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MALAYSIA

REGIONAL DEVELOPMENT AND URBANIZATION IN THE NORTHEAST

(In Three Volumes)

VOLUME THREE: STATISTICAL TABLES AND ANNEXES

July 9, 1982

East Asia and Pacific Projects Department
Urban and Water Supply Division

Urban Development Department
Operations Review and Support Unit

CURRENCY EQUIVALENTS

Currency Unit - M$

US$	=	M$ 2.25
M$	=	US$0.444
M$ 1 million	=	US$444,000

AGENCIES

ASEAN	-	Association of Southeast Asian Nations
BDA	-	Bintulu Development Authority
DARA	-	Pahang Tenggara Regional Development Authority
DID	-	Drainage and Irrigation Department
EPMI	-	Esso Production Malaysia Incorporated
EPU	-	Economic Planning Unit (in Prime Minister's Office)
FELCRA	-	Federal Land Consolidation and Rehabilitation Authroity
FELDA	-	Federal Land Development Authority
HICOM	-	Heavy Industries Corporation of Malaysia
JKR	-	Ministry of Public Works
KBM	-	Kota Bharu Municipality
KESEDAR	-	Kelantan Selatan Regional Development Authority
KETENGAH	-	Trengganu Tengah Regional Development Authority
KTM	-	Kuala Trengannu Municipality
MARA	-	Majlis Amanah Rakyat
MADRI	-	Malaysian Agricultural Research and Development Institute
MAS	-	Malaysian Airline System
MBSB	-	Malaysian Building Society Berhard
MIDA	-	Malaysian Industrial Development Authority
MIDF	-	Malaysian Industrial Development Finance
MIDFIC	-	Malaysian Industrial Development Finance Industrial Consultants
MMC	-	Malaysian Mining Corporation
MRPRA	-	Malaysian Rubber Producers Association
NEB or (LLN)	-	National Electricity Board
NEP	-	New Economic Policy
PETRONAS	-	National Petroleum Corporation
PORIM	-	Palm Oil Research Institute of Malaysia
RISDA	-	Rubber Industry Smallholders Development Authority
RRIM	-	Rubber Research Institute of Malaysia
SEDC	-	State Economic Development Corporation
SEPU	-	State Economic Planning Unit
TAKDIR	-	Kelantan State Land Development Board
TCPD	-	Town and Country Planning Department
TDC	-	Tourist Development Corporation

ABBREVIATIONS

TMP	-	Third Malaysia Plan
FMP	-	Fourth Malaysia Plan
GDP	-	Gross Domestic Product
GRP	-	Gross Regional Product
IE	-	Industrial Estates
LI	-	Location Incentives
LNG	-	Liquified Natural Gas

GOVERNMENT OF MALAYSIA
FISCAL YEAR

January 1 - December 31

MALAYSIA

REGIONAL DEVELOPMENT AND URBANIZATION IN THE NORTHEAST

VOLUME THREE: STATISTICAL TABLES AND ANNEXES

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Table A.0.1: AGRICULTURAL LAND USE IN PENINSULAR MALAYSIA, 1966 AND 1974

State	Total Acreage by State	1966 Of Which Agricultural Land Use					1974 Of Which Agricultural Land Use					Increase 1966-74 acres	Percentage change 1966-74
					State agri. land					State agri. land			
		% in State total	Acres	% Distribution	% in Cultivation	% newly Cleared Land	% of state total	Acres	% Distribution	% in Cultivation	% Newly Cleared Land		
Johor	4,730,569	33.6	1,587,324	22.5	95.5	4.5	45.6	2,155,417	22.8	88.5	11.5	568,093	35.8
Kedah	2,341,875	39.2	918,127	13.0	96.6	3.4	47.8	1,119,193	11.9	95.0	5.0	201,066	21.9
Kelantan	3,713,679	14.7	546,004	7.8	95.2	4.8	18.6	690,123	7.3	91.9	8.1	144,119	26.4
Melaka	407,806	77.1	314,438	4.5	99.2	0.8	79.9	325,771	3.4	97.8	2.2	11,333	3.6
Negri Sembilan	1,646,953	35.6	586,795	8.3	97.5	2.5	46.2	760,169	8.1	85.8	14.2	173,374	29.5
Pahang	8,890,848	7.2	639,611	9.1	93.5	6.5	14.8	1,312,684	13.9	86.7	13.3	673,073	105.2
P. Pinang	258,022	70.3	181,328	2.6	97.8	2.2	70.9	182,836	1.9	99.6	0.4	1,508	0.8
Perak	5,178,032	20.9	1,080,252	15.3	95.0	5.0	26.9	1,391,188	14.7	91.5	8.5	310,936	28.8
Perlis	200,225	51.7	103,528	1.5	98.2	1.8	64.0	128,225	1.4	97.1	2.9	24,697	23.9
Selangor	2,034,154	38.6	784,818	11.2	98.4	1.6	43.5	884,288	9.4	95.5	4.5	99,470	12.7
Trengganu	3,199,086	9.3	297,793	4.2	91.8	8.2	15.3	487,953	5.2	90.0	10.0	190,160	63.8
Total	32,601,249	21.6	7,040,018	100.0	96.0	4.0	28.9	9,437,847	100.0	90.9	9.1	2,397,829	34.0

Source: I.F.T. Wong, The Present Land Use of Peninsular Malaysia, Vol. 1., pp. 2, 24 (Kuala Lumpur: Ministry of Agriculture, 1980).

Table A.0.2: LAND USE IN KELANTAN

Land use category	1966 Total acres	1966 % of state total	1974 Total acres	1974 % of state total	Increase (+) or or decrease (-) over 1966 total acres	% chg
NONAGRICULTURAL USES						
Urban & associated areas	6,833	0.2	7,576	0.2	+743	10.9
Estate buildings & associated areas	522	-	607	-	+85	16.3
Mining & quarrying	352	-	367	-	+15	4.2
Power line right-of-ways	361	-	276	-	-85	-23.5
Grasslands	67,622	1.8	46,103	1.2	-21,519	-31.8
Forest	2,821,841	76.0	2,728,824	73.4	-93,017	-3.3
Scrub forest	159,644	4.3	137,611	3.7	-22,033	-13.8
Newly cleared land	26,316	0.7	55,563	1.5	+29,247	111.1
Swamps	64,710	1.7	64,126	1.7	-584	-0.9
Unused land	15,664	0.4	4,632	0.1	-11,032	-70.4
Unclassified	30,173	0.8	36,312	1.0	+6,139	20.3
Nonagricultural Total	3,194,038	86.0	3,081,997	82.9	-112,041	-3.5
AGRICULTURAL USES						
Mixed horticulture	80,561	2.2	84,881	2.3	+4,320	5.4
Market gardening	67	-	50	-	-17	-25.4
Agricultural stations	73	-	77	-	+4	5.5
Rubber	223,716	6.0	320,250	8.6	+96,534	43.2
Oil palm	1,219	-	12,994	0.3	+11,775	966.0
Coconut	17,370	0.5	18,935	0.5	+1,565	9.0
Other crops	1,970	-	3,021	0.1	+1,051	53.4
Padi	188,390	5.1	185,884	5.0	-2,506	1.3
Diversified crops	2,753	0.1	5,607	0.2	+2,854	103.7
Shifting cultivation	3,569	0.1	2,861	0.1	-708	19.8
Agricultural Total	519,688	14.0	634,560	17.1	+114,872	22.1
TOTAL	3,713,726	100.0	3,716,557	100.0	+2,831	0.1

Source: I.F.T. Wong, The Present Land Use of Peninsular Malaysia, Vol. 1, pp. 189-90 (Kuala Lumpur: Ministry of Agriculture, 1980).

Table A.0.3: LAND USE IN TRENGGANU

Land use category	1966 Total acres	1966 % of state total	1974 Total acres	1974 % of state total	Increase (+) or decrease (-) over 1966 total acres	Percentage change
Non-agricultural Land						
Urban and associated areas	5,226	0.2	7,535	0.2	+ 2,309	44.2
Estate buildings and associated areas	166	-	881	-	+ 715	430.7
Mining and quarrying areas	3,063	0.1	5,278	0.2	+ 2,215	72.3
Powerline right of way	-	-	17	-	+ 17	-
Grasslands	94,064	2.9	69,175	2.2	- 24,889	-26.5
Forest	2,304,972	72.0	2,145,708	67.0	-159,264	6.9
Scrub forest	189,033	5.9	183,057	5.7	- 5,976	-3.2
Newly cleared land	24,533	0.8	48,756	1.5	+ 24,223	98.7
Swamps	269,577	8.4	266,755	8.3	- 2,802	-1.0
Unused land	9,157	0.3	6,351	0.2	- 2,806	-30.6
Unclassified	25,367	0.8	30,528	1.0	+ 5,161	20.3
Nonagricultural total	2,925,158	91.4	2,764,061	86.3	-161,097	-5.5
Agricultural Land						
Mixed horticulture	41,152	1.3	60,892	1.9	+ 19,740	48.0
Market gardening	100	-	237	-	+ 137	137.0
Agricultural stations	124	-	195	-	+ 71	57.2
Rubber	148,416	4.7	185,071	5.8	+ 36,655	24.7
Oil palm	3,410	0.1	67,874	2.1	+ 64,464	1,890.4
Coconut	16,472	0.5	21,003	0.7	+ 4,531	27.5
Other crops	2,592	0.1	7,255	0.2	+ 4,663	179.9
Padi	60,939	1.9	84,200	2.6	+ 23,261	38.2
Diversified crops	686	-	12,366	0.4	+ 11,680	1,702.6
Shifting cultivation	13	-	104	-	+ 91	700.0
Agricultural total	273,904	8.6	439,197	13.7	+ 165,293	60.3
TOTAL	3,129,062	100.0	3,203,258	100.0	+ 4,196	0.1

Source: I.F.T. Wong, The Present Land Use of Peninsular Malaysia, Vol. 1, pp. 588-89 (Kuala Lumpur: Ministry of Agriculture, 1980).

Table A.1.1: INDICATORS OF ETHNIC DISPARITIES, 1976 AND 1978

Ethnic Group	1976 total population /a (000's)	Percent of ethnic community urbanized (1976) /b	Percent of urban population (1976)	Percent of 1978 Employment /c			Per capita household income /d $/month (1976)	Percent of households below poverty line /e (1976)
				Agriculture	Manufacture	Commerce		
Malay	5,668.8	15.9	29.9	51.5	12.0	8.6	68	46.4
Chinese	3,751.0	46.1	57.2	21.0	24.3	23.3	132	17.4
Indian	1,115.0	32.7	12.1	46.1	11.4	10.3	95	27.3
Other	71.8	32.1	0.8	45.6	13.2	9.8	294	33.8
All Races	10,606.6	28.5	100.0	89.0	16.7	14.5	95	35.1

/a 1976 etimates.
/b Based on 1970 urban boundaries.
/c Based on workers 15-64 years old.
/d Personal household income, divided by the population of households. Income includes imputed income.
/e Percent of population living in households with an average per capita household income below M$45.1 per month.

Source: All 1976 data from 1977 Agricultural Census; 1978 data from Labor Force Survey.

Table A.1.2: PERCENT OF PERSONS IN POVERTY HOUSEHOLDS 1976

Population Characteristics	Kelantan	Trengganu	Peninsula
Total	64.2	58.6	39.3
By Race			
Malay	66.1	61.3	52.2
Chinese	32.0	25.2	21.4
Indian	40.1	11.0	34.2
Other	76.3	38.0	40.9
By Household Size			
1	40.1	41.0	19.8
2	50.0	39.4	23.4
3	53.6	46.2	28.6
4	58.0	49.0	28.6
5	57.4	53.7	33.8
6	70.6	69.4	39.7
7	71.3	67.7	44.1
8	71.7	64.1	48.7
9+	69.2	66.0	45.7
By Age of Household Head			
0-14	100.0	87.8	50.6
15-19	40.1	15.3	32.4
20-24	46.7	35.9	24.0
25-29	56.6	54.3	29.2
30-34	64.5	60.1	37.9
35-39	62.1	58.0	42.6
40-44	64.8	65.5	47.4
45-50	62.8	63.6	41.1
50-54	64.9	56.6	36.9
55-59	66.1	53.2	37.4
60-64	67.1	49.5	35.9
65+	78.0	67.9	37.5
By Geographic-Economic Groups			
Urban self-employed	42.4	45.4	20.1
Urban wage	32.6	43.3	16.8
Urban other	7.9	60.9	22.5
Rural/small urban self-employed	40.9	36.0	26.5
Rural/small urban wage	30.5	52.9	31.6
Rural/small urban other	63.1	57.9	35.4
Rural self-employed	62.7	52.6	43.3
Rural wage	52.6	56.7	39.5
Rural other	70.0	74.5	49.9
Rural wet padi	88.9	89.1	79.2
Rural rubber LT	81.0	73.2	61.9
Rural rubber ET	60.2	55.1	42.6
Rural coconut	87.0	88.0	66.2
Rural other agriculture	85.2	80.0	60.0
Settlement scheme	-	25.7	32.4
Non-agricultural fishermen	73.5	69.8	59.7
Agriculure plus fishing	92.4	100.0	81.0
By Acres Operated for Agriculture			
0.0	44.1	47.4	28.9
0.1-1.0	69.3	75.7	67.0
1.0-2.49	81.9	73.7	69.2
2.5-4.99	81.3	72.8	65.2
5.0-7.49	78.7	70.7	54.6
7.5-9.99	69.6	41.1	41.0
10.0-14.99	56.4	61.3	36.5
15.0-19.99	42.0	37.7	33.5
20.0-24.99	37.7	4.4	25.8
25+	44.6	23.8	20.2

