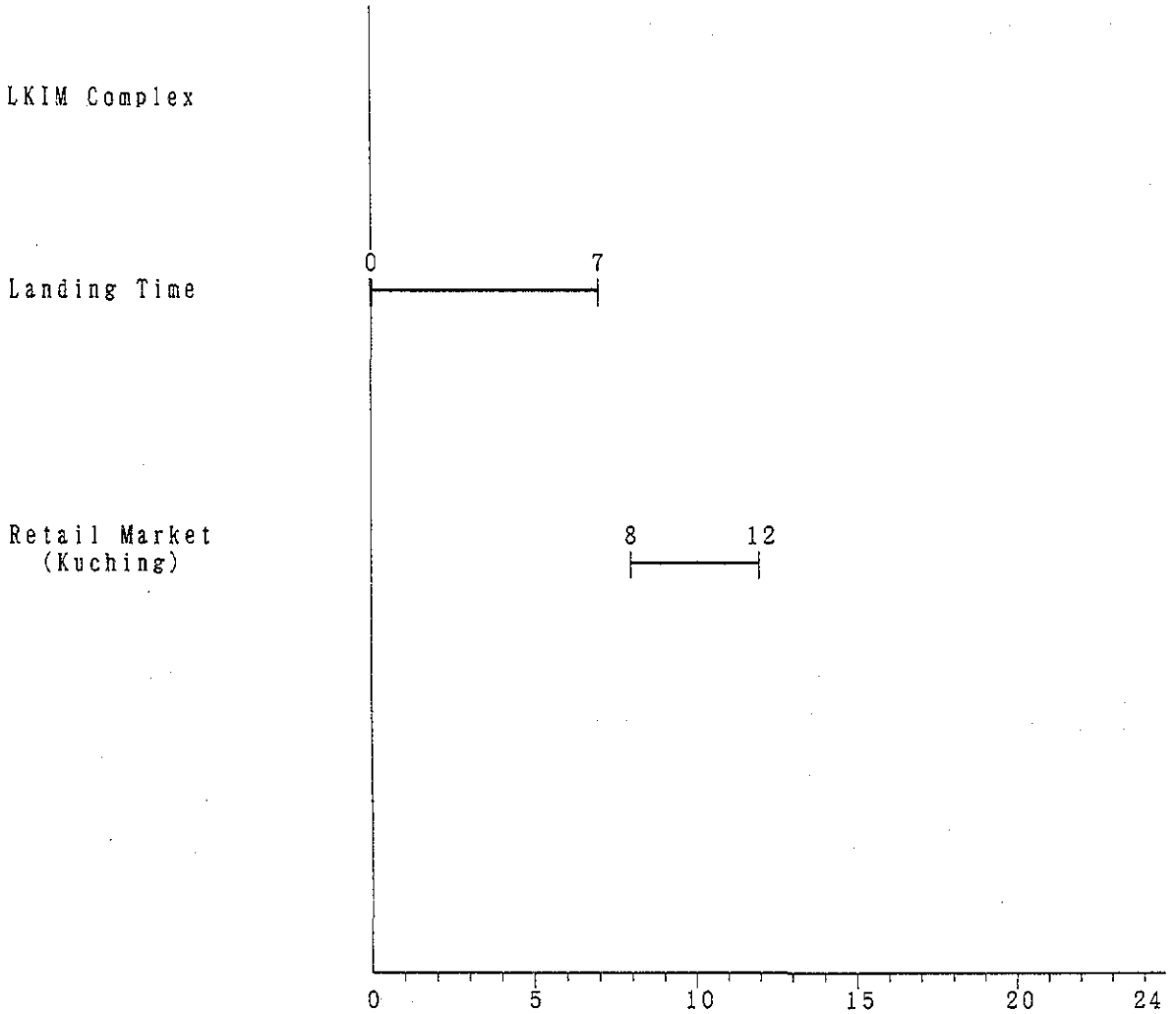
Remarks : Interview survey of the study on FMDS (Feb. 1990)

Appendix 4.70 Relation Between Fish Landing/Auction of LKIM Complex and Operational Time of Wholesale/Retail Market MERSING



Remarks : Interview survey of the study on FMDS (Feb. 1990)

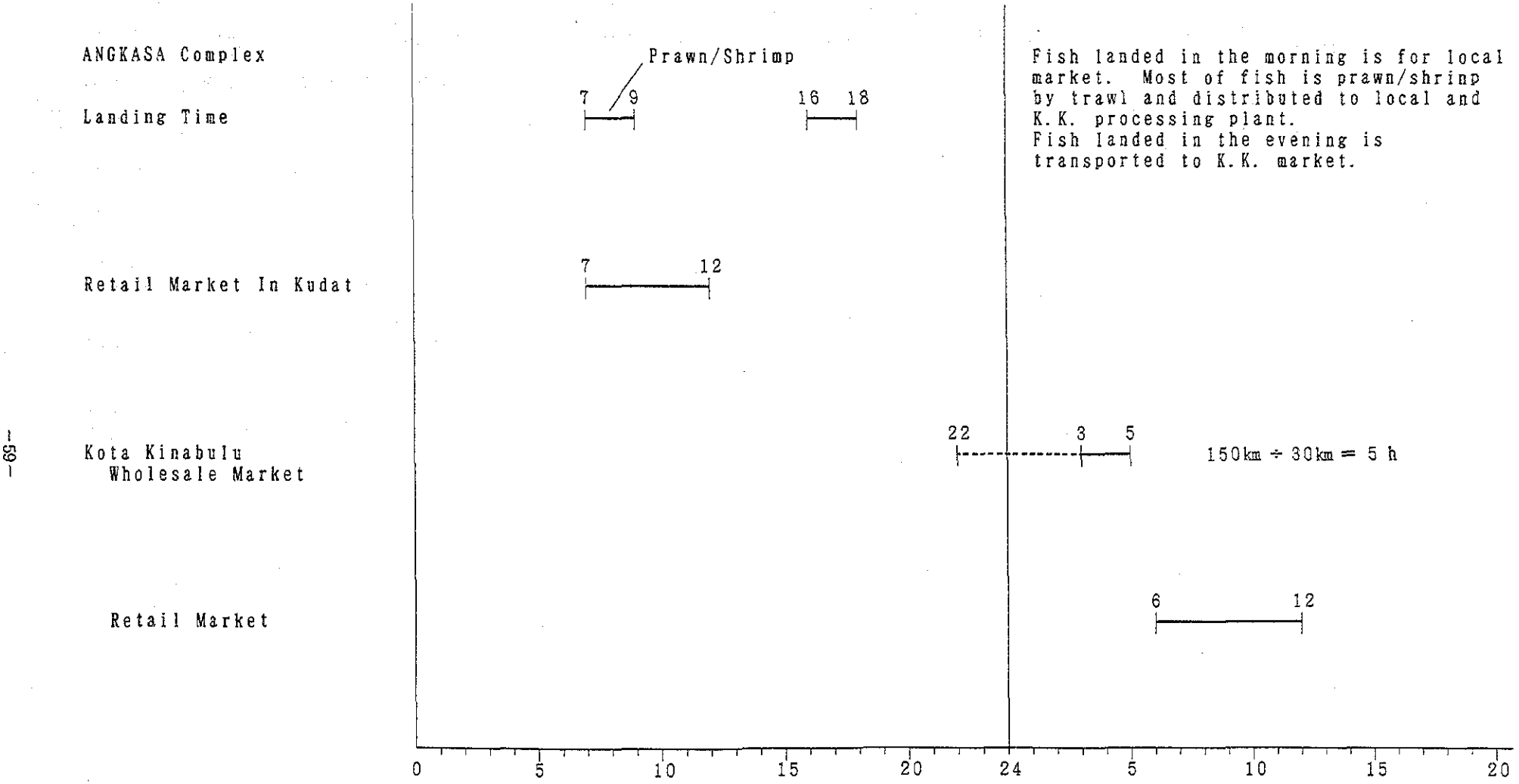
Appendix 4.71 Relation Between Fish Landing/Auction of LKIM Complex and Operational Time of Wholesale/Retail Market KUALA SEDILI



Big boats more than 25GT unload at the the complex and small boats at the jetty in front of the retail markets.

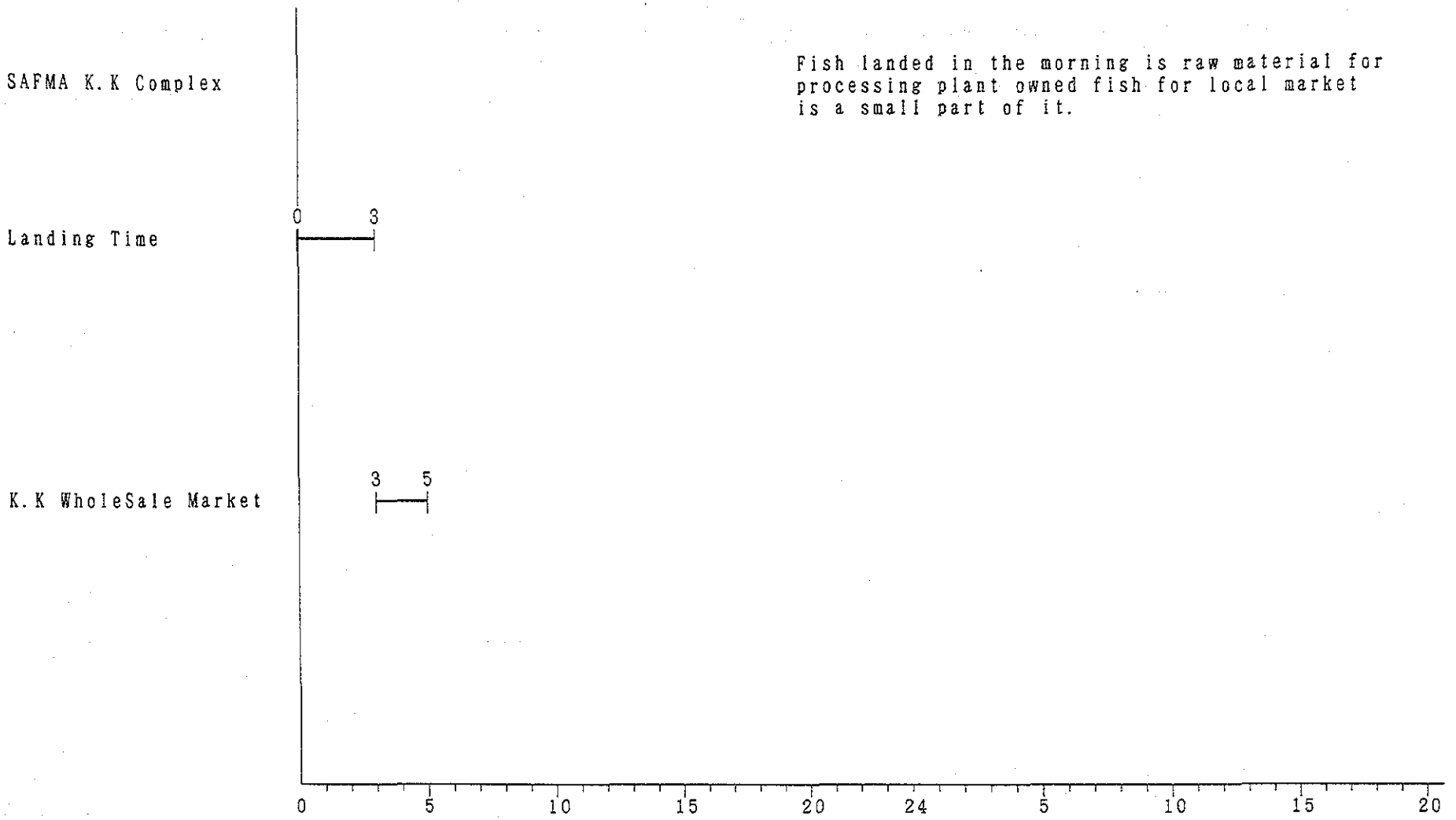
Remarks : Interview survey of the study on FMDS (Feb. 1990)

Appendix 4.72 Relation Between Fish Landing/Auction of LKIM Complex and Operational Time of Wholesale/Retail Market BINTAWA



Remarks : Interview survey of the study on FMDS (Feb. 1990)

Appendix 4.73 Relation Between Fish Landing/Auction of ANGKASA Complex and Operational Time of Wholesale/Retail Market KUDAT



Remarks : Interview survey of the study on FMDS (Feb. 1990)

Appendix 4.74 Relation Between Fish Landing/Auction of SAFMA Complex and Operational Time of Wholesale/Retail Market KOTA KINABALU

Appendix 4.75 Calculation of Maximum Landing Volume and Jetty Length at Kuala Kedah LKIM Complex

		Present	CASE 1	CASE 2	CASE 3
Landing volume (t)		3,584	8,880	15,480	22,080
No.fishing boat		149	177	262	375
Landing hours		8.5	8.5	8.5	8.5
Sorting on board at sea (%)		0	100	100	100
Fish landing Jetty	No.of Berth a)	3	2	4	6
	Length (m) b)	64	42	81	101
Expansion of capacity of fuel pump		-	○	○	○
Operating hours for supply services		10.5	10.5	10.5	10.5
Jetty for Prepa-ration	No.of Berth c)	-	1	3	4
	Length (m) d)	-	22	66	77
Total number of berth a) + c)		3	3	7	10
Total length of jetty (m) b) + d)		64	64	147	178
Existing length of jetty (m)		64	64	64	64
Expansion of jetty (m)		-	0	83	114

Remarks: 1) Case 1; Maximum possible fish landing volume at the existing length of jetty under the condition of that sorting of fish will be perfectly finished before arriving at jetty, and the capacity of pump will be expanded and all the fishing boat landing at complex will receive the fuel supply.

2) Case 2; Necessary expansion of jetty for the mid volume of landing between Case 1 and Case 3.

3) Case 3; Necessary expansion of jetty when fish landing in 2000 within the area located (usually within the river mouth) maximally concentrated at the complex under the geographically maximum utilization of the area for expansion.

Appendix 4.76 Calculation of Maximum Landing Volume and Jetty Length at Kuala Besut LKIM Complex

		Present	CASE 1	CASE 2	CASE 3
Landing volume (t)		14,481	33,500	-	14,720
No.fishing boat		327	512	-	335
Landing hours		5.0	5.0	-	5.0
Sorting on board at sea (%)		0	100	-	100
Fish landing Jetty	No.of Berth a)	5	5	-	5
	Length (m) b)	100	100	-	100
Expansion of capacity of fuel pump		-	○	-	○
Operating hours for supply services		11.0	14.0	-	6.0
Jetty for Prepa-ration	No.of Berth c)	2	2	-	2
	Length (m) d)	32	32	-	32
Total number of berth a) + c)		7	7	-	7
Total length of jetty (m) b) + d)		132	132	-	132
Existing length of jetty (m)		132	132	-	132
Expansion of jetty (m)		0	0	-	0

Remarks: 1) Case 1; Maximum possible fish landing volume at the existing length of jetty under the condition of that sorting of fish will be perfectly finished before arriving at jetty, and the capacity of pump will be expanded and all the fishing boat landing at complex will receive the fuel supply.

2) Case 2; Necessary expansion of jetty for the mid volume of landing between Case 1 and Case 3.

3) Case 3; Necessary expansion of jetty when fish landing in 2000 within the area located (usually within the river mouth) maximally concentrated at the complex under the geographically maximum utilization of the area for expansion.

Appendix 4.77 Calculation of Maximum Landing Volume and Jetty Length at Pulau Kambing LKIM Complex

		Present	CASE 1	CASE 2	CASE 3
Landing volume (t)		12,913	8,750	-	13,120
No.fishing boat		281	193	-	289
Landing hours		5.0	5.0	-	5.0
Sorting on board at sea (%)		0	100	-	100
Fish landing Jetty	No.of Berth a)	3	2	-	2
	Length (m) b)	52	28	-	45
Expansion of capacity of fuel pump		-	○	-	○
Operating hours for supply services		6.0	6.0	-	6.0
Jetty for Prepa-ration	No.of Berth c)	-	1	-	2
	Length (m) d)	-	14	-	32
Total number of berth	a) + c)	3	3	-	4
Total length of jetty (m)	b) + d)	52	52	-	77
Existing length of jetty (m)		52	52	-	52
Expansion of jetty (m)		-	0	-	25

Remarks: 1) Case 1; Maximum possible fish landing volume at the existing length of jetty under the condition of that sorting of fish will be perfectly finished before arriving at jetty, and the capacity of pump will be expanded and all the fishing boat landing at complex will receive the fuel supply.

2) Case 2; Necessary expansion of jetty for the mid volume of landing between Case 1 and Case 3.

3) Case 3; Necessary expansion of jetty when fish landing in 2000 within the area located (usually within the river mouth) maximally concentrated at the complex under the geographically maximum utilization of the area for expansion.

Appendix 4.78 Calculation of Maximum Landing Volume and Jetty Length at Chendering LKIM Complex

		Present	CASE 1	CASE 2	CASE 3
Landing volume (t)		7,728	54,477	-	23,730
No.fishing boat		192	466	-	271
Landing hours		3.0	3.0	-	3.0
Sorting on board at sea (%)		0	100	-	100
Fish landing Jetty	No.of Berth a)	22	15	-	15
	Length (m) b)	400	280	-	280
Expansion of capacity of fuel pump		-	○	-	○
Operating hours for supply services		4.0	4.0	-	4.0
Jetty for Prepa-ration	No.of Berth c)	-	7	-	7
	Length (m) d)	-	120	-	120
Total number of berth a) + c)		22	22	-	22
Total length of jetty (m) b) + d)		400	400	-	400
Existing length of jetty (m)		400	400	-	400
Expansion of jetty (m)		-	0	-	0

Remarks: 1) Case 1; Maximum possible fish landing volume at the existing length of jetty under the condition of that sorting of fish will be perfectly finished before arriving at jetty, and the capacity of pump will be expanded and all the fishing boat landing at complex will receive the fuel supply.

2) Case 2; Necessary expansion of jetty for the mid volume of landing between Case 1 and Case 3.

3) Case 3; Necessary expansion of jetty when fish landing in 2000 within the area located (usually within the river mouth) maximally concentrated at the complex under the geographically maximum utilization of the area for expansion.

Appendix 4.79 Calculation of Maximum Landing Volume and Jetty Length at Kuantan LKIM Complex

		Present	CASE 1	CASE 2	CASE 3
Landing volume (t)		-	21,240	-	29,620
No.fishing boat		-	139	-	194
Landing hours		-	4.0	-	4.0
Sorting on board at sea (%)		-	100	-	100
Fish landing Jetty	No.of Berth a)	-	4	-	5
	Length (m) b)	-	71	-	99
Expansion of capacity of fuel pump		-	○	-	○
Operating hours for supply services		-	5.0	-	5.0
Jetty for Prepa-ration	No.of Berth c)	-	2	-	3
	Length (m) d)	-	29	-	40
Total number of berth a) + c)		-	6	-	8
Total length of jetty (m) b) + d)		-	100	-	139
Existing length of jetty (m)		-	100	-	100
Expansion of jetty (m)		-	0	-	39

Remarks: This jetty is being constructed with the jetty length 100m.

1) Case 1; Maximum possible fish landing volume at the planned length of jetty under the condition of that sorting of fish will be perfectly finished before arriving at jetty, and the capacity of pump will be expanded and all the fishing boat landing at complex will receive the fuel supply.

2) Case 2; Necessary expansion of jetty for the mid volume of landing between Case 1 and Case 3.

3) Case 3; Necessary expansion of jetty when fish landing in 2000 within the area located (usually within the river mouth) maximally concentrated at the complex under the geographically maximum utilization of the area for expansion.