Table A.1.2: Page 2

Population Characteristics	Kelantan	Trengganu	Peninsula
By Family Composition			
Single	40.1	41.0	19.8
Couple	38.1	31.0	20.1
Nuclear family	64.7	60.3	43.9
Single parent plus children	65.3	66.2	40.6
Extended family	70.6	65.1	38.6
Other	51.6	35.8	73.3
By Activity of Household Head			
Self-employed	77.6	66.6	52.5
Wage and salaried	49.3	52.3	33.4
Other	53.0	61.7	30.2
By Sex of Household Head			
Male	63.8	58.2	39.3
Female	67.7	62.1	39.4
By Population Dependency Ratio			
Less than .1	39.7	33.8	18.1
.1-.249	46.0	39.7	17.7
.25- .49	48.1	42.5	26.0
.50- .99	64.3	54.9	35.0
1.0-1.99	66.9	65.2	45.6
2.0-3.99	80.3	70.9	59.0
7.0+	85.4	78.1	79.2
By Education of Individual			
No formal education	70.5	64.1	46.0
Primary	59.2	54.0	36.6
Lower secondary	39.2	37.2	19.3
Middle secondary	29.3	24.8	9.7
Upper secondary	7.3	8.6	3.7
College/university	-	-	.8
Others	65.4	61.4	45.2
By Urban/Rural			
Urban	41.7	49.4	18.6
Rural	68.9	62.2	47.6
By Employment Status of Individual			
Employed	61.6	52.5	32.0
Unemployed	72.6	65.2	45.6
Out of labor force	61.7	59.3	39.7

Source: 1977 Agricultural Census.

Table A.1.3: DISTRIBUTION OF HOUSEHOLDS' MONTHLY PER CAPITA GROSS HOUSEHOLD INCOME IN URBAN AND RURAL AREAS OF THE NORTHEAST AND THE PENINSULA, 1976
(% of Households)

Per capita monthly household income class (in M$)	Kelantan		Trengganu		Peninsula	
	Urban	Rural	Urban	Rural	Urban	Rural
< 20	11.1	26.1	10.4	19.5	2.2	12.9
20< 30	10.9	18.2	10.1	16.5	3.6	12.2
30< 40	9.1	14.1	12.0	13.9	5.9	12.1
40< 60	15.8	17.1	19.9	18.9	19.1	19.2
60< 80	12.8	8.6	11.6	10.1	13.1	12.4
80<100	9.2	4.9	7.4	6.2	10.9	8.2
100<125	8.3	3.8	8.0	4.9	10.2	6.5
125<150	4.5	1.9	3.1	2.3	6.9	3.9
150<200	6.8	2.3	4.3	2.7	9.2	4.7
200<300	6.1	1.7	5.5	2.5	10.0	3.9
300<400	2.1	0.6	2.7	0.8	4.7	1.6
≤400	3.7	0.7	5.0	1.2	9.1	2.4

Source: 1977 Agricultural Census.

Table A.1.4: MEAN PER CAPITA HOUSEHOLD INCOME, BY URBAN/RURAL DIVISION, ETHNICITY AND REGION, 1976

Region	Malay			Chinese			Indians			All Ethnic Groups		
	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural	Total
Northeast	73	47	52	250	160	197	169	108	140	106	49	60
Kelantan	73	45	49	166	106	139	194	86	141	96	47	54
Trengganu	73	50	56	371	144	301	109	158	138	115	53	70
Northwest	99	48	51	124	85	97	80	51	58	109	54	60
Kedah	99	46	49	124	81	95	80	50	57	109	51	59
Perlis	-	64	64	-	115	115	-	81	81	-	72	72
Selangor Region	195	100	129	206	156	182	172	87	122	206	121	157
Selangor	220	94	111	192	141	163	155	81	97	194	108	131
Fed. Territory	184	134	167	217	182	203	181	125	167	214	163	196
Other	107	59	66	145	92	116	117	72	85	134	72	90
Johor	107	63	71	140	97	113	116	85	92	127	76	90
Melaka	90	66	68	195	110	147	130	77	88	170	80	101
Negri Sembilan	110	66	71	173	103	123	143	72	84	151	80	94
Pahang	108	66	70	172	121	140	128	88	96	147	80	93
P. Pinang	105	61	71	129	94	115	112	71	93	128	79	103
Perak	109	48	56	140	71	104	110	62	78	131	58	80
Peninsular Malaysia	118	59	68	163	106	132	136	75	95	150	73	95

Source: 1977 Agricultural Census.

Table A.1.5: MEAN MONTHLY HOUSEHOLD INCOME, 1970-79
(M$)

Area	Prices	1970	1973	1976	1979	Annual growth rate (%) 1970-73	1973-76	1976-79
Urban	Current	428	570	830	1,121			
	1970 constant	428	492	569	675	4.8	5.0	5.9
Rural	Current	200	269	392	590			
	1970 constant	200	233	269	355	5.2	4.9	9.7

Source: FMP, p. 56.

Table A.1.6: DECOMPOSITION OF STATE INCOME DISPARITIES, 1976

State/Region	Per capita monthly income (M$)	Actual	Urban/Rural and Ethnic Factor				Locational factor
			Total	Urban	Ethnic	Interaction term	
Northeast							
Kelantan	54	-41	-22.6	-10.2	-20.2	7.8	-18.4
Trengganu	70	-25	-16.7	0.7	-23.1	7.1	-8.3
Northwest							
Kedah	59	-36	-16.5	-12.1	-8.3	3.9	-19.5
Perlis	72	-23	-26.6	-22.0	-10.5	5.9	3.6
Selangor Region							
Selangor	131	36	3.9	-0.9	5.6	-0.8	32.1
Federal Territory	196	101	34.0	27.5	14.8	-8.3	67.0
Other Peninsular							
Johor	90	-5	0.1	-1.2	0.6	.8	-5.1
Melaka	101	6	-0.8	-3.6	1.7	1.1	6.8
Negri Sembilan	94	-1	-3.3	-6.8	2.9	0.6	2.3
Pahang	93	-2	-9.3	-6.8	-5.7	3.2	7.3
P. Pinang	103	8	23.7	15.1	14.5	-5.9	-15.7
Perak	80	-15	4.4	1.5	4.3	-1.4	-19.4
Peninsula	95	-	-				

Source: Table A.1.2; for explanation of calculations see Annex 1-3.

Table A.2.1: GDP BY INDUSTRY OF ORIGIN AND STATE, 1971, 1980, 1990
(M$ million in 1970 prices)

Region	Agriculture, forestry & fishing			Mining & quarrying			Manufacturing			Construction			Utilities			Transport, storage & communication		
	1971	1980	1990	1971	1980	1990	1971	1980	1990	1971	1980	1990	1971	1980	1990	1971	1980	1990
Northeast	304	498	1,036	13	168	384	26	91	509	25	58	180	6	27	122	37	83	232
Kelantan	184	264	547	1	2	4	14	41	261	20	39	94	4	14	63	27	65	168
Trengganu	120	234	489	12	166	380	12	50	248	5	19	86	2	13	59	10	18	64
Northwest	476	666	907	10	4.5	6	39	110	421	26	25	86	6	22	79	29	63	190
Kedah	N/A	590	N/A	N/A	4	N/A	N/A	94	N/A	N/A	23	N/A	N/A	19	N/A	N/A	60	N/A
Perlis	N/A	76	N/A	N/A	0.5	N/A	N/A	16	N/A	N/A	2	N/A	N/A	3	N/A	N/A	3	N/A
Selangor Region	419	611	682	198	153	115	940	2,462	5,559	242	492	947	76	219	396	196	722	1,263
Selangor	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Fed. Territory	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Other	1,905	2,710	3,649	469	327.5	222	754	2,496	8,028	162	386	1,036	128	271	759	289	631	1,625
Johor	625	938	1,207	32	12	12	217	679	2,045	32	99	261	23	52	181	76	156	478
Melaka	125	170	172	2	2	3	30	90	278	8	25	55	8	24	59	17	35	76
Negri Sembilan	225	332	395	4	7	10	109	200	605	12	37	80	11	39	101	34	70	160
Pahang	305	458	969	36	26	63	41	191	1,469	26	39	202	5	20	119	27	52	279
P. Pinang	121	130	122	-	0.5	1	174	825	2,009	43	84	188	24	56	104	64	183	324
Perak	504	682	784	395	280	133	183	511	1,622	41	102	250	57	80	195	71	135	308
Peninsular Malaysia	3,104	4,485	6,274	690	653	727	1,759	5,159	14,517	455	961	2,249	216	539	1,356	551	1,499	3,310

Table A.2.1: (continued)
(M$ million in 1970 prices)

Region	Wholesale & retail trade, hotels & restaurants			Finance, insurance, real estate & business services			Government services			Other services			Total GDP		
	1971	1980	1990	1971	1980	1990	1971	1980	1990	1971	1980	1990	1971	1980	1990
Northeast	54	111	387	106	168	490	90	275	1,156	2	22	122	663	1,501	4,618
Kelantan	32	69	256	67	100	268	52	158	678	1	12	100	402	764	2,439
Trengganu	22	42	131	39	68	222	38	117	478	1	10	22	261	737	2,179
Northwest	26	101	357	98	161	309	84	245	769	12	24	53	806	1,421.5	3,177
Kedah	N/A	96	N/A	N/A	143	N/A	N/A	203	N/A	N/A	22	N/A	N/A	1,254	N/A
Perlis	N/A	5	N/A	N/A	18	N/A	N/A	42	N/A	N/A	2	N/A	N/A	167.5	N/A
Selangor Region	715	1,261	2,464	299	662	1,150	509	1,033	1,920	128	279	527	3,722	7,894	15,023
Selangor	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Fed. Territory	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Other	707	1,443	2,936	496	916	2,053	604	1,437	3,004	183	272	586	5,697	10,889.5	23,908
Johor	111	296	643	112	211	517	162	353	770	46	61	131	1,436	2,857	6,245
Melaka	56	128	242	39	71	134	67	122	282	11	21	46	363	688	1,347
Negri Sembilan	32	108	213	49	89	177	79	152	363	12	25	55	567	1,059	2,159
Pahang	39	83	309	54	97	329	83	194	475	13	23	51	629	1,183	4,265
P. Pinang	216	458	775	153	183	384	62	236	318	34	65	139	827	2,220.5	4,364
Perak	253	370	754	89	265	522	151	380	796	67	77	164	1,875	2,882	5,528
Peninsular Malaysia	1,502	2,916	6,144	999	1,907	4,012	1,287	2,990	6,849	325	597	1,288	10,888	21,706	46,726

Source: Fourth Malaysia Plan, 1981-85.

Table A.2.2: REAL GDP GROWTH RATE PER ANNUM BY SECTOR AND REGION, 1971-80 AND AS PROJECTED IN THE FMP, 1980-90

Region	Agriculture Forestry, Fishing		Mining, Quarring		Manufacturing		Construction		Utilities		Transport Storage and Commun.		Wholesale, Retail, Hotels and Restaurants		Finance, Insurance, Real Estate, Business Serv.		Government Services		Other Services		Total GDP	
	71-80	80-90	71-80	80-90	71-80	80-90	71-80	80-90	71-80	80-90	71-80	80-90	71-80	80-90	71-80	80-90	71-80	80-90	71-80	80-90	71-80	80-90
Northeast	5.6	7.6	32.9	8.6	14.9	18.8	9.8	12.0	18.2	16.3	9.4	10.8	8.3	13.3	5.3	11.3	13.2	15.4	30.5	18.7	9.5	11.9
Kelantan	4.1	7.6	8.0	7.2	12.7	20.3	7.7	9.2	14.9	16.2	10.3	10.0	8.9	14.0	4.6	10.4	13.1	15.7	31.7	23.6	7.4	12.3
Trengganu	7.7	7.6	33.9	8.6	17.2	17.4	16.0	16.3	23.1	16.3	6.7	13.5	7.4	12.0	6.4	12.6	13.3	15.1	29.2	8.2	12.2	11.5
Northwest	3.8	3.1	-8.5	2.9	12.2	14.4	-0.4	13.2	15.5	13.6	9.0	11.7	16.3	13.5	5.7	6.7	12.6	12.1	8.0	8.2	6.4	8.4
Selangor Region	4.3	1.1	-2.8	11.3	8.5	8.2	6.8	12.5	6.5	6.1	15.6	5.8	6.5	6.9	9.2	5.7	8.2	6.4	11.1	6.6	8.7	6.6
Other	4.0	3.0	-3.9	-3.8	14.2	12.4	10.8	10.4	8.7	10.8	9.1	9.9	8.3	7.4	7.1	8.5	10.1	7.7	4.5	8.0	7.5	8.2
Peninsular Malaysia	4.2	3.4	-0.6	1.0	12.7	10.9	8.7	8.9	10.7	9.7	11.8	8.2	7.7	7.7	7.4	7.7	9.8	8.6	7.0	8.0	8.0	8.0

Source: Table A.2.1.

Table A.2.3: PER CAPITA GDP AND PERCENT GAP RELATIVE TO MALAYSIAN GDP, 1971 AND 1980, BY REGION

	Per capita GDP		Percent gap relative to Malaysia		Average annual growth rate in GDP
	1971	1980	1971	1980	1972-80
Northeast	582.9	1,022.9	-50.3	-44.3	6.5
Kelantan	564.1	842.0	-51.9	-54.1	4.6
Trengganu	614.8	1,316.0	-47.6	-28.3	8.8
Northwest	728.3	1,101.0	-37.9	-40.0	4.7
Selangor Region	2,152.9	3,176.0	+81.4	+73.0	4.4
Other Peninsula	1,100.0	1,738.4	-67.2	- 5.3	5.2
Total Peninsula	1,186.2	1,886.4	+ 1.2	+ 2.8	5.3
Malaysia	1,172.2	1,836.0	0.0	0.0	5.1

Table A.2.4: GDP AND GDP PER CAPITA IN THE GOVERNMENT SERVICE SECTOR, 1971 and 1980

Region/state	GDP in Gov't services (millions) 1971	1980	Per capita GDP in gov't services 1971/a	1980	Per capita gov't service gap /b 1971	1980
Northeast	90	275	80.40	193.66	-24.3	-13.6
Kelantan	52	158	74.06	179.95	-30.3	-19.7
Trengganu	38	117	91.09	215.86	-14.3	-3.7
Northwest	84	245	76.91	196.00	-27.6	-12.6
Kedah	n.a.	203	n.a.	184.21	n.a.	-17.8
Perlis	n.a.	42	n.a.	283.78	n.a.	+26.6
Selangor Region	509	1,033	300.26	429.52	n.a.	n.a.
Others	604	1,437	118.24	237.01	+11.3	+5.7
Johor	162	353	124.01	220.35	+16.7	+1.7
Melaka	67	122	163.88	269.32	+54.2	+20.2
N. Sembilan	79	152	161.32	269.50	+51.8	+20.2
Pahang	83	194	157.58	251.62	+48.3	+12.3
P. Pinang	62	236	78.64	258.77	-26.0	+15.5
Perak	151	380	95.10	215.66	-10.5	-3.8
Peninsula,	1,287	2,990	142.66	268.50	n.a.	n.a.
Peninsula, net of Selangor Region	778	1,957	106.25	224.14	0.0	0.0

n.a. - not applicable.

/a Based on 1970 population adjusted for one year's growth.

/b State or regional per capita GDP in the government service sector as a percentage of the peninsular per capita GDP in that sector, net of Selangor Region, minus 100.00.

Source: Table A.2.1.

Table A.2.5: POPULATION AND ANNUAL GROWTH RATE BY STATE AND REGION, 1911-80

Region/state	Population ('000s) 1911	1921	1931	1947	1957	1970/a	1970/b	1980/b	Growth rate (% p.a.) 1911-21	1921-31	1931-47	1947-57	1957-70/c	1970-80/c	Estimated annual net migration: Absolute ('000s) 1957-70/e	1970-80/f	Rate (%) 1957-70/e	1970-80/f
Northeast /d	441	463	542	675	784	1,127	1,090	1,420	0.5	1.6	1.4	1.5	2.6	2.7	-28	-30	-0.20	-0.20
Kelantan	287	309	362	449	506	707	685	878	0.7	1.6	1.4	1.2	2.4	2.5	-31	-30	-0.34	-0.33
Trengganu	154	154	180	226	278	419	405	542	0.0	1.6	1.4	2.1	2.9	3.0	+3	-	+0.06	-0.01
Northwest /d	279	379	479	624	793	1,115	1,076	1,250	3.1	2.4	1.7	2.4	2.5	1.5	-32	-108	-0.22	-0.65
Kedah	246	339	430	554	702	989	955	1,102								-107		-0.95
Perlis	33	40	49	70	91	125	121	148								-1		-0.05
Selangor Region	294	401	533	711	1,013	1,696	1,630	2,405	3.1	2.9	1.8	3.5	3.6	4.0	+144	+302	+0.70	+1.39
Other /d	1,326	1,664	2,232	2,895	3,689	5,209	5,013	6,063	2.3	3.0	1.6	2.5	2.4	1.9	-84	-345	-0.13	-0.57
Johor	180	282	505	738	927	1,326	1,277	1,602	4.4	5.7	2.3	2.3	2.4	2.3	-20	-66	-0.12	-0.42
Melaka	124	154	187	239	291	419	404	453	2.1	1.9	1.5	2.0	2.5	1.2	-15	-62	-0.28	-1.31
Negri Sembilan	130	179	234	268	365	500	482	564	3.2	2.7	0.8	3.1	2.1	1.6	-25	-50	-0.39	-0.87
Pahang	119	146	180	250	313	524	505	771	2.0	1.1	2.0	2.2	3.6	4.3	+48	+111	+0.76	+1.60
P. Pinang	271	292	340	446	572	809	776	912	0.6	1.5	1.7	2.5	2.3	1.6	+11	-44	+0.11	-0.48
Perak	502	611	786	954	1,221	1,631	1,569	1,762	2.0	2.5	1.2	2.4	1.9	1.2	-83	-233	-0.38	-1.26
Peninsular Malaysia	2,339	2,907	3,788	4,908	6,279	9,147	8,810	11,136	2.2	2.6	1.6	2.4	2.6	2.4	-	-181	-	-0.17

/a Postenumeration adjusted to mid-June 1970.
/b Unadjusted field count.
/c Using unadjusted field counts.
/d Summation from truncated population figures for 1911 to 1957.
/e Third Malaysia Plan.
/f Own estimates, based on state crude natural growth rates, published in Vital Statistics, Peninsular Malaysia, 1978 and 1980 Population and Housing Census of Malaysia - Preliminary Field Count Summary

Source: 1970 Population Census of Malaysia. General Report, Vol. 1, p.269; and 1980 Population and Housing Census of Malaysia - Preliminary Field Count Summary. See also: IBRD, Working Paper on Demographic and Natural Resource Data, July 1981.

Table A.2.6: LIFE-TIME OUT-MIGRANTS FROM EAST COAST STATES, BY STATE OF RESIDENCE, 1970

State of residence	Out-migrants by origin			Out-migrants by origin per 1,000 population in state of residence		
	Kelantan	Trengganu	Pahang	Kelantan	Trengganu	Pahang
Northeast						
Kelantan	-	3,939		-	5.75	
Trengganu	24,118	-		59.55	-	
Northwest						
Kedah	n.a.	796		n.a.	0.83	
Perlis	n.a.	67		n.a.	0.55	
Selangor Region	n.a.	4,145		n.a.	2.45	
Other Peninsula						
Johor	n.a.	4,567		n.a.	3.58	
Melaka	n.a.	434		n.a.	1.07	
N. Sembilan	n.a.	693		n.a.	1.44	
Pahang	n.a.	14,266		n.a.	28.25	
P. Pinang	n.a.	661		n.a.	0.85	
Perak	n.a.	1,443		n.a.	0.92	

Source: 1970 Census.

Table A.2.7: NET LIFETIME MIGRATION RATES, 1957-80
(Thousands of Population and Net Migrants)

	State Population			Net Lifetime Migrants			Change in Net Migrants		Annual Net Migration Rate (%) /a	
	1957	1970	1980	1957	1970	1980	1957-70	1970-80	1957-70	1970-80
Northeast										
Kelantan	505.5	684.7	844.1	-17.187	-47.8	-87.8	-30.613	-40	-.47940	-.60015
Trengganu	278.3	405.4	521.2	2.783	6.1	-7.5	3.317	-13.6	.091182	-.34065
	783.8	1,090.1	1,365.3	-14.404	-41.7	-95.3	-27.296	-53.6	-.27299	-.50293
Pahang	313.1	504.9	833.8	17.8467	66	177.2	48.1533	111.2	1.10651	2.01043
Northwest										
Kedah	702	954.9	1,089.5	6.318	-25.2	-125.7	-31.518	-100.5	-.35274	-1.1059
Perlis	90.2	121.1	153	4.0905	3.1	.2	-.9905	-2.9	-.08425	-.24209
	792.9	1,076	1,242.4	10.4085	-22.1	-125.5	-32.509	-103.4	-.32151	-1.0052
Selangor Region	1,012.9	1,630.4	2,317.1	55.7095	201.1	477.9	145.391	276.8	1.03709	-1.58047
West and South										
Johor	926.8	1,277.2	1,718.5	15.7556	-4.4	-39.8	-20.156	-35.4	-.16899	-.28069
Melaka	291.2	404.1	451.8	-25.334	-40.1	-104.9	-14.766	-64.8	-.39948	-1.7326
N. Sembilan	364.5	481.6	567.8	2.916	-21.3	-50	-24.216	-28.7	-.52742	-.61254
P. Pinang	572.1	776.1	900.5	-30.893	-19.8	-19.1	11.0934	.7	.147840	.009016
Perak	1,221.4	1,569.1	1,733.4	-31.756	-113.7	-257.1	-81.944	-143.4	-.53728	-.95382
	3,376	4,508.1	5,372	-69.313	-199.3	-470.9	-129.99	-271.6	-.30158	-.61946
Pen. Malaysia	6,278.7	8,809.5	11,130.7				3.8	-40.6		

/a Rates are calculated as the average annual compound growth of the change in net lifetime migrants compared to the state population at the beginning of the period.

Source: 1957 Census, 1970 Census and 1980 Census (5% sample).

Table A.2.8: NET 5-YEAR MIGRATION RATES, 1975-80
(Thousands of Population and Migrants)

	State Population 1970	State Population 1980	1970-80 Growth Rate	1975 Population	Net Migrants 1975-80	Average Annual Migration Rate /a 1975-80
Northeast						
Kelantan	684.7	844.1	.021150	760.234	-20.7	-.55060
Trengganu	405.4	521.2	.025444	459.668	-6.1	-.26683
	1,090.1	1,365.3	.022766	1,219.96	-26.8	-.44327
Pahang	504.9	833.8	.051443	648.834	58.9	1.75302
Northwest						
Kedah	954.9	1,089.5	.013274	1,019.98	-57.1	-1.1456
Perlis	121.1	153	.023658	136.119	-.8	-.11782
	1,076	1,242.5	.014491	1,156.26	-57.9	-1.0222
Selangor Region	1,630.4	2,317.1	.035774	1,943.66	112.4	1.13072
West and South						
Johor	1,272.2	1,718.5	.030123	1,481.51	-8.4	-.11366
Melaka	404.1	451.8	.011220	427.285	-26.8	-1.2871
N. Sembilan	481.6	567.8	.016602	522.927	-.4	-.01530
P. Pinang	776.1	900.5	.014978	835.989	2.4	.057351
Perak	1,569.1	1,733.4	.010008	1,649.21	-77.5	-.95803
	4,508.1	5,372	.017687	4,921.13	-110.7	-.45400
Pen. Malaysia	8.809.5	11,130.7	.023663	9,902.32	-24.1	

/a Average compound percentage growth rate of net migrants compared to 1975 population.

Source: 1980 Census (5% sample).

Table A.2.9: VARIABLES USED IN REGRESSION ANALYSIS IN VOLUME 2, TABLE 2.10

	Net 1975-80 Migration Rate (%) /a	Percentage difference between state and peninsular mean per capita houshold income, 1976 /b	Estimated state per capita TMP development expenditures /c	Bus travel time from state capital to Kuala Lumpur /d
Northeast				
Kelantan	-2.4	-.40	1,452.3	12.0
Trengganu	-1.2	-.26	1,386.0	10.0
Northwest				
Kedah	-5.1	-.38	794.2	10.0
Perlis	-0.5	-.24	1,396.3	10.5
Selangor Region /e	+5.0	+.65	2,083.4	0.9/f
Other Peninsular				
Johor	-0.5	-.05	1,136.5	8.0
Melaka	-5.8	-.06	840.0	3.0
N. Sembilan	-0.1	-.01	1,162.4	1.5
Pahang	+7.4	-.02	3,204.5	4.5
P. Pinang	0.3	+.08	914.2	8.0
Perak	-4.4	-.16	944.6	3.5

/a 1980 Census (5% sample) - calculated by Statistics Department.
/b 1977 Agricultural Census.
/c Preliminary estimates of the percentage allocated funds actually spent are provided in "Fourth Malaysia Plan: Regional/State Targets and Stress Rations for Public Expenditure" (EPU, 1980). These estimated expenditure rates were applied to the TMP allocations reported in Table 2.4.
/d Transport Licensing Board.
/e Includes Selangor State and the Federal Territory.
/f Obtained by interpolation.