Appendix 4.80 Calculation of Maximum Landing Volume and Jetty Length at Endau LKIM Complex

		Present	CASE 1	CASE 2	CASE 3
Landing volume (t)		1,790	6,650	10,270	13,882
No.fishing boat		25	90	108	126
Landing hours		4.0	4.0	4.0	4.0
Sorting on board at sea (%)		0	100	100	100
Fish landing Jetty	No.of Berth a)	3	2	3	4
	Length (m) b)	58	38	57	71
Expansion of capacity of fuel pump		-	○	○	○
Operating hours for supply services		5.0	5.0	5.0	5.0
Jetty for Prepa-ration	No.of Berth c)	-	1	2	3
	Length (m) d)	-	20	34	50
Total number of berth	a) + c)	3	3	7	7
Total length of jetty (m)	b) + d)	58	58	91	121
Existing length of jetty (m)		58	58	58	58
Expansion of jetty (m)		-	0	33	63

Remarks: 1) Case 1; Maximum possible fish landing volume at the existing length of jetty under the condition of that sorting of fish will be perfectly finished before arriving at jetty, and the capacity of pump will be expanded and all the fishing boat landing at complex will receive the fuel supply.

2) Case 2; Necessary expansion of jetty for the mid volume of landing between Case 1 and Case 3.

3) Case 3; Necessary expansion of jetty when fish landing in 2000 within the area located (usually within the river mouth) maximally concentrated at the complex under the geographically maximum utilization of the area for expansion.

Appendix 4.81 Calculation of Maximum Landing Volume and Jetty Length at Mersing LKIM Complex

		Present	CASE 1	CASE 2	CASE 3
Landing volume (t)		1,736	6,429	-	6,429
No.fishing boat		116	205	-	205
Landing hours		2.0	4.0	-	4.0
Sorting on board at sea (%)		0	100	-	100
Fish landing Jetty	No.of Berth a)	4	3	-	3
	Length (m) b)	64	48	-	48
Expansion of capacity of fuel pump		-	○	-	○
Operating hours for supply services		5.0	5.0	-	5.0
Jetty for Prepa-ration	No.of Berth c)	-	1	-	1
	Length (m) d)	-	16	-	16
Total number of berth a) + c)		4	4	-	4
Total length of jetty (m) b) + d)		64	64	-	64
Existing length of jetty (m)		64	64	-	64
Expansion of jetty (m)		-	0	-	0

Remarks: 1) Case 1; Maximum possible fish landing volume at the existing length of jetty under the condition of that sorting of fish will be perfectly finished before arriving at jetty, and the capacity of pump will be expanded and all the fishing boat landing at complex will receive the fuel supply.

2) Case 2; Necessary expansion of jetty for the mid volume of landing between Case 1 and Case 3.

3) Case 3; Necessary expansion of jetty when fish landing in 2000 within the area located (usually within the river mouth) maximally concentrated at the complex under the geographically maximum utilization of the area for expansion.

Appendix 4.82 Calculation of Maximum Landing Volume and Jetty Length at Kuala Sedili LKIM Complex

		Present	CASE 1	CASE 2	CASE 3
Landing volume (t)		1,489	17,330	-	15,280
No.fishing boat		143	325	-	289
Landing hours		3.0	6.0	-	6.0
Sorting on board at sea (%)		100	100	-	100
Fish landing Jetty	No.of Berth a)	5	3	-	3
	Length (m) b)	100	60	-	60
Expansion of capacity of fuel pump		-	○	-	○
Operating hours for supply services		4.0	8.0	-	8.0
Jetty for Prepa-ration	No.of Berth c)	-	2	-	2
	Length (m) d)	-	40	-	40
Total number of berth a) + c)		5	5	-	5
Total length of jetty (m) b) + d)		100	100	-	100
Existing length of jetty (m)		100	100	-	100
Expansion of jetty (m)		-	0	-	0

Remarks: 1) Case 1; Maximum possible fish landing volume at the existing length of jetty under the condition of that sorting of fish will be perfectly finished before arriving at jetty, and the capacity of pump will be expanded and all the fishing boat landing at complex will receive the fuel supply.

2) Case 2; Necessary expansion of jetty for the mid volume of landing between Case 1 and Case 3.

3) Case 3; Necessary expansion of jetty when fish landing in 2000 within the area located (usually within the river mouth) maximally concentrated at the complex under the geographically maximum utilization of the area for expansion.

Appendix 4.83 Calculation of Maximum Landing Volume and Jetty Length at Bintawa LKIM Complex

		Present	CASE 1	CASE 2	CASE 3
Landing volume (t)		2,619	40,291	-	35,278
No.fishing boat		37	180	-	158
Landing hours		7.0	7.0	-	7.0
Sorting on board at sea (%)		0	100	-	100
Fish landing Jetty	No.of Berth a)	3	2	-	2
	Length (m) b)	72	48	-	48
Expansion of capacity of fuel pump		-	○	-	○
Operating hours for supply services		8.0	8.0	-	8.0
Jetty for Prepa-ration	No.of Berth c)	-	1	-	1
	Length (m) d)	-	24	-	24
Total number of berth a) + c)		3	3	-	3
Total length of jetty (m) b) + d)		72	72	-	72
Existing length of jetty (m)		72	72	-	72
Expansion of jetty (m)		-	0	-	0

Remarks: 1) Case 1; Maximum possible fish landing volume at the existing length of jetty under the condition of that sorting of fish will be perfectly finished before arriving at jetty, and the capacity of pump will be expanded and all the fishing boat landing at complex will receive the fuel supply.

2) Case 2; Necessary expansion of jetty for the mid volume of landing between Case 1 and Case 3.

3) Case 3; Necessary expansion of jetty when fish landing in 2000 within the area located (usually within the river mouth) maximally concentrated at the complex under the geographically maximum utilization of the area for expansion.

Appendix 4.84 Sales and Profit Per Staff of Area Fisheries Cooperatives In Japan (1985)

Unit: 1000¥

Sales	Net Profit	No. of Staff	Sales/staff	Profit/staff
768,218	139,818	20,967	37,117	6,755

Remarks: Average annual wage per staff is ¥3,230,000.
Source: Fisheries Cooperative Statistics, 1988

Appendix 4.85 Number of Fishing Boats Buying Fuel Through AFA

AFA	Number of boats	Number of boats buying fuel thru AFA	Percentage (%)
Kuala Kedah	912	123	13
Yan FA	243	35	14
Tanjung Dawai	321	30	9
Kuala Sedili	284	100	35
Mersing	546	40	7
Endau	242	105	43
K. T. Selatan	395	50	13
.Total	2943	483	16

Remarks: Based on interview survey to AFA managers.

Appendix 4.86 Number of Fishing Boats Buying Ice Through AFA

AFA	Number of boats	Number of boats buying ice thru AFA	Percentage (%)
Kuala Kedah	912	93	10
Yan FA	243	x	x
Tanjung Dawai	321	15	5
Kuala Sedili	284	x	x
Mersing	546	x	x
Endau	242	21	9
K. T. Selatan	395	50	13
Total	2943	179	16

Remarks: Based on interview survey to AFA managers.

Appendix 4.87 Profit and Loss Account of SFA Kedah (1988)

UNIT: M$

REVENUE	
Commission from oil	45,899
Project (Arti. reef)	17,320
Interest (Fix Deposit)	463
Total	63,682
EXPENDITURE	
Project (Arti. reef)	16,120
Others	16,814
Total	32,934
PROFIT	30,748

SOURCE: LAPORAN PERSATUAN NELAYAN, KEDAH

BALANCE SHEET (1988) - SFA - KEDAH

UNIT:M$

ASSET		79,173
Current Asset		73,173
	Cash in bank	14,664
	Fixed saving	12,332
	Other profit	46,177
Fixed Asset		6,000
	Investment	6,000
LIABILITY & EQUITY		79,173
Current Liabilities		1,340
Equity		77,833
	Share capital	8,400
	Reserve	17,260
	Membership fee	4,000
	Retained earnings	48,173

SOURCE: LAPORAN PERSATUAN NELAYAN KEDAH

Appendix 4.88 Profit and Loss Account of SFA Johor (1987 & 1988)

UNIT: M$

	1987	1988
REVENUE		
Commission from oil	27,585	28,401
Food contract	16,904	22,810
Sales of mussel seeds	2,805	14,267
Transport contract	3,200	4,107
Others	2,411	3,977
Income previous year	871	6,000
Total	53,776	79,562
EXPENDITURE		
Food contract	11,518	15,379
Purchase of mussel se	1,650	10,489
Transport contract	2,603	3,230
Other expense	7,100	12,177
Total	22,871	41,275
PROFIT	30,905	38,287

SOURCE: LAPORAN PERSATUAN NELAYAN NEGARA, JOHOR

BALANCE SHEET (1988) - SFA - JOHORE

UNIT: M$

ASSET	93,361
Current Asset	81,586
Fixed Asset	11,775
Fixed asset	5,275
Investment	6,500
LIABILITY & EQUITY	93,361
Current Liabilities	17,793
Equity	75,568
Share capital	12,800
Grants/assistance	40,536
Retained earnings	22,232

SOURCE: LAPORAN PERSATUAN NELAYAN NEGARA JOHORE

Appendix 4.89 Profit and Loss Account of SFA Terengganu (1988)

UNIT: M$

ACTIVITIES	SALES	SALES COST	EXPENDITURE	PROFIT/LOSS
Boat rental	7,076	1,723	2,945	2,408
Artificial reef	67,650	67,587	1,300	-1,237
Diesel supply	1,154,608	1,101,214	2,697	50,696
Computer class	3,794	184	2,783	827
Fishing gears	1,915	7,916		-6,001
Satay Restaurant	82,644	77,144	5,635	-134
Building rental	4,850		561	4,289
Aircondition	56,641	54,150		2,491
Konkrit 4 segi	9,600	8,000		1,600
Total	1,388,779	1,317,918	15,922	54,938

SOURCE: COMPUTER PRINTOUT, LKIM

Appendix 4.90 Profit and Loss Account of SFA Sarawak (1988)

UNIT: M$

REVENUE	
Administration	100,700
Supply of fish	416,573
Sales of gears, etc.	37,029
Total	554,302
EXPENDITURE	
Administration	84,140
Supply of fish	400,002
Sales of gears, etc.	4,583
Total	488,725
PROFIT	65,577

SOURCE: LAPORAN PERSATUAN NELAYAN, SARAWAK

Appendix 4.91 Profit and Loss Account of AFA Kedah (1986-1988)