Table A.2.10: TOTAL EMPLOYMENT AND AVERAGE MONTHLY EARNINGS FOR ALL MANUFACTURING INDUSTRIES BY STATE, PENINSULAR MALAYSIA, DECEMBER 1976 - DECEMBER 1978, AND AVERAGE NUMBER OF EMPLOYEES PER ESTABLISHMENT, DECEMBER 1978

State	December 1976		December 1977		December 1978		December 1978
	Paid employees	Average monthly earnings	Paid employees	Average monthly earnings	Paid employees	Average monthly earnings	Average number of employees per establishment
Selangor	87,438	531	98,834	548	112,197	537	120
Johor	33,438	258	36,742	268	37,496	305	101
Kedah	7,288	196	7,755	205	8,824	218	79
Kelantan	2,054	132	2,161	157	2,649	169	54
Melaka	13,791	181	13,588	267	15,878	238	196
N. Sembilan	7,210	370	7,729	423	8,227	458	116
Pahang	5,478	199	6,421	233	8,267	250	183
P. Pinang	53,550	261	57,597	305	63,180	340	157
Perak	28,629	279	30,377	292	31,538	321	235
Perlis	1,059	319	983	304	1,221	434	111
Trengganu	1,364	188	1,363	232	1,273	256	64
Total	242,995	351	263,546	385	290,750	400	117

Source: Department of Statistics, cited in Leo Katzen: "Report on Wage Trends, Differentials, Productivity and Labor Shortage in Malaysia," March 1980.

(1) Kedah and Perlis
(2) Total Malaysia

Table A.3.1: LAND IN INDUSTRIAL ESTATES: PLANNED, DEVELOPED, SALEABLE, ALLOCATED AND NOT ALLOCATED ACREAGE, DECEMBER 31, 1980

Region/state	Number of estates	Land (acres) Planned/a (1)	Developed/b (2)	Saleable/c (3)	Allocated/d (4)	Not allocated (5)	Expansion rate /e(%) [(1)÷(2)]-1	Vacancy/f rate (%) (5)÷(3)
Northeast	7	1,703	1,024	907	452	455	66.3	50.2
Kelantan	4	1,122	529	509	293	216	112.1	42.4
Trengganu	3	581	495	398	159	239	17.4	60.0
Northwest	7	1,327	1,114	925	716	209	19.1	22.6
Kedah	6	1,292	1,114	925	716	209	16.0	22.6
Perlis	1	35	-	-	-	-	-	-
Selangor region	11	5,372	4,153	3,440	3,102	338	29.3	9.8
Selangor	10	5,202	4,008	3,295	2,957	338	30.0	10.3
Federal Ter.	1	170	145	145	145	0	17.2	0.0
Other	36	12,746	7,121	5,973	5,048	1,075	79.0	18.0
Johor	8	3,576	1,953	1,576	1,443	133	83.1	8.4
Melaka	7	852	626	554	473	141	36.1	25.5
N. Sembilan	5	667	667	491	461	30	0.0	6.1
Pahang	6	2,764	1,143	885	554	331	41.8	37.4
P. Pinang	4	3,197	1,404	1,404	1,213	282	127.7	20.0
Perak	6	1,690	1,328	1,063	904	158	27.3	14.9
Total peninsula/g	61	21,148	13,415	11,245	9,318	2,077	57.6	18.5

/a Planned acreage of existing IEs, excluding land for training. This does not include planned acreage of IEs in proposal stage.

/b Gross acreage.

/c Net of streets, right of way, etc.

/d Actual acreage sole to companies.

/e Percent of which developed acreage can expand in existing IEs.

/f Percent of saleable land not sold.

/g Includes 3 industrial estates by Johore Tenggara and Pahang Tenggara.

Source: MIDA.

Table A.3.2: AVERGE SIZE OF INDUSTRIAL ESTATES BY REGION, DECEMBER 30, 1980

State/Region	Planned	Developed	Allocated
Acres per Industrial Estate			
Northeast	243	146	65
Kelantan	280	132	73
Trengganu	194	165	53
Peninsula	347	220	152
Percent of Peninsula			
Northeast	70.0	66.4	42.8
Kelantan	80.7	60.0	48.0
Trengganu	55.9	75.0	34.9

Source: Table A.3.1.

Table A.3.3: APPROVED PROJECTS BY INCENTIVE CATEGORY, AND MEASURES OF CONCENTRATION AND DISPERSION, 1970-73, 1974-77

	Projects approved/a (Actual number)		Growth rate/b (%)	Project share in region (%)		Project share in incentive category/c (%)		Project share in region ÷ project share in Peninsula/d		Project share in incentive category ÷ 1973 establishment share	
	70-73	74-77		70-73	74-77	70-73	74-77	70-73	74-77	70-73	74-77
Northern Region: Kelantan, Trengganu, Kedah, Perlis											
Pioneer status	36	50	38.9	56.3	21.8	6.1	12.3	1.26	.87	.41	.83
Other incentives	13	118	807.6	20.3	51.5	9.4	42.0	1.93	2.99	.64	2.85
Without incentives	15	61	306.7	23.4	26.6	2.5	6.5	.52	.46	.17	.44
Total	64	229	257.8	100.0	100.0	11.8	14.0	1.00	1.00	.32	.95
Peninsula											
Pioneer status	589	408	-30.7	44.6	25.0						
Other incentives	139	281	102.2	10.5	17.2						
Without incentives	594	942	58.6	44.9	57.7						
Total	1,322	1,632	23.4	100.0	100.0						

/a Calculated from Table 3-4.4

/b Projects approved in 1974-77 as percent of projects approved in 1970-73.

/c Projects in Northern Region, as a percent of Peninsular projects, by incentive category.

/d A measure of locational bias in types of incentives and in the Northern Region. An index greater than 1 implies that a particular incentive is used relatively more frequently in the Northern Region than in the Peninsula.

/e A measure of the success of decentralization efforts. An index greater than 1 implies that the share of project received by the region exceeds its 1973 manufacturing establishment share in the Peninsula of 14.7%

Table A.3.4: STRUCTURE OF SELECTED INVESTMENT INCENTIVES /a IN MALAYSIA /b, 1970-1977

Incentive	1970	1971	1972	1973	1974	1975	1976	1977
Share of approved projects (%)								
Location incentive	-	-	-	-	-	2.2	1.6	2.8
Labor utilization relief	-	-	2.5	3.6	2.9	2.8	1.6	3.5
Pioneer status	51.8	49.2	44.5	37.8	31.6	20.6	24.7	26.5
Investment tax credit	9.3	7.2	2.8	5.5	5.9	9.1	17.9	14.0
Without incentive	38.0	37.7	47.6	49.9	58.1	62.5	52.5	54.5
Total (actual)	334	305	355	473	525	461	425	400
Share of potential employment (%)								
Location incentive	-	-	-	-	-	13.6	2.9	10.2
Labor utilization relief	-	-	4.1	5.5	4.6	3.3	3.1	5.5
Pioneer status	72.0	60.9	72.2	60.4	52.6	25.4	46.4	36.7
Investment tax credit	8.6	18.9	4.7	10.3	13.4	11.4	14.5	9.7
Without incentive	18.7	14.7	17.8	20.0	28.4	42.6	31.5	37.6
Total (actual)	47,232	48,717	56,449	81,510	71,378	36,171	32,265	29,632
Share of approved capital (%)								
Location incentive	-	-	-	-	-	27.1	5.0	27.7
Labor utilization relief	-	-	2.1	2.3	1.1	1.6	.8	6.7
Pioneer status	72.6	61.3	71.3	67.4	60.4	20.8	48.7	30.0
Investment tax credit	8.8	13.6	7.8	10.8	10.2	20.3	20.3	12.9
Without incentive	18.2	11.4	15.4	17.9	27.8	27.7	23.2	21.2
Total (actual)	1,138.9	1,304.8	795.4	1,288.8	1,878.8	1,386.6	1,021.3	705.5
Average number of employees/project								
Location incentive	-	-	-	-	-	491.9	135.0	216.5
Labor utilization relief	-	-	255.9	264.1	219.2	92.5	142.6	148.4
Pioneer status	196.5	197.9	257.9	275.0	226.2	96.7	142.7	102.6
Investment tax credit	131.3	418.0	264.7	323.6	308.3	98.0	0	51.5
Without incentive	69.5	62.5	54.5	69.0	66.5	53.5	45.5	53.5
Total (actual)	141.4	159.7	159.0	172.3	172.3	78.5	75.9	74.1
Average capital /c intensity (1,000 M$/employee)								
Location incentive	-	-	-	-	-	75.4	54.4	64.6
Labor utilization relief	-	-	7.2	6.6	6.6	17.9	7.9	29.0
Pioneer status	24.3	27.0	13.9	17.6	17.6	30.9	33.2	19.5
Investment tax credit	24.6	19.3	23.4	16.6	16.6	67.3	44.0	31.5
Without incentive	23.5	20.6	12.2	14.2	14.2	24.6	23.4	13.4
Total (actual)	24.1	26.8	14.1	15.8	15.8	37.8	31.7	23.8

/a Other incentives not specified included in total, therefore sum of shares does not equal 100%.

/b Includes Sabah and Sarawak.

/c Approved capital.

Source: Spinanger, Regional Industrialization Policies in a Small Developing Country: A Case Study of West Malaysia, Table 22 (Kiel: Institut fur Wieltirtschaft, 1980).

Table A.3.5: APPROVED PROJECTS BY IMPELEMENTATION PROGRESS IN MALAYSIA, KELANTAN, AND TRENGGANU, 1970-74 and 1975-80

Implementation stage	Period	Malaysia	Kelantan	Trengganu
Projects approved (Abs.)	1970-74	1,991	11	20
	1975-80	2,658	54	43
Projects implemented (%)	1970-74	57.6	54.6	25.0
	1975-80	59.6	38.9	62.8
Projects in initial implementation stages (%)	1970-74	3.2	-	-
	1975-80	26.0	25.9	30.2
Projects not implemented (%)	1970-74	39.2	45.5	75.0
	1975-80	14.4	35.2	7.0

Source: Table 3-4.2.

Table A.4.1: MANUFACTURING EMPLOYMENT AND GDP, KELANTAN AND TRENGGANU, 1974

Sector	Kelantan Value added ('000s)	Kelantan Employment	Trengganu Value added ('000s)	Trengganu Employment
Food manufacture	4,523	497	6,674	500
Beverages	89	47	93	48
Tobacco	3,673	3,389	498	726
Textiles	911	517	476	252
Wood, Wood and cork products exc. furniture	8,834	1,653	11,703	1,967
Furniture & fixtures exc. primarily of metal	296	151	95	44
Printing, publishing & allied products	965	705	104	82
Rubber products	6,448	399	-	-
Nonmetallic mineral products	141	80	225	135
Fabricated metal products exc. machinery and equip't.	236	78	-	-
Machinery excl. electrical	420	103	433	99
Others	1,546	627	3,276	342
Total	28,082	7,749	23,579	4,187

Source: Census of Manufacturing 1974 (covers mainly establishments with 10 employees and more).

Table A.5.1. ESTIMATED PAID INDUSTRIAL EMPLOYMENT IN KELANTAN, 1970 and 1980

	Kelantan 1970	Kelantan 1980	Annual growth rate (%)	Kota Bharu 1980
Rubber	267	686	9.9	395
Coconut	146	327	8.4	96
Ice cream confectionary	16	106	20.8	103
Balseoris and noodles	53	57	0.7	31
Spice & soya extracts	6	8	2.9	6
Biscuit making	11	13	1.7	10
Coffee	13	13	0.0	10
Rice & feed mill	272	725	10.3	184
Ice factories	9	26	11.2	13
Textiles & batik	158	828	18.0	781
Furniture, wood & boat building	160	1,190	27.2	230
Footwear	45	295	20.7	289
Tobacco	2,906	14,522	17.4	1,801
Soft drinks	9	159	33.3	155
Tire retreading	60	125	7.6	125
Matches	120	190	4.7	190
Chemicals & fertilizers	40	255	20.4	80
Clay & stone products, incl. precious stones	180	2,015	27.3	1,235
Iron & metal	105	185	5.8	125
Machinery & engineering	110	430	14.6	410
Plastics	20	75	14.1	75
Sawmills	484	1,180	9.3	306
Unadjusted Total	5,274	23,699	16.2	6,935
Undistributed Total	-	8,220	-	2,404
Total	5,274	31,919	19.7	9,339

Source: Kelantan SEPU.

Table A.5.2. INDUSTRIAL EMPLOYMENT BY SECTOR IN KOTA BHARU MUNICIPALITY, 1980

Sector	Total employment	Number of establishments	Employees per establishment
Food & beverage	407	42	9.7
Batik & songket	846	95	8.9
Tailoring	163	71	2.3
Handicraft other than batik	27	6	4.5
Wood processing & sawmilling	257	11	21.4
Furniture & wooden articles	464	65	7.1
Tin & other metal products	224	41	5.5
Bricks & cement works	163	27	6.0
Plastic & plastic ware	85	5	17.0
Tire retreading	62	3	21.0
Printing & publishing	170	7	24.3
Others	1,808	26	69.5
Total Employment	4,676	399	11.7

Source: Kota Bharu Urban Development Study (P.G. Pak-Poy and Associates (M), et al. September 1980).