1986 UNIT: M$

ACTIVITIES	SALES	SALES COST	EXPENDITURE	PROFIT/LOSS
Diesel	1,101,125	973,588	32,649	94,888
Ice supply	31,015	22,944	4,392	3,679
Diesel oil tanker	91,263	87,142	13,384	-9,263
Transport	11,841	11,174		667
Marketing	-	6,999		-6,999
Auction	81,501	60,804		20,697
Administration	35,677	47,247		-11,570
Total	1,352,422	1,209,898	50,425	92,099

1987 UNIT: M$

ACTIVITIES	SALES	SALES COST	EXPENDITURE	PROFIT/LOSS
Diesel	1,279,292	1,124,252	42,926	112,114
Ice supply	68,911	48,654	11,950	8,307
Diesel oil tanker	4,314,641	4,073,385	94,513	146,743
Transport	11,411	11,509		-98
Marketing	71,496	25,485		46,011
Auction	133,616	108,094		25,522
Administration	39,658	74,192		-34,534
Total	5,919,025	5,465,571	149,389	304,065

1988 UNIT: M$

ACTIVITIES	SALES	SALES COST	EXPENDITURE	PROFIT/LOSS
Diesel	1,696,077	1,536,157	49,405	110,515
Ice supply	106,534	78,622	18,127	9,785
Diesel oil tanker	6,304,041	5,923,900	148,460	231,681
Transport	11,311	9,951		1,360
Marketing	183,572	189,605		-6,033
Auction	-	-		0
Administration	65,475	109,223		-43,748
Total	8,367,010	7,847,458	215,992	303,560

SOURCE: LAPORAN PENYATA KEWANGAN, PERSATUAN NELAYAN KAWASAN, KUALA KEDAH, 1989

Appendix 4.92 Profit and Loss Account of AFA Kuala Terengganu Selatan (1986-1988)

1986 UNIT: M$

ACTIVITIES	SALES	SALES COST	EXPENDITURE	PROFIT/LOSS
Diesel	87,472	80,128	14,956	-7,612
Ice supply	139,475	129,953	35,800	-26,278
Marketing	225,933	184,364	22,288	19,281
Retail shop	77,729	75,971	13,578	-11,820
Transport	65,786	67,503		-1,717
Administration	30,960	29,832		1,128
Total	627,355	567,751	86,622	-27,018

1987 UNIT: M$

ACTIVITIES	SALES	SALES COST	EXPENDITURE	PROFIT/LOSS
Diesel	213,227	193,883	36,670	-17,326
Ice supply	277,237	262,357	9,196	5,684
Marketing	226,184	187,800	32,224	6,160
Retail shop	154,295	226,385	18,187	-90,277
Transport	40,869	47,538		-6,669
Administration	52,020	33,288		18,732
Total	963,832	951,251	96,277	-83,696

1988 UNIT: M$

ACTIVITIES	SALES	SALES COST	EXPENDITURE	PROFIT/LOSS
Diesel	232,401	209,421	10,830	12,150
Ice supply	378,497	356,449	9,415	12,633
Marketing	242,244	191,190	38,810	12,244
Retail shop	48,343	37,924	6,904	3,515
Transport	27,958	25,329		2,629
Administration	83,104	73,366		9,738
Total	1,012,547	893,679	65,959	52,909

SOURCE: LAPORAN PERSATUAN NELAYAN KAWASAN KUALA TERENGGANU SELATAN, 1989

Appendix 4.93 Profit and Loss Account of AFA Endau (1986-1988)

1986 UNIT: M$

ACTIVITIES	SALES	SALES COST	EXPENDITURE	PROFIT/LOSS
Diesel (Endau)	699,320	619,789	19,432	60,099
Diesel(Penyabong)	115,150	99,476	4,537	11,137
Marketing (Endau)	202,634	128,365	46,166	28,103
Marketing(Penya)	104,503	46,245	44,408	13,850
Retail	687	527		160
Administration	6,085	8,370		-2,285
Total	1,128,379	902,772	114,543	111,064

1987 UNIT: M$

ACTIVITIES	SALES	SALES COST	EXPENDITURE	PROFIT/LOSS
Diesel (Endau)	1,002,170	889,499	19,845	92,826
Diesel(Penyabong)	120,404	97,099	5,437	17,868
Marketing (Endau)	134,267	96,043	33,738	4,486
Marketing(Penya)	88,471	40,984	41,562	5,925
Retail	49	227		-178
Administration	3,431	9,403		-5,972
Total	1,348,792	1,133,255	100,582	114,955

1988 UNIT: M$

ACTIVITIES	SALES	SALES COST	EXPENDITURE	PROFIT/LOSS
Diesel (Endau)	1,452,558	1,297,389	31,699	123,470
Diesel(Penyabong)	138,089	112,039	5,789	20,261
Marketing (Endau)	235,736	132,998	75,152	27,586
Marketing(Penya)	70,911	33,640	31,251	6,020
Retail	57	227		-170
Administration	1,534	12,559		-11,025
	1,898,885	1,588,852	143,891	166,142

SOURCE: LAPORAN PERSATUAN NELAYAN KAWASAN ENDAU, 1989

Appendix 4.94 Profit and Loss Account of AFA Mersing (1988)

UNIT: M$

ACTIVITIES	SALES	SALES COST	EXPENDITURE	PROFIT/LOSS
Management	9,321		12,991	-3,670
Diesel	390,711	320,539	16,610	53,561
Lorry transport	47,620		50,743	-3,123
Slipway	1,200			1,200
Total	448,851	320,539	80,344	47,968

SOURCE: COMPUTER PRINTOUT, 1990 LKIM

BALANCE SHEET (1988) - AFA MERSING

UNIT: M$

ASSET	652,645
Current Asset	604,278
Debtors	421,652
Fixed depoist	146,098
Cash balance	23,499
Stocks	13,029
Fixed Asset	48,367
Fixed asset	44,342
Investment	4,025
LIABILITY & EQUITY	652,645
Current Liabilities	339,060
Creditors]	337,479
Divdend	529
Others	1,052
Equity	313,585
Shares	9,285
Launching grant	309,000
Accumu earnings	74,079
Loss in saving	-78,779

SOURCE: LAPORAN PERSATUAN NELAYAN
KAWASAN MERSING

Appendix 4.95 Profit and Loss Account of AFA Kuala Sedili (1988)

UNIT: M$

ACTIVITIES	SALES	SALES COST	EXPENDITURE	PROFIT/LOSS
Management	4,823	1,023	4,516	-716
Diesel oil	173,614	133,689	19,371	20,554
Auction	615,647	602,399	14,730	-1,482
Office cleaning	4,629		1,339	3,290
Total	798,714	737,111	39,956	21,647

SOURCE: COMPUTER PRINTOUT 1990, LKIM

Appendix 7.1 Economic Evaluation on the Expansion of Kuala Kedah Complex

Economic evaluation was made on two cases of expansion. Landing volumes and number of fishing boat in two cases are shown below.

	1988	1995			2000		
		Without Project	With Project Case 1	With Project Case 2	Without Project	With Project Case 1	With Project Case 2
Landing Volume(MT)							
Complex	3,584	3,584	15,480	22,080	3,584	15,480	22,080
Private jetty	31,695	31,695	19,799	13,199	31,695	19,799	13,199
Total	35,279	35,279	35,279	35,279	35,279	35,279	35,279
Number of fishing boat							
Complex	149	149	262	375	149	262	375
Private jetty	461	461	348	235	461	348	235
Total	610	610	610	610	610	610	610

Remarks:1) Figures in 1988 is based on Fisheries Statistics DOF, estimates in 1995 and 2000 is based on the projection in section 3.3.
2) Case 1 and 2 are correspondent to the case 2 and 3 in appendix 4.75, respectively.

In each case, the benefit born from the expansion of the complex is calculated as follows.

Benfit calculation for the expansion of complex — Unit : M$1,000

	1988	1995			2000		
		Without Project	With Project Case 1	With Project Case 2	Without Project	With Project Case 1	With Project Case 2
1. Cost saving by the mass transportation through concentrating fish at the complex							
(1)Transport cost through Private jetties							
a)Number of jetty	11	11	7	4	11	7	4
b)Landing volume(MT)	31,695	31,695	19,799	13,199	31,695	19,799	13,199
c)Landing/Jetty(MT)	2,881	2,881	2,828	3,300	2,881	2,828	3,300
d)Long-distance trans.(MT)	1,153	1,153	1,131	1,320	1,153	1,131	1,320
e)Trans. volume/day(MT)	4	4	4	4	4	4	4
f)Number of trucks	11	11	7	4	11	7	4
g)Annual trans. cost	660	660	420	240	660	420	240
h)Depriciation of trucks	154	154	98	56	154	98	56
Subtotal (A) = g) + h)	814	814	518	296	814	518	296
(2)Transport cost through the complex							
a)Number of jetty	1	1	1	1	1	1	1
b)Landing volume(MT)	3,584	3,584	15,480	22,080	3,584	15,480	22,080
c)Landing/Jetty(MT)	3,584	3,584	15,480	22,080	3,584	15,480	22,080
d)Long-distance trans.(MT)	717	717	3,096	4,416	717	3,096	4,416
e)Trans. volume/day(MT)	2	2	10	15	2	10	15
f)Number of trucks	1	1	2	3	1	2	3
g)Annual trans. cost	75	75	150	225	75	150	225
h)Depriciation of trucks	14	14	28	42	14	28	42
Subtotal (B) = g) + h)	89	89	178	267	89	178	267
Total (A) + (B)	903	903	696	563	903	696	563
Benefit 1 (Without) - (With)	-	-	207	340		207	340
2. Time saving of landing							
(1)Private Jetties							
a)Fishing hours(hr/trip)	28.0	28.0	28.0	28.0	28.0	28.0	28.0
b)Time saving (hr/time)	-	0.0	0.0	0.0	0.0	0.0	0.0
c)Future operating(hr/time	28.0	28.0	28.0	28.0	28.0	28.0	28.0
d)Maximum landing(MT)	31,695	31,695	19,799	13,199	31,695	19,799	13,199
e)Increased production(MT)	-	0	0	0	0	0	0
f)Increased amount(1000M$)	-	0	0	0	0	0	0
(2)The complex							
a)Fishing hours(hr/trip)	28.0	28.0	28.0	28.0	28.0	28.0	28.0
b)Time saving (hr/time)	-	0.0	0.3	0.6	0.0	0.3	0.6
c)Future operating(hr/time	28.0	28.0	28.3	28.6	28.0	28.3	28.6
d)Maximum landing(MT)	3,584	3,584	15,480	22,080	3,584	15,480	22,080
e)Increased production(MT)	-	0	166	473	0	166	473
f)Increased amount(1000M$)	-	0	307	875	0	307	875
g)Rate of value-added	-	20%	20%	20%	20%	20%	20%
(3)Value added f) x g)	-	0	61	175	0	61	175
Benefit 2 (With) - (Without)	-	-	61	175	-	61	175
Total of benefit (1 + 2)	-	-	268	515	-	268	515

Remarks : 1.(1),a); Number of jetty is propotional to the landing volume.
d);Based on interview survey, e);300 days/year, (1),f); One truck per one jetty
(2),f);Maximum loading is 6 MT. 2.e); Proportional to increasement of fishing hours

Cost for the expansion of complex and required additional operating cost were shown below.

Cost of improvement	Unit:H$1,000	
	Case 1	Case 2
Initial Invest	3,791	7,777
Civil work	3,245	5,928
Building	506	704
Equipment	40	1,145
Price in 1995	68	68
Cost for exist	130	130
Age of facility	19	19
Physical year	50	50
Operating cost	340	400
Operation	333	356
Maintenance	7	44

	Case 1	Case 2
E.I.I.R.	-	-

In both case 1 and 2, the benefit is too small to calculate E.I.I.R. Therefore, it is concluded that the expansion is not feasible from the national economic point of view.

Appendix 7.2 Economic Evaluation on the Expansion of Endau Complex

Economic evaluation was made on two cases of expansion. Landing volumes and number of fishing boat in two cases are shown below.

	1988	1995			2000		
		Without Project	With Project Case 1	With Project Case 2	Without Project	With Project Case 1	With Project Case 2
Landing Volume(MT)							
Complex	1,790	1,790	10,270	13,882	1,790	10,270	13,882
Private jetty	12,092	21,250	12,770	9,158	21,250	12,770	9,158
Total	13,882	23,040	23,040	23,040	23,040	23,040	23,040
Number of fishing boat							
Complex	25	25	108	126	25	108	126
Private jetty	163	163	80	62	163	80	62
Total	188	188	188	188	188	188	188

Remarks:1) Figures in 1988 is based on Fisheries Statistics DOF, estimates in 1995 and 2000 is based on the projection in section 3.3.
2) Case 1 and 2 are correspondent to the case 2 and 3 in appendix 4.80, respectively.

In each case, the benefit born from the expansion of the complex is calculated as follows.

Benfit calculation for the expansion of complex — Unit : M$1,000

	1988	1995			2000		
		Without Project	With Project Case 1	With Project Case 2	Without Project	With Project Case 1	With Project Case 2
1. Cost saving by the mass transportation through concentrating fish at the complex							
(1)Transport cost through Private jetties							
a)Number of jetty	8	8	7	4	8	7	4
b)Landing volume(MT)	12,092	21,250	12,770	9,158	21,250	12,770	9,158
c)Landing/Jetty(MT)	1,512	2,656	1,824	2,290	2,656	1,824	2,290
d)Long-distance trans.(MT)	605	1,063	730	916	1,063	730	916
e)Trans. volume/day(MT)	2	4	2	3	4	2	3
f)Number of trucks	8	8	7	4	8	7	4
g)Annual trans. cost	480	480	420	240	480	420	240
h)Depriciation of trucks	112	112	98	56	112	98	56
Subtotal (A) = g) + h)	592	592	518	296	592	518	296
(2)Transport cost through the complex							
a)Number of jetty	1	1	1	1	1	1	1
b)Landing volume(MT)	1,790	1,790	10,270	13,882	1,790	10,270	13,882
c)Landing/Jetty(MT)	1,790	1,790	10,270	13,882	1,790	10,270	13,882
d)Long-distance trans.(MT)	358	358	2,054	2,776	358	2,054	2,776
e)Trans. volume/day(MT)	1	1	7	9	1	7	9
f)Number of trucks	1	1	2	2	1	2	2
g)Annual trans. cost	75	75	150	150	75	150	150
h)Depriciation of trucks	14	14	28	28	14	28	28
Subtotal (B) = g) + h)	89	89	178	178	89	178	178
Total (A) + (B)	681	681	696	474	681	696	474
Benefit 1 (Without) - (With)	-	-	-15	207		-15	207
2. Time saving of landing							
(1)Private Jetties							
a)Fishing hours(hr/trip)	36.0	36.0	36.0	36.0	36.0	36.0	36.0
b)Time saving (hr/time)	-	-6.0	-2.0	0.0	-6.0	-2.0	0.0
c)Future operating(hr/time	36.0	30.0	34.0	36.0	30.0	34.0	36.0
d)Maximum landing(MT)	12,092	21,250	12,770	9,158	21,250	12,770	9,158
e)Increased production(MT)	-	-3,542	-709	0	-3,542	-709	0
f)Increased amount(1000M$)	-	-6,552	-1,312	0	-6,552	-1,312	0
(2)The complex							
a)Fishing hours(hr/trip)	36.0	36.0	36.0	36.0	36.0	36.0	36.0
b)Time saving (hr/time)	-	0.0	0.5	1.0	0.0	0.5	1.0
c)Future operating(hr/time	36.0	36.0	36.5	37.0	36.0	36.5	37.0
d)Maximum landing(MT)	1,790	1,790	10,270	13,882	1,790	10,270	13,882
e)Increased production(MT)	-	0	143	386	0	143	386
f)Increased amount(1000M$)	-	0	264	713	0	264	713
g)Rate of value-added	-	20%	20%	20%	20%	20%	20%
(3)Value added f) x g)	-	-1,310	-210	143	-1,310	-210	143
Benefit 2 (With) - (Without)	-	-	1,101	1,453	-	1,101	1,453
Total of benefit (1 + 2)	-	-	1,086	1,660	-	1,086	1,660

Remarks : 1.(1),a); Number of jetty is propotional to the landing volume.
d);Based on interview survey, e);300 days/year, (1),f); One truck per one jetty
(2),f);Maximum loading is 6 MT. 2.e); Proportional to increasement of fishing hours

Cost for the expansion of complex and required additional operating cost were shown below.

Cost of Expansion	Unit:M$1,000	
	Case 1	Case 2
Initial Invest	7,220	9,424
Civil work	4,653	5,712
Building	1,989	2,393
Equipment	578	1,319
Price in 1995	58	58
Cost for exist	100	100
Age of facility	16	16
Physical year	50	50
Operating cost	286	377
Operation	256	320
Maintenance	30	57

	Case 1	Case 2
E.I.I.R.	9	12

The E.I.I.R. in case 2 shows that the expansion of complex is feasible from the national economic poit of view.

Appendix 7.3 Feasibility on Frozen Squid Processing Plant on the East Coast of Peninsular Malaysia

(1) Assumptions for Financial Analysis

1) Price : Nov. 1990
2) Exchange rate : M$1.00 = ¥50.00
3) Physical life period
   Building : 25 years
   Machinery : 15 years
4) Gen. administration cost : 10% of personal cost
5) Facilities maintenance cost : 3% of construction
6) Interest : 5%/year
7) Price escalation is not considered.

(2) Facilities

Freezer : 5 tons/day (operation 16 hrs/day)
Cold storage : Rated capacity 250 tons (-25°C)
Building : 1,064 m^2

(3) Operating period

Freezer : 250 days/year
Cold storage : 365 days/year (18 hrs/day)

(4) Construction cost

Equipment/machinery	:	M$3,968,000
Building	:	M$ 702,000
Total		M$4,675,000

(5) Production Cost

1) Quantity and unit price used in the calculation.

				Unit price
a) Utility				
Electricity	basic charge	:	275 kw	M$15.00/kw/month
	Quantity	:	723,610 kw/year	M$0.19/kwh
Water	Quantity	:	3,200 m^3	M$0.9/$m^3$
b) Labour cost		:	20 persons	M$600/month/person
c) Material cost				
Squid	Quantity	:	1,250 tons	M$4.50/kg
Packings	Quantity	:	40,000 boxes/year	M$3.00/box

d) Conversion rate
(Products/raw material) : 65%

2) Production Cost

Items	Variable Cost	Fixed Cost	Total
Materials			
Squid	5,625,000	-	5,625,000
Packings	120,000	-	120,000
Utility	190,000	-	190,000
Personnel cost	-	144,000	144,000
General administration	-	14,000	14,000
Maintenance	-	157,000	157,000
Depreciation	-	293,000	293,000
Interest	-	234,000	234,000
Total	5,935,000	842,000	6,777,000

Unit production cost : (6,777,000)/(1,250,000 x 0.65) = M$8.30/kg
(per 1 kg of fish)

(6) Transport Cost

O/D : From Peninsular Malaysia to Japan
Cost : M$1.80 (Insulated truck on land,
Insulated container on board)

(7) Comparison with average Import Price in Japan

1) Production cost + Transport cost; M$10.10
2) Average import price in Japan (CIF); M$12.60

From the above comparison, it is feasible financially when the margin of traders and others is considered at 20% of the production cost. However, it is necessary to control the quality of the product in order to maintain its demand and price, as well as to consider carefully the influence by the fluctuation of the import price in Japan and the exchange rate.

Appendix 7.4 Feasibility on "Surimi" Processing Plant

(1) Assumptions for Financial Analysis

1) Price : Nov. 1990
2) Exchange rate : M$1.00 = ¥50.00
3) Physical life period
   - Building : 25 years
   - Machinery : 15 years
4) Gen. administration cost : 10% of personal cost
5) Facilities mainten cost : 3% of construction
6) Interest : 5%/year
7) Price escalation is not considered.