Table A.7.1: URBAN POPULATION GROWTH IN PENINSULAR MALAYSIA

Census	Population (000's)			Percent urban	Average Annual Growth Rate (%)			Urban rural differential	Number of Urban centers	Average annual growth rate of towns that were urban at period start
	Total	Urban	Rural		Total	Urban	Rural			
1911	2,339.0	250.3	2,088.7	10.7	-	-	-	-	n.a.	-
1921	2,906.7	406.9	2,499.8	14.0	2.2	5.0	1.8	3.2	11	n.a.
1931	3,787.8	572.0	3,215.8	15.1	2.7	3.5	2.6	0.9	16	2.4
1947	4,908.1	927.6	3,980.5	18.9	1.6	3.1	1.3	1.8	22	2.6
1957	6,278.7	1,663.9	4,614.8	26.5	2.4	6.0	1.5	4.5	38	4.8
1970	8,780.7	2,528.8	6,251.9	28.8	2.6	3.3	2.4	0.9	49	2.9
(1976)				(26.5)						
1980	11,136.2	4,163.0	6,973.2	37.4	2.4	5.1	1.1	4.0	58	4.8

Source: Statistics Department, except for the number of urban centers which are taken from Suresh Naraganan, "Urban In-Migration and Urban Labor Absorption: A Study of Metropolitan Urban Selangor" (Thesis submitted to the Faculty of Economics and Administration, University of Malaysia, February 1975).

Table A.7.2: INDUSTRIAL PROFILE OF URBAN EMPLOYMENT, EAST COAST STATES, 1976

Employment	Agriculture, forestry, hunting, fishing	Mining & Quarrying	Manu-facture	Electric-ity, gas, water	Con-struction	Wholesale, retail, restaurants, hotel	Transport, storage, communi-cation	Finance, insurance, real est., bus. serv.	Community, social & personal services	Own activities	Total employ-ment
Employment											
Kelantan	7,902	39	4,355	385	2,158	11,101	2,351	694	9,328	231	38,544
Trengganu	6,926	147	4,900	221	3,537	8,400	2,174	774	8,694	1,068	36,841
Pahang	6,937	86	5,610	300	3,597	10,406	2,227	1,670	10,620	1,370	42,821
Total Peninsula	51,041	8,834	191,405	11,779	74,599	228,704	72,636	43,189	259,133	40,244	981,563
Employment (%)											
Kelantan	20.5	0.1	11.3	1.0	28.8	28.8	6.1	1.8	24.2	0.6	100.0
Trengganu	18.8	0.4	13.3	0.6	22.8	22.8	5.9	2.1	23.6	2.9	100.0
Pahang	16.2	0.2	13.1	0.7	24.3	24.3	5.2	3.9	24.8	3.2	100.0
Total Peninsula	5.2	0.9	19.5	1.2	23.3	23.3	7.4	4.4	26.4	4.1	100.0

Source: 1977 Agricultural Census.

Table A.7.3: POPULATION SIZE OF URBAN AREAS IN SELECTED STATES, 1957, 1970 and 1980

State	Urban area	Population 1957	Population 1970	Population 1980	Population 1980/1	Average Annual Growth Rate (%) 1957-70	Average Annual Growth Rate (%) 1970-80	Average Annual Growth Rate (%) 1970-80 /1
Kelantan	Kota Bharu	38,103	55,124	170,559	65,476	2.9	12.0	1.7
	Pangal Kalong	11,248	14,426	22,622	22,622	1.9	4.6	4.6
	Peringat	-	11,806	14,283	14,283	-	1.9	1.9
	Pasir Mas	-	11,233	13,733	13,733	-	2.0	2.0
	Tumpat	-	10,673	-	-	-	-	-
	Kadole	-	-	12,020	12,020	-	-	-
	Kuala Kra	-	-	12,757	12,757	-	-	-
Total Urban		49,351	103,262	245,974	128,134	5.8	9.1	2.2
Trengganu	Kuala Trengganu	29,446	53,320		66,971	4.7		2.3
	K.T. West	-	14,487	} 184,342	n.a.	-	} 8.8	n.a.
	K.T. Central	-	11,588		n.a.	-		n.a.
	Dungun	12,515	17,506	29,569	17,262	2.6	5.4	-0.1
	Chuka	10,803	12,514	16,059	16,059	1.1	2.5	2.5
Total Urban		52,764	109,415	229,970	n.a.	5.8	7.7	n.a.
Melaka	Melaka	69,848	87,160	88,073	88,073	1.7	0.1	0.1
	Bukit Bharu	-	14,377	17,559	17,559	-	2.0	2.0
Total Urban		69,848	101,537	105,632	105,632	2.9	0.4	0.4
N. Sembilan	Seremban	52,091	80,921	136,252	83,954	3.4	5.3	0.4
	Kuala Pilah	12,024	12,508	12,556	12,556	0.3	0.0	0.0
	Port Dickson	-	10,300	24,035	11,261	-	8.8	0.9
	Junpol	-	-	10,520	10,520	-	-	-
Total Urban		64,115	103,729	183,363	118,291	3.8	5.9	1.3
Pahang	Kuantan	23,100	43,400	136,625	77,000	4.5	12.2	5.9
	Bentong	18,800	22,700	23,507	23,507	1.5	.4	.4
	Raub	15,400	18,400	23,184	23,184	1.4	2.3	2.3
	Mentakab	12,300	17,300	13,851	13,851	2.7	-2.2	-2.2
	Kuala Lipis	-	-	10,263	10,263	-	-	-
Total Urban		69,600	101,800	207,430	207,430	3.0	7.4	1.2

/1 Based on 1970 areas boundaries.

Source: Statistics Department.

Table A.7.4(P.1): 1970 /1 AND 1978 MANUFACTURING SECTOR STATISTICS FOR THE EAST COAST (A)

Area	Year	Number of establishment	Gross value of production (M$ 000)	Cost of materials consumed (M$ 000)	Value added (M$ 000)	Number of Workers		
						Paid		Unpaid
						Fulltime	Parttime	Proprietors
Kelantan	1970	112	61,828	47,795	13,531	3,471	169	191
	1978	152	160,003	113,333	46,671	6,255	465	228
Kota Bahru Dist	1970	90	55,764	43,911	11,351	2,647	116	158
	1978	104	93,749	65,619	28,130	3,321	259	156
Kota Bahru Town	1970	87	55,348	43,608	11,236	2,603	116	153
	1978	96	90,634	65,775	26,146	3,101	244	146
Tumpat Dist	1970	3	524	368	155	29	42	4
	1978	6	6,994	5,185	1,810	182	20	13
Tumpat Town	1970	-	-	-	-	-	-	-
	1978	5	718	522	196	132	20	13
Pasir Mas Town	1970	4	847	546	302	103	-	7
	1978	13	7,963	5,917	2,046	747	93	16
Pasir Mas Town	1970	-	-	-	-	-	-	-
	1978	11	6,823	5,144	1,679	632	93	11
Tanah Merah Dist	1970	3	1,912	1,245	667	275	-	6
	1978	7	20,218	17,613	2,605	410	8	10
Tanah Merah Town	1970	-	-	-	-	-	-	-
	1978	6	20,055	17,494	2,561	375	4	7
Other /2	1970	12						
	1978	22						

Table A.7.4(P.2): 1970 /1 AND 1978 MANUFACTURING SECTOR STATISTICS FOR THE EAST COAST (B)

Area	Year	Number of establishment	Gross value of production (M$ 000)	Cost of materials consumed (M$ 000)	Value added (M$ 000)	Number of Workers		
						Paid		Unpaid Proprietors
						Fulltime	Parttime	
Trengganu	1970	40	17,722	10,162	7,558	1,821	16	50
	1978	80	257,886	186,748	71,138	5,033	142	64
Kuala Trengganu Dist.	1970	21	7,526	4,565	2,960	1,007	16	29
	1978	36	56,796	30,796	26,000	2,074	22	30
Kuala Trengganu Town	1970	21	7,526	4,565	2,960	1,007	16	29
	1978	33	56,103	30,463	25,640	1,996	20	27
Besut Dist	1970	4	1,673	590	1,083	84	-	4
	1978	13	10,048	7,335	2,713	602	12	18
K. Besut Town	1970	-	-	-	-	-	-	-
	1978	4	1,597	989	608	119	-	5
Dungun Dist.	1970	6	4,142	1,997	2,145	445	-	8
	1978	7	9,778	4,439	5,339	305	90	3
K. Dungun Town	1970	6	4,142	1,997	2,145	445	-	8
	1978	3	2,649	1,406	1,243	110	45	3
Kemaman Dist.	1970	4	3,481	2,420	1,061	215	-	2
	1978	13	122,258	112,164	21,094	916	8	3
Chukai Town	1970	-	-	-	-	-	-	-
	1978	3	11,382	8,83	2,552	290	1	2
Other	1970							
	1978							

Table A.7.4(P.3): 1970 /1 AND 1978 MANUFACTURING SECTOR STATISTICS FOR THE EAST COAST (C)

Area	Year	Number of establishment	Gross value of production (M$ 000)	Cost of materials consumed (M$ 000)	Value added (M$ 000)	Number of Workers		
						Paid		Unpaid Proprietors
						Fulltime	Parttime	
Pahang	1970	126	81,061	53,910	27.714	5,544	143	140
	1978	191	623,734	403,365	220,369	17,722	134	133
Kuantan Dist.	1970	60	30,451	20,983	9,288	1,993	15	81
	1978	89	197,185	135,548	61,637	4,670	78	67
Kuantan Town	1970	55	28,625	19,896	8,552	1,851	13	73
	1978	83	180,418	124,518	55,900	4,298	77	67
Temerloh Dist.	1970	22	22,492	14,099	8,982	1,532	10	16
	1978	47	208,971	131,399	77,572	7,354	41	35
Temerloh Dist.	1970	5	6,982	3,960	3,960	346	3	5
	1978	20	120,030	70,425	70,425	4,848	33	13
Mentakab Town	1970	12	6,450	6,450	6,450	886	2	9
	1978	19	35,359	35,359	35,359	1,896	3	16
Other	1970	6						
	1978	3						

/1 1970 and 1978 data are not strictly comparable over time although they can be used for estimting ratios for each year.

/2 Kuala Krai, Bachok, Pasir Puteh and Machang available quarterly, but not Jeli, Dabong and Gua Musang.

Source: Statistics Department.

Table A.7.5: EAST COAST DISTRICT POPULATIONS, 1980

State/District	1970	1980
Kelantan Total	686,300	875,575
Kelantan, Coast /1	624,400	794,454
Bachock	62,200	76,774
Kota Bharu	207,800	281,161
Marang	51,600	59,194
Pasir Mas	100,700	122,246
Pasir Puteh	71,100	84,321
Tanah Merah	57,900	81,414
Tumpat	73,100	89,344
Trengganu Total	405,500	542,280
Trengganu Coast /2	371,800	496,477
Besut	79,200	102,964
Dungun	54,500	60,543
Kemaman	44,900	66,187
Kuala Trengganu	173,500	241,271
Marang	19,700	
Pahang Total	504,900	770,644
Pahang Coast /3	167,200	229,931
Kuantan	96,900	170,040
Pekan	70,300	59,891

Source: Preliminary field counts of 1980 Census.

/1 Excludes the districts of Ulu Kelantan and Kuala Krai with populations of 15,252 and 67,869 respectively (together in 1970: 61,800).

/2 Excludes the district of the Trengganu, population 45,803 (1970: 33,700).

/3 Excludes the districts of Burbong, Cameron, Highlands, Terankut, Lipis, Rauls, Ternerloh and Rompin.

Table A.8.1: KOTA BHARU MUNICIPAL AND DISTRICT POPULATIONS, 1970 AND 1980

	1957	1970	1980	Average annual growth rate 1957-70	1970-80
Kota Bharu Municipal Area					
Former Town Board	38,103	55,124	65,476	2.9%	1.7%
Expansion Area		65,513	105,083		4.8%
		120,637	170,559		3.5%
Nonmunicipal Areas Within District		86,757	110,602		2.5%
Kota Bharu District Total	150,900	207,394	281,161	2.5%	3.1%

Sources: Preliminary Field Count Summary, 1980 Population and Housing Census of Malaysia (Kuala Lumpur: Statistics Department, October 1980); Kota Bharu Urban Development Study, Technical Working Paper No. 6: Projection of Population, Housing and Other Urban Facilities (P.G. Pak-Poy and Associates (M), et al., November 1980); and unpublished field count data from the 1980 census.

Table A.8.2: KUALA TRENGGANU MUNICIPAL AND DISTRICT POPULATIONS, 1957--80

	1957	1970	1980	Average annual growth rate 1957-70	1970-80
Kuala Trengganu Municipal Area					
Former Town Board	29,436	53,353	66,971	4.7%	2.3%
Expansion Area			117,371		
Total			184,342		
Non-municipal Areas Within District			56,929		
Kuala Trengganu District					
Total	124,428	173,304	241,271	2.6%	3.4%

Sources: Preliminary Field Count Summary, 1980 Population and Housing Census of Malaysia, (Kuala Lumpur: Statistics Department, 1980); Trengganu Coastal Region Study, Vol. 2, Chapter 1, (Maunsell and Partners, et al., 1980); and unpublished field count data from the 1980 census.

Table A.8.3: ETHNIC COMPOSITION OF KOTA BHARU MUNICIPAL POPULATION, 1980

	Town Board		Expansion Area		Total /a	
Malay	47,900	74.3%	104,616	97.9%	150,269	88.9%
Chinese	15,500	24.0%	2,146	2.1%	17,646	10.4%
Indian	700	1.1%	83	0.1%	783	0.5%
Other	400	0.6%	18	0.0%	418	0.2%
Total	64,500	100.0%	104,616	100.0%	169,169	100.0%

/a The 13,113 respondents whose ethnic group was not reported in the consultants' survey have been assigned to ethnic groups in the same proportions as the distribution of respondents whose ethnic origins were reported.

Source: Kota Bharu Urban Development Study, Technical Working Paper No. 6: Projection of Population, Housing and Other Urban Facilities, Tables 6 and 7 (P.G. Pak-Poy and Associates (M), et al., November 1980).

Table A.8.4: ETHNIC COMPOSITION OF KUALA TRENGGANU TOWN COUNCIL AREA AND DISTRICT, 1970

	Town Council		Other Areas		District Totals	
Malay	43,482	81.5%	118,748	98.8%	162,230	93.5%
Chinese	8,762	16.4%	1,395	1.2%	10,157	5.9%
Indian	948	1.8%	52	0.0%	1,000	0.6%
Other	128	0.2%	19	0.0%	147	0.1%
Total	53,320	100.0%	120,214	100.0%	173,534	100.0%

Source: Community Groups, 1970 Population and Housing Census of Malaysia, Table 24 (Kuala Lumpur: Statistics Department, 1972).

Table A.8.5: LAND USE IN KOTA BHARU MUNICIPAL AREA, 1980

Use	Fomer Town Board Area		Municipal Expansion Area		Total area	
	Acres	Percent	Acres	Percent	Acres	Percent
Residential	1,312	48	2,327	9	3,639	13
Commercial	132	5	134	1	266	1
Industrial	62	2	99	0	161	1
Educational	137	5	241	1	378	1
Government	96	3	598	2	694	2
Recreational	70	3	214	1	284	1
Cemetary	13	0	111	0	124	0
Roads	127	5	748	3	875	3
Agricultural	120	4	18,744	73	18,864	66
River	394	14	572	2	966	3
Vacant	287	10	2,039	8	2,326	8
Total	2,750	100	25,826	100	28,576	100

Source: Kota Bharu Urban Development Study, Technical Working Paper No. 2: Land Suitability Analysis, Table 13, p. 39 (P.G. Pak-Poy and Associates (M), et al., November 1980).

Table A.8.6: LAND USE IN KUALA TRENGGANU MUNICIPAL AREA
(acres)

Use	1970	%	1974	%
Urban areas (incl. built-up areas)	1,980	4.3	2,670	5.8
Paddy land	10,420	22.5	16,210	35.0
Other agricultural areas	15,110	32.6	17,970	38.8
Swamps	10,010	21.6	3,220	6.9
Grassland (incl. pastures, tall grass, bushes)	2,350	5.1	1,190	2.6
Forest areas	3,710	8.0	2,320	5.0
Rivers	2,711	5.9	2,711	5.9
Total	46,291	100.0	46,291	100.0

Source: Kelantan Town and Country Planning Department, Kuala Trengganu.

Table A.8.7: HOUSEHOLD INCOMES IN KAMPONG LADANG MENGABANT-KUBOR-KUBOR TOK PELAM, 1978

Monthly income (M$)	% of households
150 - 199	42
200 - 299	23
300 - 399	14
400 - 499	7
500 - 999	9
1,000 and over	5

Source: Trengganu State Economic Planning Unit.

Table A.8.8: DISTRIBUTION OF MONTHLY GROSS HOUSEHOLD INCOME FOR URBAN HOUSEHOLDS, 1976

Monthly gross household income class (M$)	Northeastern States		Northern States /a		Other Peninsular States	
	Absolute percentage	Cumulative percentage	Absolute percentage	Cumulative percentage	Absolute percentage	Cumulative percentage
Less than 100	14	14	4	4	2	2
100-149	11	25	5	9	2	4
150-199	10	35	7	16	4	8
200-299	19	54	20	36	13	22
300-399	11	65	16	52	14	36
400-499	8	73	11	63	12	47
500-599	5	79	7	70	9	56
600-799	7	85	10	79	12	68
800-999	5	90	5	84	8	76
1,000-1,499	5	95	8	92	11	87
1,500-1,999	2	97	4	96	5	92
2,000 or more	3	100	4	100	8	100

/a Kedah and Perlis.

Source: 1977 Agricultural Census, unpublished data, Statistics Department.

Table A.8.9: ESTIMATED HOUSING AFFORDABILITY FOR URBAN HOUSEHOLDS IN THE NORTHEAST, 1981

Monthly Gross Household Income /a (M$)	Percentage of Urban Households in Northeast /a		Affordable Monthly Expenditure on Housing		Financial Terms /c			Affordable Purchase Price (M$)	Development Cost Assuming 30% Subsidy (M$)
	Absolute	Cumulative	% of income/b	Amount (M$)	Down Payment (%)	Interest Rate (%)	Repayment Period (years)		
Less than 178	14	14	15	less than 27	0	5.5	25	Less than 4,348	Less than 6,211
178-265	11	25	16	28-43	0	5.5	25	4,638-6,930	6,625-9,900
266-354	10	35	16	43-57	0	5.5	25	6,931-9,250	9,901-13,214
355-532	19	54	17	60-91	0	5.5	25	9,828-14,755	14,040-21,079
533-709	11	65	19	101-135	10	5.5	20	18,323-24,408	
710-1,064	14	79	20	142-213	20	9.0	15	28,905-43,356	
1,065-1,774	11	90	20-25	213-444	20	9.0	15	43,356-90,327	
1,775 or more	10	100	25	445 or more	25	9.0	15	96,349 or more	

/a The distribution of monthly gross household income for urban households in Kelantan and Trengganu from the 1976 Agricultural Census (unpublished data, Statistics Department) was increased to reflect the estimated growth of household incomes during 1976-81. During 1976-79, the mean urban household income in peninsular Malaysia increased at an average annual rate of 5.86% in constant prices and 10.54% in current prices (Fourth Malaysia Plan 1981-1985, Table 3-9, p. 56). A real growth rate of 5.86% per annum is also assumed for 1979-81, and increases in the Consumer Price Index of 7.0% in 1980 and 9.6% in 1981 are taken into account. Assuming that the shape of the household income distribution in the Northeast remained unchanged and that the average rates for the entire peninsula are applicable to the Northeast, each 1976 income range was increased by 77.5% to estimate the growth during 1976-81. The estimated income distribution is quite similar to a distribution based on a socio-economic survey conducted inKota Bharu in 1980; see Chart A.8.1.

/b Comparable housing expenditure patterns are assumed in Table 3.5, p. 26, of Malaysian Housing Scenario (report of the Task Force of the National Consultative Council, May 1980).

/c Comparable to the terms assumed in ibid., Table 3.6, p. 28.

Table A.9.1: KOTA BHARU MUNICIPALITY INCOME AND EXPENDITURES, 1978-80
(M$)

	1978	1979	1980
CURRENT INCOME			
Locally Generated			
Rates	1,203,970	1,180,809	1,082,165
State contribution in lieu of rates	46,548	46,548	70,182
Federal contribution in lieu of rates	-	30,524	30,524
Licenses	305,170	306,125	330,875
Fees & charges	684,101	802,685	894,823
Income from assets	-	-	500,702
Miscellaneous	241,837	273,977	75,946
	2,481,626	2,640,668	2,985,217
(Locally generated current income per 1980 capita)			(17.50)
Annual Grants			
State Government	-	500,000	500,000
Federal Government	107,888	107,500	107,500
	107,888	607,500	607,500
Total Current Income	2,589,514	3,248,168	3,592,717
(Total Current Income per 1980 capita)			(21.06)
CURRENT EXPENDITURE			
Emoluments	856,050	2,374,138	3,254,210
Building maintenance & repairs	49,622	48,871	51,456
Other current expenditure	738,139	954,887	1,238,144
Total Current Expenditure	1,643,811	3,377,896	4,543,810
CAPITAL INCOME			
Federal launching grant	1,022,250	477,750	-
Federal & state loans & grants /a	89,250	697,000	11,460,704
Total Capital Income	1,111,500	1,174,750	11,460,704
CAPITAL EXPENDITURE (By Source)			
Municipal funds	60,928	120,331	303,696
Federal launching grant	471,404	558,550	468,764
Federal & state loans & grants	559,769	41,155	4,392,515/b
Total Capital Expenditure	1,092,101	720,036	5,164,975

/a All grants except $575,000.
/b The major item was construction of a ring road.

Note: The municipality accounts are not consistently maintained in accord with modern accrual accounting system concepts and practices.

Source: Kota Bharu Municipality.

Table A.9.2: KUALA TRENGGANU MUNICIPALITY INCOME AND EXPENDITURES, 1978-80 (M$)

	1979	1980
CURRENT INCOME		
Locally Generated		
Rates	974,170	1,158,692
Licenses	285,803	315,915
Fees & charges	95,446	152,524
Reimbursements	2,999	4,126
Miscellaneous	397,292	792,014
	1,755,710	2,423,271
(Locally generated current income per 1980 capita)		(13.15)
Annual Grants		
State Government	3,000,000	3,010,000
Federal Government	107,500	107,500
	3,107,500	3,117,500
Total Current Income	4,863,210	5,540,771
(Total Current Income per 1980 capita)		(30.05)
CURRENT EXPENDITURE		
Emoluments	1,971,175	2,853,859
Maintenance & repairs	65,317	994,595
Other current expenditure	430,995	
Write-off	40,847	18,801
Depreciation	86,508	209,830
Total Current Expenditure	2,594,842	4,077,085
CAPITAL INCOME		
Federal launching grant	1,131,100	368,900
Projects Grants	-	1,990,000
Total Capital Income	1,131,100	2,358,900
CAPITAL EXPENDITURE	350,294	1,348,518

Note: Modern accrual concepts and practices are not applied consistently.

Source: Kuala Trengganu Municipality.

Table A.10.1: PROJECTED WATER DEMAND IN THE SOUTHERN TRENGGANU COASTAL CORRIDOR, 1980-2010

Area	1980	1985	1990	2000	2010
Population					
Dungun	35,118	39,155	43,655	54,268	67,462
Chukai	25,384	31,182	38,303	57,798	87,215
Kerteh	15,131	22,958	29,658	51,508	77,005
Others	13,223	14,852	16,694	21,145	26,820
Total	88,856	108,147	128,310	184,719	258,502
Water Demand (mgd)					
Dungun	1.43	4.24	4.94	6.29	7.82
Chukai	1.95	14.89	24.19	36.21	43.01
Kerteh	0.40	4.10	6.03	9.54	13.22
Total	3.78	23.23	35.16	52.04	64.05

Source: Water Resources Development for Domestic and Industrial Uses in the Southern Coastal Trengganu Region, Interim Report, March 1981.

Table A.10.2: MANUFACTURING EMPLOYMENT AND TOTAL POPULATION PROJECTIONS FOR KERTEH NEW TOWN, 1980-2000

	1980	1985	1990	1995	2000
Manufacturing Employment/a					
Low profile			1,360/b	1,790	2,284
Medium profile	253	1,093	1,760	2,732	4,240
High profile			2,198	3,731	6,333
Kerteh New Town Population					
Low profile			13,885	15,709	17,772
Medium profile	6,083	12,270	17,563	23,861	36,028
High profile			22,577	33,669	57,013

/a Total for urban and rural areas in Kerteh, Kemasek and Pekan; almost all of the new industrial employment is assumed to be located in the Kerteh Industrial Estate.

/b The value reported in Table 5.8 of the Kerteh New Town Plan is misprinted as 3,160.

Source: Town and Country Planning Department, Ministry of Housing and Local Government, Kerteh New Town Development Plan, Vol. 1, Tables 5.4 and 5.7-5.12 (April 1981).

Table A.10.3: ESTIMATED HOUSING REQUIREMENTS FOR TELOK KALONG INDUSTRIAL ESTATE

Estimated Employment on the Estate, 1988		
Heavy Industries		
DR/billet, cold rolling steel mill		1,940
Ammonia, methanol		440
Ethylene, LDPE, HDPE		760
Other industries		800
		3,940
Estimation of Required Housing	(1)	(2)
Estimated new industrial employment	3,940	3,940
Migrant proportion of workers	0.4	0.8
Number of migrant industrial workers (1 x 2)	1,576	3,152
Induced service employment (3 x 0.3)	473	946
Total units required (3 + 4)	2,049	4,098

Source: Preliminary Development Plan Study for Telok Kalong and Kerteh Industrial Estates, Trengganu, pp. 169-72 (Engineering Consulting Firms Association, Japan, March 1981).