(2) Facilities

Capacity	: 2 tons/day (products)
Processing machinery	: 1 set
Freezer	: 2 tons/cycle
Cold storage (-5°C, 25°C)	: Rated capacity 20 tons x 2 rooms
Building	: 650 m^2

(3) Operating days of facilities

Factory	: 300 days/year, 8 hrs/day
Freezer	: 300 days/year, 3.5 hrs/day
Processing machinery	: 300 days/year, 4 hrs/day
Cold storage	: 365 days/year, 16 hrs/day
Cold water supply system	: 300 days/year, 24 hrs/day

(4) Construction cost

Processing machines	: M$1,540,000	
Freezer	: M$1,386,000	
Insulated truck (6.5 tons x 2)	: M$ 126,000	
Sewage works	: M$ 340,000	
Training & guidance	: M$ 35,200	(one person/month)
Building	: M$ 357,000	
Contingency	: M$ 342,700	
Total	M$3,769,000	

(5) Income and Expenditure

1) Quantity and unit price used in the calculation

a) Sales of products

Volume : 2,000 kg/day

Unit price : M$5.03 (FOB Export Price)

b) Raw Materials

- Fresh fish

Volume : 6,667 kg/day

Unit price : M$0.80/kg

6,667 kg x 300 days x M$0.80/kg = M$1,600,080

- Additives : M$709/day

- Packings : M$280/day

c) Utility

- Electricity

Basic charge : 150 kw M$15.00/kw

Quantity : 1,036 kwh/year M$0.19/kwh

- Water 9,600 m^3/year M$0.90/$m^3$

- Fuel 9,000 liters/year M$0.60/liter

d) Labour cost

32 persons M$600/month/person

2) Balance sheet

Unit : M$

Items	Variable Cost	Fixed Cost	Total
INCOME			
Sales	3,018,000		3,018,000
EXPENDITURE			
Materials			
Fresh fish	1,600,000	-	
Additives	212,000	-	
Packings	84,000		
Utility	95,000	-	
Fuel	5,400		
Labour cost	-	234,400	
General admin.	-	23,000	
Maintenance	-	103,000	
Depreciation & Interest	-	350,000	
Total Expenditure	1,997,100	710,400	2,707,500
Net Profit			310,000

The above table shows a net profit of M$300,000 after depreciation and interest cost, and it is feasible financially. However, it is necessary to enforce quality control to maintain stable demand and the price of the product.

The production volume at the break-even point is shown below.

$$\text{Break-even point } X = \frac{f}{p-r} = \frac{710,400}{5.03-3.33} = \frac{710,400}{1.7}$$

$$= 417,882/\text{year} = 1.39 \text{ ton/day } (69.5\%)$$

Where X = Sales production volume at break-even point
f = Fixed cost
p = Unit sales price
r = Unit variable cost (1,997,100/(2,000 x 300) = 3.33

Appendix 7.5 Feasibility on the Transport of Frozen Fish from Sarawak to Peninsular Malaysia

It is very difficult in terms of quality control to transport large volume of fresh fish from Sarawak to Peninsular Malaysia. Therefore, it is desirable to collect the fish at a transport base and store them in cold storage in frozen form until the feasible volume is accumulated.

The following shows the feasibility of a case when a transport base for frozen fish is to be constructed in Kuching.

(1) Assumptions for Financial Analysis

1) Price : Nov. 1990
2) Exchange rate : M$1.00 = ¥50.00
3) Physical life period
   Building : 25 years
   Machinery : 15 years
4) Gen. administration cost : 10% of personal cost
5) Facilities maintenance cost : 3% of construction
6) Interest : 5%/year
7) Price escalation is not considered.

(2) Facilities

Freezer : 5 tons/day (16 hrs/day) x 2 rooms
= 10 tons/day

Cold storage : Rated capacity; 250 tons (-25°C) x 2 rooms
= 500 tons
Actual capacity; 125 tons x 2 rooms
= 250 tons

Building : 1,064 m^2

(3) Operating days

Freezer : 250 days/year (18 hrs/day)

Cold storage : 365 days/year (18 hrs/day)

(4) Construction cost

Facilities/equipment: M$5,669,000

Buildings : M$ 702,000

(5) Cost for freezing

1) Quantity and unit price used in the calculation.

a) Utility

- Electricity

Basic charge : 275 kw M$15.00/kw

Quantity : 1,206.017 kwh/year M$0.19/kwh

- Water : 3,720 m^3/year M$0.90/$m^3$

b) Labour cost : 20 persons M$600/month/person

c) Packing : 18,750 boxes M$3.00/box

Items	Variable Cost	Fixed Cost	Total
Materials			
Packings	375,000	-	375,000
Utility	278,391	-	278,391
Personal cost	-	144,000	144,000
General Admin.	-	14,400	14,400
Maintenance	-	191,000	191,130
Depreciation	-	596,000	596,000
Total	653,391	945,530	1,598,921

Unit freezing cost (per kg of fish) : $\frac{1,598,921}{2,500 \times 1,000}$

= M$0.64/kg

(6) Transport cost

O/D : Kuching to Port Kelang

Container : 20-foot insulated container (10 ton capacity)

Transport on

sea : M$2,600/container (M$0.26/kg)

(7) Fish and price

The major species in Sarawak and producer's price, its price at Port Kelang in case brought from Sarawak, and the producer's price of the same kind of fish in Peninsular Malaysia are shown below.

Unit: M$

Grade	Species	Fish landed in Sarawak		Fish landed in P. Malaysia	
		Producer's Price (Kuching)	CIF Price (Kelang)	Producer's Price	Wholesale Price
A	Spanish mackerel	2.30	3.20	4.60	5.54
A	Black pomfret	2.80	3.70	4.94	5.81
B	Selar scads	1.80	2.70	1.08	1.46
B	Indian mackerel	1.40	2.30	1.44	1.95
B	Red snapper	1.80	3.70	3.56	4.18
C	Round scad	0.90	1.80	0.74	1.12

Source: Annual Fisheries Statistics 1988, Sarawak DOF, and Annual Fisheries Statistics 1988, DOF

The above table indicates that it is feasible financially to deal in high grade fish such as spanish mackerel and black pomfret, but it is not for low grade fish such as selar scads, Indian mackerel, red snappers and round scad.

Appendix 7.6 Shortage of Ice in Lahad Datu

Ice supply in Lahad Datu is deficit but it is not necessary to establish a new ice plant in Lahad Datu considering the wide service area covering Lahad Datu, Kunak, Semporna and Tawau. The reasons are as follows.

1) Period of shortage of ice in Lahad Datu is two to three months during peak season.

2) Ice supply in Kunak and Semporna is adequate, but ice is sometimes transported from Tawau during peak season.

3) There is surplus ice in Tawau at present because there are many ice plants.

4) Construction of SAFMA complex in Tawau including an ice plant of 40 tons a day will be completed by the end of this year, and it is expected that its production would be more than its own consumption need, and there would be large surplus.

5) The price of ice block of 50-kg is M$4.50 in Lahad Datu and M$3.00 to M$3.50 in Tawau. Therefore, ice can be taken from Tawau to Lahad Datu, even considering the transport cost.

Appendix 9 List of Fish Species in Malaysia (1/2)

Local Name	English Name	Scientific Name
Kebasi/Selangat	Chacunda shad	Anodontosoma chacunda
Puput	Shad	Pellona spp
Beliak mata	Slender shad	Llisha elongata
Terubok	Longtail shad	Hilsa macura
Siakap	Giant sea perch	Lates calcarifer
Lidah	Tonguefish	Cynoglossus spp
Sebelah	Flatfish	Pseudorhombus spp
Bayan	Parrotfish	Callyodon spp./Thalassoma spp.
Biji nangka	Goatfish	Upeneus spp.
Daun Baharu	Spotted sicklefish	Drepane punctata
Delah	Fusilier	Caesio erythrogaster/C.chrysona
Dengkis/Debam	Spinefeet	Siganus spp.
Duri/Pulutan/Utek	Marine catfish	Tachysurus spp.Arius spp/ Osteogenius spp.
Gelama/Tongkerong	Jewfish	Sciaena spp/Johnius spp
Gerut-gerut	Grunter	Promadasys spp.
Jebong	Triggerfish	Abalistes stellaris
Jenahak	Mangrove snapper	Lutianus johni
Kaci	Sweetlip	Spilotichytyhs picfus
Kapas laut	Majorras	Gerres fillamentosus/G.abreviatus
Kerapu	Grouper	Epinephelus spp/Plectropomus spp.
Kerisi	Threadfin bream	Nemipterus spp
Kerisi bali	Sharptoothed bass	Pristipomoides typus
Kikek	Ponyfish	Leiognathus spp/Gazz spp/ Secutor spp.
Lumi-lumi	Bombay-duck	Harpodon nehereus
Malong	Conger eel	Muraenesox sp.
Merah	Red snapper	Lutianus argentimaculatus
Mengkerong/Ubi/Conor	Lizard fish	Sauride spp.
Puntung Damar/Bulus-bulus	Sillago-Whitings	Sillago sihama/S.maculuta
Pasir-pasir/Timun-timun/ Puyu Laut	Monocle bream	Scolopsis spp.
Pelandok	Emperors	Lethrinus spp.
Pluru	Spadefish	Ephippus orbis
Remong/Kunyit-kunyit	Snapper	Lutianus vitta/L.lineolatus
Semilang	Catfish eel	Plotosus spp
Shrumbu/Lemah	False trevally	Lactarius lactarius
Tenda	Snapper	Lutianus russelli
Aji-aji	Amberjack	Seriola nigrafasciata
Alu-alu/Kacang-kacang	Barracuda	Sphyraena jello/S.optusa
Aruan Tasek	Black kingfish	Rachycentron canadus
Bawal hitam	Black pomfret	Formio niger
Bawal puteh	Sillver pomfret	Pampus argenteus
Bawal tambak	Chinese pomfret	Pampus chinensis
Bawal selatan	Small pomfret	Pampus spp.
Belanak/Kedera	Mullet	Liza spp/valamugil spp.
Cermin/Sagai/Cupak	Horse mackeral	Alectis indica/Caranx spp.
Cincaru	Hardtail scad	Megalaspis Cordyla
Demudok/Rambai	Horse mackerel	Carangoides spp.
Gerong-gerong	Golden trevally	Caranx speciosus
Kurau/Senangin/Senohong	Threadfin	Polynemus spp