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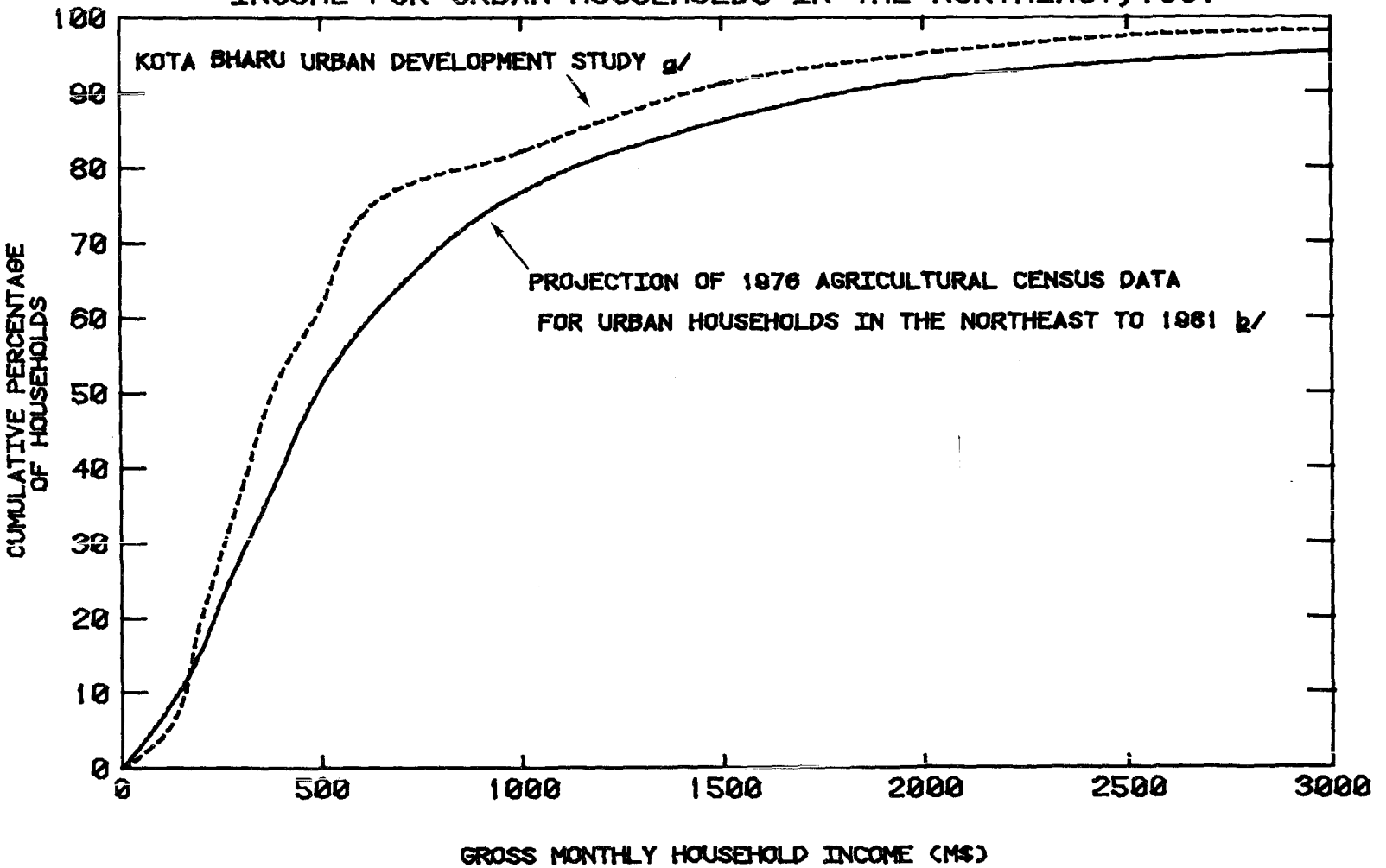
CHART A.8.1
ESTIMATED DISTRIBUTION OF GROSS MONTHLY HOUSEHOLD INCOME FOR URBAN HOUSEHOLDS IN THE NORTHEAST, 1981



a. P.G.PAK-POY AND ASSOCIATES (M), et al, KOTA BHARU URBAN DEVELOPMENT STUDY, TECHNICAL PAPER NO. 6: PROJECTION OF POPULATION, HOUSING AND OTHER URBAN FACILITIES, TABLE 18, PAGE 45 (NOVEMBER 1980)
b. TABLE A.8.9

CHART A.9.1

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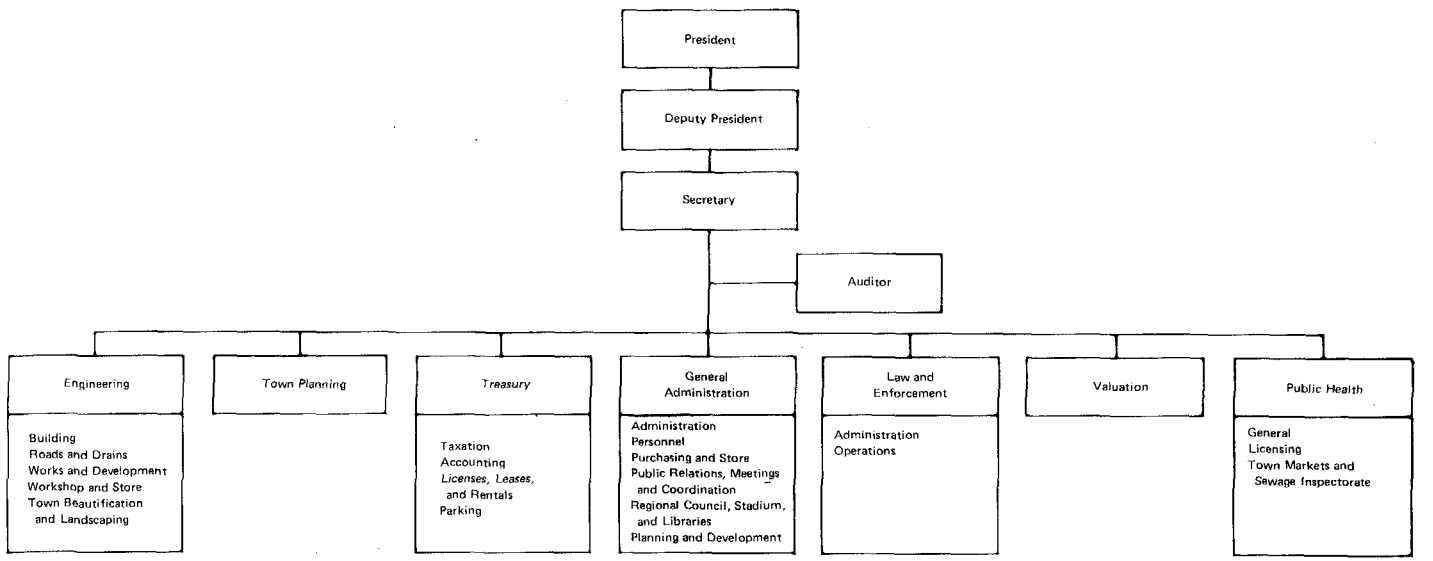
Organization and Staffing of the Kota Bharu Municipality, 1981



Staffing Levels	Engineering Approved	Engineering Actual	Town Planning Approved	Town Planning Actual	Treasury Approved	Treasury Actual	General Administration Approved	General Administration Actual	Law and Enforcement Approved	Law and Enforcement Actual	Valuation Approved	Valuation Actual	Public Health Approved	Public Health Actual	Total[1] Approved	Total[1] Actual
Professional and Managerial																
Senior[2] (A–9 and A–10)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2 (100%)
Other	2	1	1	1	1	1	2	2	1	0	0	0	1	1	8	6 (75%)
Technical and Semi-Professional																
Senior[2]	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1 (100%)
Other	7	6	1	1	2	2	2	2	1	1	1	0	6	1	21	13 (62%)
Clerical																
Senior[2]	1	1	0	0	1	1	2	2	1	1	0	0	0	0	5	5 (100%)
Other	19	12	3	3	13	11	11	5	1	1	4	3	10	5	63	40 (63%)
Manual																
Senior[2]	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0 (0%)
Other	150	62	1	1	160	129	14	5	29	15	6	2	342	335	795	549 (69%)
Total	179	82	6	6	177	144	31	16	33	18	11	5	361	343	896	616 (69%)

Notes: 1. Includes Deputy President, Secretary, Auditor and their support staff.
2. Includes special grade and super scale posts.

Source: Kota Bharu Municipality.

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CHART A.9.2
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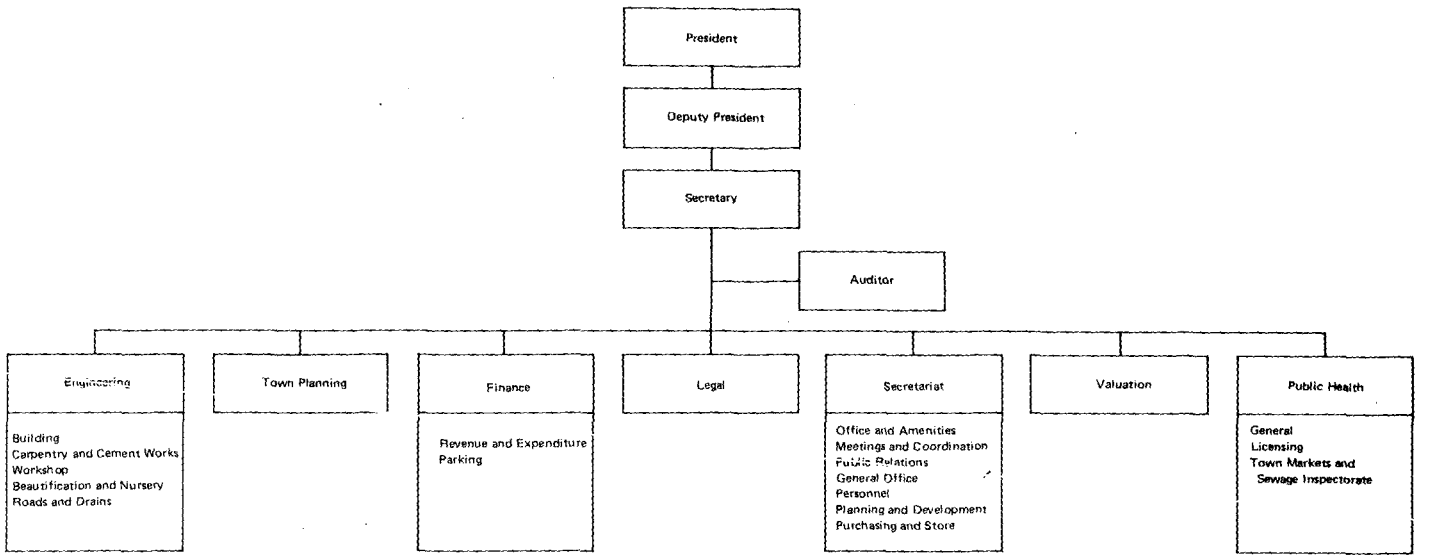
THE DEVELOPMENT OF THE NORTHEAST
Organization and Staffing of the Kuala Trengganu Municipality, 1981



Staffing Levels	Engineering Approved	Engineering Actual	Town Planning Approved	Town Planning Actual	Finance Approved	Finance Actual	Legal Approved	Legal Actual	Secretariat Approved	Secretariat Actual	Valuation Approved	Valuation Actual	Public Health Approved	Public Health Actual	Total[1] Approved	Total[1] Actual
Professional and Managerial																
Senior[2] (A-9 and A-10)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2 (100%)
Other	3	1	1	0	1	0	1	0	1	1	0	0	1	0	8	2 (25%)
Technical and Semi-Professional																
Senior[2]	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1 (100%
Other	6	5	1	0	1	1	1	1	1	1	1	1	5	2	17	11 (65%)
Clerical																
Senior[2]	1	0	0	0	2	2	1	0	2	2	1	0	1	1	8	5 (62%)
Other	12	7	3	0	12	8	2	1	13	9	8	8	24	12	76	47 (62%)
Manual																
Senior[2]	2	2	0	0	0	0	0	0	1	1	0	0	0	0	3	3 (100%)
Other	164	108	1	0	124	82	18	18	33	24	6	2	680	384	1,026	618 (60%)
Total	188	123	6	0	140	93	23	20	51	38	16	11	712	400	1,141	689 (60%)

Notes: 1. Includes Deputy President, Secretary, Auditor and their support staff.
2. Includes special grade and super scale posts.

Source: Kuala Trengganu Municipality.

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3-1	The Institutional Framework for Implementing the Regional Development Strategy in the Northeast
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REGIONAL DEVELOPMENT AND URBANIZATION IN THE NORTHEAST

A Comparison of State Income Levels and Targets Expressed in Terms of GDP and Household Income Per Capita

1. The government has set specific income targets to be achieved by each state by 1990, in line with its overall goal of narrowing income disparities among states by raising the per capita GDP of the lowest income state to at least two thirds of the national average by 1990. The targets are set in terms of per capita GDP which has the advantage of translating easily into sector-specific output and employment goals. On the other hand, per capita household income (referred to as "household income" below measures individual well-being more directly and has the advantage of permitting a more detailed analysis of the socioeconomic profile of income and poverty.

2. The two measures are close but by no means perfect substitutes. The correlation between the two measures in Table 1.3 of the volume 2 is 0.94. However, Kelantan's current economic position and recent performance are considerably worse when measured in terms of GDP than household income, and the FMP target is correspondingly more ambitious and difficult to attain (Table 1-1.1). Whereas Kelantan's household income in 1976 was 57% of the peninsular average, its per capita GDP in 1977 was only 46%, and whereas household income grew at an above average rate during 1970-76, per capita GDP grew below the peninsular average during 1971-77, with the result that Kelantan's relative income position declined rather than improved. Trengganu's experience, on the other hand, is almost the reverse. Its income gap, while still larger in GDP than household income terms, decreased more rapidly for the former than the latter measure (in part due to the expansion of the petroleum sector which affected output more than income), so that its future appears brighter when measured in GDP terms.