Local Name	English Name	Scientific Name
Kerepoh	Horse mackerel	Caranx sexfasciatus
Lolong	Ox-eye scad	Selar boops
Mata Besar/Selar	Big-eye scad	Selar crymenophthalmus
Pisang-pisang	Rainbow runner	Elagatis bipinnulatus
Selar/Pelata	Selar scad	Selar spp.
Selar Kuning	Yellow striped trevally	Selaroides leptolepis
Selayang/Curut	Round scad	Decapterus maruadis/D.macrosoma
Talang	Queenfish	Scomberoides commersonianus
Tamban sisek	Fringescale sardinella	Sardinella fimbriate
Tamban buluh/T.Bulat	Rainbow sardine	Dussumieria acuta
Bilis	Anchovy	Stolephorus spp.
Parang-parang	Dorab wolf-Aerring	Chirocentrus dorab
Bulan-bulan	Indo-Pasific tarpon	Megalops cyprinoides
Aya/Kayu/Tongkol hitam	Longtail tuna	Thunnus tonggol
Aya/Kayu/Tongkol kurik	Kawakawa	Euthynnus affinis
Aya/Kayu/Tongkol/Selasih	Frigate tuna	Auxis thazard
Layaran/Mersuji	Salifish/Back/Blue marlin	Istiophorus spp/Makaira spp.
Tenggiri	Spanish mackerel	Scomberomorus spp.
Kembong/Temenong	Indian Mackerel	Rastrelliger spp
Timah/Layor/Selayor	Large-head hairtail	Trichiurus lepturus
Yu	Shark	Galeorhinidae
Pari	Ray	Gymnura spp/Dasyatis spp
Ikan Baja	Trash fish	Mixed spp.
Ikan Campur	Mixed fish	Mixed spp.
Ketam laut		Portunus pelagicus
Ketam Renjong		
Ketam batu	Mud crab	Scylla serrata
Udang karang	Spiny lobster	Panulirus polyhagus
Udang lobak	Slipper lobster	Thenus orientalis
Udang puteh/Udang kaki	Banana prawn/Western	Penaeus merguiensis/P.indicus/
Merah/Udang susu	king prawn	P.latisulcatus
Udang harimau	Giant tiger prawn/	Penaeus monodon/
	Green tiger prawn	P.semisulcatus
Udang pasir/Udang pasir	Sand prawn	Metapeneopsis stridulans
Kepala besar		M.barbeensis/Trachypenaeus fulvus
Udang puteh kecil	Small white prawn	Metapenaeus lysianassa
Udang kuning	Yellow prawn	Metapenaeus brevicornis
Udang merah ros/	Pink prawns/Greasyback	Metapenaeus affinis/M.ensis/
Udang ekor biru	Prawns	M.intermedius
Udang kulit keras	Rainbow prawn	Parapenaeopsis sculptilis
Udang minyak/Udang minyak	Sharp-rostrum prawn	Parapenaeopsis hardwickii
jalur		P.hunger forde/P.gracillima
Udang merah	Red prawn	Solenocera subnuda
Tiram	Rock oysters/Flat oysters	Ostrea folium/Crassostrea spp.
Kupang/Siput sudu	Green mussel	Perna viridis
Siput cangkul	Sea-Green musset	Glauconome spp.
Kerang	Blood cockle	Anadara granosa
Retak seribu	Carpet clam	Paphia undulata
Lain-lain siput	Other clams/Snails	Bivalves/Gastropods
Sotong biasa/cumit-cumit	Common squid	Loligo spp.
Sotong katak	Cuttlefish	Sepia spp.
Sotong kereta	Octopus	Octopodidae

Appendix 10 List of References

	Title	Source	Year
1.	Information Malaysia Yearbook 1988, 1989, 1990	Berita	1988, 1989, 1990
2.	Yearbook of Statistics, 1985-1988	DOS	1986,1987, 1988 1989
3.	Economic Report 1988/89 Vol. 17 1989/90 Vol. 18	MOF MOF	1988 1989
4.	Fifth Malaysia Plan 1986-1990	GOM	1986
5.	Mid-Term Review of the Fifth Malaysia Plan 1986-1990	GOM	1989
6.	Annual Bulletin of Statistics, Sabah 1987	DOS Sabah branch	1988
7.	Annual Statistics Bulletin, Sarawak 1988	DOS Sarawak branch	1989
8.	Economic Statistics - Time series	DOS	1986
9.	Import and Export Trade in Food and Agricultural Products 1986	MOA	1987
10.	Investigation report Kota Setar structure plan	Kota Setar City Council	1987
11.	Draft of structure plan of Kota Setar Town municipal	Kota Setar City Council	1989
12.	Structure plan	Johor Bahru City Council	1985
13.	Prospect of Kuantan	Kuantan City Council	1985
14.	Geography and administration	Kuantan City Council	1985
15.	Agricultural statistics - time series	DOS	1988
16.	Balance of payments report 19987-1989	DOS	1990
17.	Producer price index for Malaysia	DOS	1990
18.	Consumer price index for Malaysia	DOS	1990
19.	Population projections - Malaysia 1980-2000	DOS	1987
20.	Sixth Malaysia Plan of KO-NELAYAN (1991-1995) - A draft	KO-NELAYAN	1990

	Title	Source	Year
	Fish Production		
21.	Annual Fisheries Statistics 1983,1984, 1986, 1987, 1988	DOF	
22.	Annual Report of DOF, Sabah, 1980-1988	Sabah DOF	
23.	Annual Fisheries Statistics, 1987 Sarawak	Sarawak DOF	
24.	Annual Report, DOF Pahang, 1989	Pahang DOF	
25.	Annual Report, DOF Terengganu, 1986	Terengganu DOF	1986
26.	Annual Report, DOF Johor, 1986	Johor DOF	1986
27.	Preliminary Study on Development of Deep Sea Fishery, Malaysia	Danish Export Council	1987
28.	Deepsea Fisheries Resources Within the Malaysian Exclusive Economic Zone Survey of Demersal and Pelagic Resources	DOF	1989
29.	Demand and Supply of Fish for Peninsular Malaysia, Sabah and Sarwak 1980-2000	LKIM	
30.	Marine fish landing in Sarawak by month	MFD Sarawak	
31.	Marine fish landing in Sarawak by gear group	MFD Sarawak	
32.	Marine fish landing in Sarawak	MFD Sarawak	
33.	Number of fishing gear in Sarawak	MFD Sarawak	
34.	Information about import/export of fishery product in Sarawak	MFD Sarawak	
35.	Jenis-jenis udang laut Malaysia	DOF	1986
	Fish Marketing and Price		
36.	Fish Price & Quantity Monitoring Report Peninsular Malaysia 1987 & 1988	LKIM	
37.	Fish Marketing in Peninsular Malaysia	UPM	1985
38.	Aspects of Planning, Marketing and Organization of the Fisheries Complexes in Sarawak	Sarawak DOF	1985

	Title	Source	Year
39.	Production, marketing and pricing of fish products in Pahang - a socio-economic study 1986	University of Utrecht (Netherlands)	1986
40.	Marine fish price by grade by species by traders in Kuching	LKIM	1988
41.	Composition of fish landing in Sarawak	LKIM	1988
	Socio-economic, Fishermen, License		
42.	Socio-economic Benchmark Survey of the Fishermen's in Sarawak	Sabah DOF	1985
43.	A Study on Socio-economic Profile of Fishermen in Selected Areas	LKIM	1986
44.	Number of Fishermen by Village based on Fishermen Association and Location Map of Fishermen Association	LKIM	
45.	Socio-economic data of fishermen in Sabah	KO-NELAYAN	
46.	Sabah fishermen and their economy	KO-NELAYAN	
47.	Fishing in Sarawak, Malaysia: changing opportunities in the bintulu area, fourth division	University of Utrecht (Netherlands)	1987
48.	Fishing in Sabah, Malaysia: a socio-economic study of fishing households in the Kudat and Sandakan districts	University of Utrecht (Netherlands)	1987
49.	Fishing in Sarawak, Malaysia: a socio-economic study in nine selected villages in Mukah	Univsersity of Utrecht (Netherlands)	1986
50.	Baseline and socio-economic studies Volume 1 - Main Report Besut Integrated Fisheries Dev. Project	FAO	1982
51.	Baseline and socio-economic studies Volume 11 - Appendices Besut Integrated Fisheries Dev. Project	FAO	1982
52.	Number of Fishermen, Fishing Boats and Landings of Marine Fish (1978-1988)	DOF	
53.	Map of Fisheries Districts	DOF	
54.	Number of Licensed Fishing Boats by by Fisheries Districts (1987, 1988)	DOF	
55.	Wholesale License at Wholesale market	LKIM	
56.	Export and Import License	LKIM	

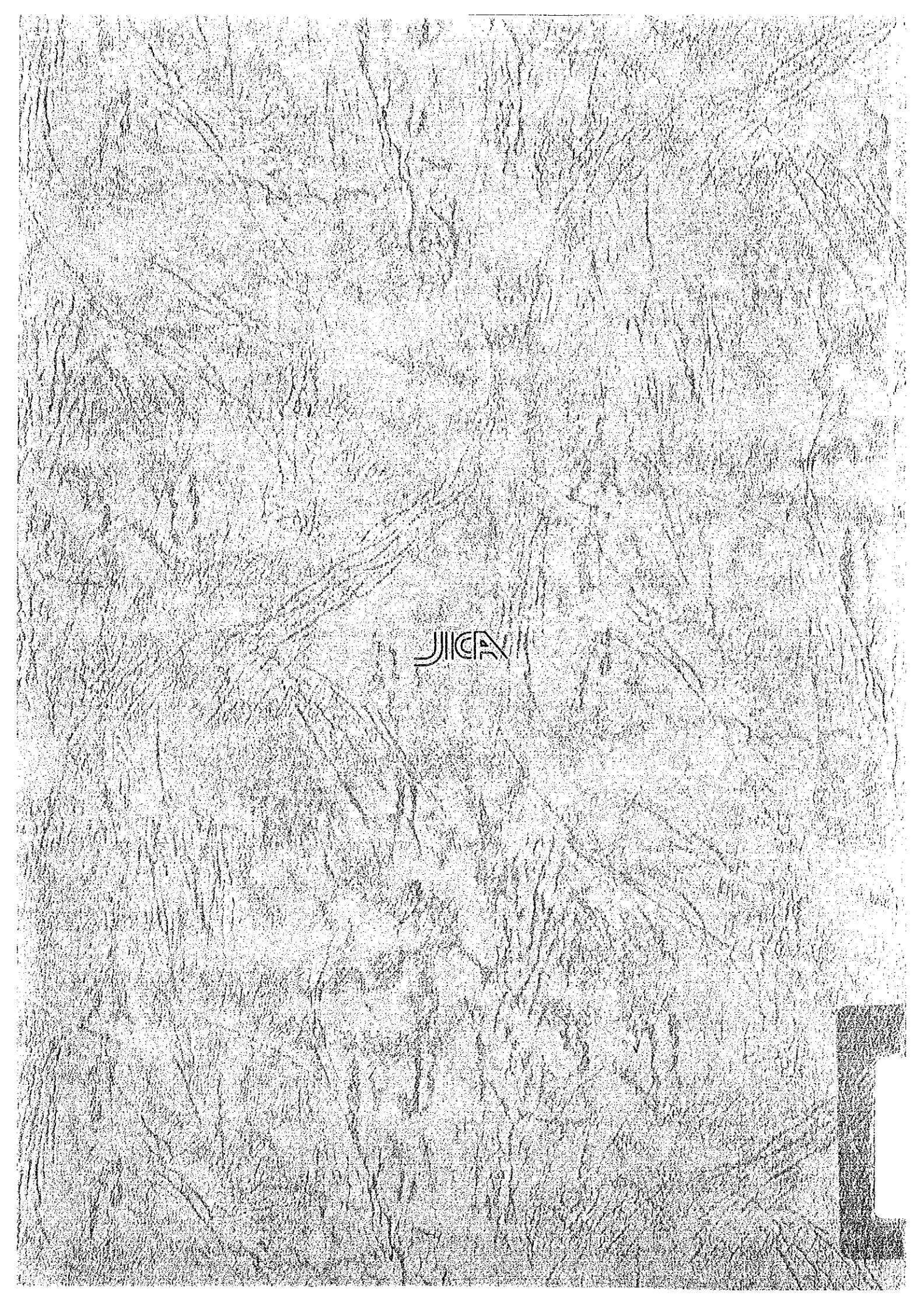
	Title	Source	Year
Fishermen's Association			
57.	A Review Study on the Management of Tanjung Dawai AFA	FAO	1988
58.	A Survey of Fishermen's Association in Tumpat Tajung Dawai	FAO	1988
59.	Fishermen's associations in Sarawak	LKIM	1988
60.	Image Development of FA	FAO	1988
61.	Lapuran Penyata Kewangan bagi Tahun 1985, 1986, 1987, 1988	PNK Kuala Kedah	
62.	Perlembagaan Persatuan Nelayan Kuala Kedah	PNK Kuala Kedah	
63.	Mesyuarat Agung Tahunan Kali Ke-9	PNK Yan	
64.	Penyata Mesyurut Agung Tahunan Ke-10	PNK Kuala Kedah	
65.	Mesyuarat Agung Tahunan Perwakilan Kali Ke-11	PNK Tanjung Dawai	
66.	Keratas Taklimat Kemajuan PBK, Yan	PNK Yan	
67.	Pembinaan 'Pemecah Ombak' (Wave Breaker) di Laut Daerah Yan	PNK Yan	
68.	Penyata Mesyurat Agung Tahunan Ke-8	PNK K. Perlis	
69.	Minit Masyuarat Ahli Lembaga Pengarah PNK Kuala Perlis Kali Ke-7/89	PNK K. Perlis	
70.	Mesyuarat Agung Tahunan Ke-4	PN (NEKAD)	
71.	Mesyuarat Agung Tahunan Ke-9	PNK K.T. Utara	
72.	Bantuan Kebajikan kepada Nelayan Oleh Kerajaan Negeri Terengganu	PNK K.T. Utara	
73.	Taklimat Kepada Timbalan Ketua Pengarah dan Pengarah-Pengarah Bagian LKIM	PNK K.T. Utara	
74.	Taklimat Kepada Timbalan Ketua Pengarah LKIM	PNK K.T. Selantan	

	Title	Source	Year
	Fish import/export		
75.	Import and Export of Fish	LKIM	
76.	Daily Quantity of Imported Fish from Thailand at Bukit Kayu Hitam (Jan-Oct.1989)	LKIM	
77.	Import/export of fishing commodits by O/D, Sarawak	LKIM	1988
78.	Percentage of import/export of fishers products, Sarawak	LKIM	1988
79.	Yearly import/export of fish/fishery products (1983-1987), Sarawak	LKIM	1988
80.	Import and export trade in food and agricultural products	MOA	1988
81.	Annex to the Worldwide fisheries marketing study: Prospects to 1985 - Singapore	Govt. of Canada	1981
	Fish Handling and Processing		
82.	Number of Processes	LKIM	
83.	A Strategic Study on Fish Handling Techniques and Distribution Systems in Malaysia	LKIM	1989
84.	Monthly Handled Quantities at Major Wholesale Market in 1985	LKIM	
85.	How to set up a quality control laboratory - Dr. V.D.Ramamurthy	INFOFISH	1982
86.	Marine transport of frozen fish products	INFOFISH	1982
87.	Air transport of fish	INFOFISH	1982
88.	Packaging fishery products in fleixble plastic materials and formed trays	FAO	1988
89.	Planning and engineering data - Fresh fish handling	FAO	1981
90.	Construction of on-board insulated fish containers for pirogues	FAO	1985
91.	Planning and Engineering data - Containers for fish handling	FAO	1984
92.	Planning and Engineering data - Fish freezing	FAO	1984

	Title	Source	Year
93.	Freezing in fisheries	FAO	1977
94.	Status of small-scale processing industry in fishing villages	FAO	1985
95.	Road transport of fish and fishery products	FAO	1983
96.	Overview of current fish consumption and fish processing in Southeast Asia By K. Inoue (Seminar on Development of fish products in Southeast Asia)	SEAFDEC	1987
97.	Prospects for Malaysian fishery products in the Japanese market By Ichiro Kano	INFOFISH	
	Fisheries Institutions and Laws		
98.	Laws of Malaysia Act 44 Fishermen's Association Act 1971	GOM	1971
	Laws of Malaysia Act A103 Fishermen's Associations (Amendment) Act 1972	GOM	1972
99.	Laws of Malaysia Act A694 Fishermen's Associations (Amendment) Act 1988	GOM	1988
100.	Laws of Malaysia Act A49 Lembaga Kemajuaan Ikan Malaysia Act 1971	GOM	1971
101.	Laws of Malaysia Act A201 Lembaga Kemajuaan Ikan Malaysia (Amendment) Act 1973	GOM	1973
102.	Laws of Malaysia Act A261 Fishermen's Associations and Lembaga Kemajuaan Ikan Malaysia (Amendment) Act 1974	GOM	1974
103.	Fish Marketing Regulation	LKIM	1973, 88
104.	Fisheries Act : Act 317	GOM	1985
105.	Function of LKIM	LKIM	1987
106.	The Function of Fisheries Department and Fisheries Development Sector	DOF	1989
107.	Fish Marketing Policy	LKIM	
108.	Organization of DOF (Figure)	DOF	

Title	Source	Year
Public Complexes Activities		
109. Income Statement of LKIM Complexes	LKIM	
110. Complex Report: Chendering, Kuala Kedah, Mersing, Sedili, Kuala Muda, Batu Maung Kuala Besut, Endau	LKIM	
111. Facilities of LKIM Complexes	LKIM	
112. Laporan Fizikal Dan Kewangan Pengurusan Komplexes LKIM	LKIM	1988
113. Activity of LKIM Complexes	LKIM	
114. Registered fishing boat, engine power and owner in southeast coast of Sabah	KO-NELAYAN	1988
115. Lahad Datu fishery complex data sheet	KO-NELAYAN	1984
116. Construction cost/year by complex, centre and sales centres of Ko-Nelayan	KO-NELAYAN	1989
117. KO-NELAYAN fishery bulletin	KO-NELAYAN	1983
118. Briefing paper on KO-NELAYAN: function, activities and achievement	KO-NELAYAN	1986
119. Function of KO-NELAYAN	KO-NELAYAN	
120. KO-NELAYAN complex/centre/sales centre	KO-NELAYAN	
121. List of prawn processing factories and address	KO-NELAYAN	
Financial		
122. Performance of Lahat Datu fishery complex (Income statement)	KO-NELAYAN	1990
123. Income statement of fishery Ko-Nelayan complex/centre (Papar, Sipitang, Kuala Penyu, Lahad Datu) in 1987, 1988 and 1989	KO-NELAYAN	1990
124. Balance sheet as at 31 Dec. 1988 & 1989	SAFMA	1990
125. Detailed trading profit and loss account for the year ended 31 December 1988 & 1989	SAFMA	1990
126. Trading account for the year ended 31 December 1988 & 1989	SAFMA	1990
127. Balance sheet as at 30 June 1989 Labuan Fisheries Sdn. Bhd.	Labuan Fisheries Sdn. Bhd. (LFSB)	1990

Title	Source	Year
128. Trading, and profit and loss accounts year ended 30 June 1989	LFSB	1990
129. Administrative and financial expenses year ended 3o June 1989	LFSB	1990
130. Busness expectations survey of limited companies First Half, 1990	DOS	1990
131. Report of the financial survey of limited companies	DOS	1989
Regional Fisheries Development		
Labuan		
132. Target & strategy of fishery industry development in Labuan	DOF	1989
133. Status of fishery development in Labuan	DOF	1989
134. Landing volume in Labuan at 1989	DOF	
135. Suppliers of fishing materials	DOF Labuan	1990
136. Ice plant and cold storage	DOF Labuan	1990
137. Deep-sea fishing boat entrepreneur	DOF Labuan	1990
Sarawak		
138. Sarawak fisheries infrastructure project	ADB	1985
139. Development allocation for LKIM Sarawak 1990	LKIM	1989
140. Progress report of marketing and finance	LKIM	1989
141. Information on deep-sea fishing boat licensed for fishery department in Sarawak	LKIM	1988
142. Allocation of fund for rental purpos in LKIM Bintawa	LKIM	1989
143. Fishermen and fish dealers in Sarawak	LKIM	1989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