3. Finally, the case of Pahang is perplexing. The statistics imply that per capita GDP did not grow at all between 1977 and 1980, and consequently Pahang's per capita GDP decline from 98% of the peninsular average in 1971 to 92% in 1977 and 79% in 1980. This would reduce Pahang's per capita GDP rank from third to seventh, behind Perak which is often considered a borderline poverty state. To make such a sudden change plausible, a scenario can be imagined in which development during its initial phase raises GDP without significant increases in population. Only once land is productive are agricultural workers settled in great numbers, leading to a sudden large rise in population without concomitant GDP growth - as a rise in agricultural output is offset by a decline in development

expenditures and forestry output. There are unfortunately no data to substantiate this hypothesis, although it would have implications for the Northeast if true. Another problem is that the per capita GDP estimates are probably based on extrapolated population figures which would not have been sensitive to actual year-by-year population growth. The data are thus hard to explain and do not match other evidence none of which places Pahang among the poverty states.

4. There is no single obvious explanation for the differences between per capita GDP and household income in the Northeast. One explanation may be that the Northeast receives relatively larger remittances than the peninsula or that the Northeast retains a larger share of of its factor earnings. Either case would raise household income compared to per capita GDP. However, this explanation is not very plausible since remittance flows are closely related to net out-migration, which is small for the Northeast. It also seems unlikely that the Northeast is a recipient of disproportionate capital returns, although this would be possible if most capital in the Northeast were locally owned and a large share of capital elsewhere were in foreign hands. In the case of Trengganu, rising oil production is undoubtedly a factor in the GDP upsurge, particularly since 1977. However, as elsewhere, particularly in the case of Pahang, the possibility of data problems cannot be dismissed.

5. GDP growth targets for the Northeast and Kelantan in particular are exceedingly ambitious compared to peninsular average growth. For Kelantan's per capita GDP to be two thirds of the national average, it must grow at 9.9% per annum over the following decade or at almost twice the projected peninsular rate of 5.6%. This would imply raising Kelantan's relative income position by almost 50%.

6. Unfortunately, it is difficult to say what the growth in per capita GDP would mean for household income, since the sources of differences between GDP and household income are not fully understood, as explained above. For example, if one assumed that per capita household income in the peninsula grows at the same rate as per capita GDP (implying 202% growth during 1977-90 and, extrapolating backwards, 214% from 1976), then peninsular monthly household income would rise from M$95 in 1976 to M$203 in 1990 (in 1976 prices). If one assumes further with Turgoose /1 that states in 1990 will have the same gap, compared to the peninsula, in household income as in per capita GDP (which of course they did not in 1976/77), then Kelantan's monthly household income would be M$134 in 1990 (still in 1976 prices). However, Turgoose's assumption implies that household income may

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/1 Robert Turgoose, "A Review of Household Incomes by State and Region," State and Rural Development Project, 1981.

stagnate or even decline as per capita GDP grows, a not entirely convincing implication. An alternative, possibly more realistic assumption is that the household income gap is reduced in the same proportion as the per capita GDP gap. Under this assumption Kelantan's household income would be roughly 79% of the peninsular average in 1990, or M$150, whereas Trengganu's would be 93% of the peninsular average, or M$190.

7. Whether the growth targets are justified by the Northeast's potential is examined in Part Two of Volume 2. It probably cannot be helped that long term goals lack realism. It should be clear from the previous discussion, however, that the government has probably made it unnecessarily hard for itself to satisfy its targets. If its real goal is to raise the welfare of its most backward state to two thirds of the peninsular average, then the per capita household income measure would not only have been the more appropriate welfare index, but also one for which the "two thirds" target could be more easily satisfied.

ANNEX 1-1
Table 1-1.1

COMPARISON OF HOUSEHOLD INCOME AND GDP PER CAPITA, IN SELECTED STATES

	Kelantan	Trengganu	Pahang	Selangor /a	Peninsular Malaysia
Annual GDP per Capita /b (M$)					
1971	564	615	1,170	2,153	1,190
1977	746	987	1,487	2,961	1,613
1980	842	1,316	1,486	3,176	1,886
1990	2,157	2,959	3,672	4,251	3,262
Annual Income per Capita /c (M$)					
1970	337	387	634	938	601
1976	444	576	765	1,292	782
Annual GDP per Capita State Rank					
1971	12	11	4	1.2	-
1980	12	9	7	1.2	-
1990	12	7	4	1.2	-
Annual Income - State Rank					
1970	11	10	4-5	1.2	
1976	12	10	4-5	1.2	
GDP per Capita, Annual Rate of Growth (%)					
1971-77	4.8	8.2	4.1	5.5	5.2
1971-80	4.6	8.8	2.6	4.4	5.3
1980-90	9.9	8.4	9.5	3.0	5.6
GDP per Capita, Annual Rate of Growth (%)					
1970-1976	4.7	6.9	3.2	5.5	4.5
GDP per Capita as % of Peninsula					
1971	47.4	51.7	98.3	180.9	100.0
1977	46.2	61.2	92.2	183.6	100.0
1980	44.6	69.8	78.8	168.4	100.0
1990	66.1	90.7	12.6	130.3	100.0
Income per Capita as % of Peninsula					
1970	56.1	64.4	105.5	156.1	100.0
1976	56.8	73.7	97.9	137.9	100.0

/a Includes the Federal Territory.
/b From the FMP except for 1977, which is based on Turgoose: "Gross Regional Product: A Review" (State and Rural Development Project, May 1980).
/c Annual per capita household income, from Table 1.5 in the Main Report after deflating by 0.686 from 1976 to 1970 prices using the consumer price index.
/d For comparability with statistics elsewhere, Selangor/Federal Territory and Kedah/Perlis are each counted as 2 states.

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REGIONAL DEVELOPMENT AND URBANIZATION IN THE NORTHEAST

Social Indices of Regional Disparities

1. Chapter 1 presents data on disparities among regions in terms of household income, GDP per capita and the incidence of poverty. This annex supplements this data with information about motor vehicle registrations, water supply, electricity consumption, health and education (Table 1-2.1).

Motor Vehicles

2. Because motor vehicles have a relatively high income elasticity, disparities in motor vehicle registration should exceed income disparities, which is true for the Northeast. In Trengganu, total motor vehicle registration is 59% below the peninsular average, compared to an income disparity of 36%, while in Kelantan the respective disparities are 47% and 43%. By similar reasoning, disparities are larger for the ownership of cars than motorcycles. What is surprising is the relatively high rate of growth in motor vehicle registration in the Northeast and the higher level and growth rate of such registration in Kelantan compared to Trengganu, in spite of a smaller level and growth rate in per capita household income and Trengganu's higher urbanization level.

Utilities

3. Northeastern states consume roughly 60% less electricity and 75% less water per capita than any other peninsular state. Undoubtedly, this is the result of two effects that should be separated: a smaller percentage of households is connected to public services, and connected households consume less of the service because of lower incomes./1 Service disparities exceed income disparities, i.e., the relative gap between northeastern states and the peninsula is larger for per capita water and electricity consumption than for per capita income.

/1 The data are from the FMP which does not indicate whether they are for residential or total (including commercial and industrial) consumption. If they represent total per capita consumption, they overstate residential consumption disparities because of the lack of Northeastern industry.

Health

4. Northeastern states also rank at the bottom on all health indicators. Thus, infant mortality continues to be one third above the national average, and the availability of doctors, dentists and hospital beds in Kelantan remains respectively 168%, 78% and 62% below the peninsular average, and 124%, 41% and 42% below average in Trengganu. Again, despite above average improvements in the supply of health services, the disparities still remain significantly greater than income disparities. There would seem to be room for considerable growth in public service expenditure in the Northeast.

Education

5. In considering educational disparities among states, it is necessary to distinguish between the educational attainments of the current population, which largely reflect past skill production, and attainments by the current school age population, which more closely reflect the current availability of educational services. There are few systematic differences among states in the availability of primary and secondary school services as measured by student-teacher ratios. The Selangor Region has the highest ratio, possibly because of its rapid growth, but the variations are quite small. However, there are considerable differences in the availability of vocational, technical and tertiary educational facilities. Students must go to the west coast for tertiary education. A MARA industrial training institute exists in Pahang, but not in the Northeast. There is a technical school (mechanical and civil engineering) in Kuala Trengganu, but none in Kelantan. Vocational training schools exist in all three east coast states, but capacity appears relatively small.

6. On the basis of official school transition rates, it appears that the current student generation in the Northeast progresses to higher educational levels at about the same rate as the average student in the peninsula. There is no discernable pattern in transition rates among states except that Selangor **students in upper secondary are twice as likely to**

to a peninsular average of 7%. In addition, 25% and 18%, respectively, have "other" education, mainly religious schooling, compared to 16% in the peninsula. Disparities of similar magnitude exist for urban females and rural males and females. Given the importance of human capital variables in explaining earning differentials in Malaysia, one would expect educational disparities to play a major role in explaining the income gap of the Northeast.

8. In summary, social disparities among states are significant and reinforce the income disparities discussed in Chapter 1 of Volume 2. In spite of some narrowing during the past decade, service disparities are larger than income disparities except in the educational system.

SELECTED SOCIAL INDICATORS 1970 AND 1980

Social Indicator	Northeast		Northwest		Selangor	Penin-
	Kelantan	Trengganu	Kedah/a	Perlis	Region/b	sula
Private Motor Vehicle Registration						
Cars/1,000 population						
1970	0.9	0.9	1.2	n.a.	5.1	2.7
1980	2.2	1.9	2.8	n.a.	8.0	5.0
% change p a.	9.4	7.8	8.8	n.a.	4.6	6.4
1980 rank	10	11	8-9	8-9	1	-
Cycles/1,000 population						
1970	1.9	2.0	2.8	n.a.	5.4	4.1
1980	5.8	5.0	8.7	n.a.	10.0	10.0
% change p.a.	11.8	9.6	12.0	n.a.	6.4	9.3
1980 rank	10	11	8-9	8-9	6-7	-
Utilities						
Electricity consumption p.c. (KWH p.a.)						
1970	9.3	8.5	7.3	8.9	77.4	29.1
1980	36.2	43.4	43.4	61.7	186.6	95.5
% change p.a.	14.6	26.0	26.0	21.4	9.2	12.6
1980 rank	11	9-10	9-10	6	1	-
Water consumption p.c. (liters per day)						
1970	19.8	19.4	52.4	47.3	166.7	89.7
1980	31.3	38.0	80.5	41.4	209.9	137.4
% change p.a.	4.7	6.9	4.4	-1.3	2.3	4.4
1980 rank	11	10	8	9	2	-
Health						
Infant mortality rate						
1970	58.7	56.3	42.3	35.5	29.4	40.8
1980	38.3	37.7	30.6	33.4	22.3	28.1
% change p.a.	-4.2	-3.9	-3.2	-.6	-2.7	-3.7
1980 rank	11	10	8	9	1	-
Persons per registered doctor						
1970	14,218	14,514	10,328	7,856	1,801	3,859
1980	10,609	8,875	7,421	5,421	2,293	3,959
% change p.a.	2.9	-4.8	-3.3	-3.6	2.4	.3
1980 rank	11	10	9	8	1	-

Social Indicator	Northeast Kelantan	Northeast Trengganu	Northwest Kedah/a	Northwest Perlis	Selangor Region/b	Peninsula
Persons per registered dentist						
1970	78,989	46,767	90,136	62,850	17,634	31,760
1980	40,590	32,050	28,598	22,457	16,195	22,787
% change p.a.	-6.4	-3.7	-10.8	-9.8	-.8	-3.3
1980 rank	11	10	8	5	1	-
Persons per acute hospital bed						
1970	1,183	886	992	487	521	619
1980	1,020	894	892	482	597	631
% change p.a.	-1.5	.1	-1.1	-.1	1.4	.2
1980 rank	11	10	9	2	5	-
Education						
Students per teacher, primary						
1970	29	30	31	27	35	32
1980	33	25	28	35	35	29
% change p.a.	1.3	-1.8	-1.0	2.6	0.0	0.1
1980 rank /c	8	1	2-4	10-11	10-11	-
Students per teacher, secondary						
1970	27	24	23	21	27	25
1980	27	26	26	24	28	26
% change p.a.	0.0	0.8	1.2	1.3	0.4	0.4
1980 rank /c	6-10	3-5	3-5	1-2	11	-
Transition rate: primary/Form I						
1969/70	82.6	74.9	62.5	73.4	74.9	69.6
1979/80	86.9	78.5	86.7	78.4	80.0	85.1
% change p.a.	0.5	0 5	-2.9	0.7	0.7	2.0
1980 rank	6	10	7	11	9	-
Transition rate: lower/Form IV						
1970	39.3	44.8	46.9	33.1	43.2	42.1
1980	57.1	64.1	52.9	61.3	56.3	59.9
% change p.a.	3.8	3.6	1.2	6.4	2.7	3.6
1980 rank	8	4	11	5	9	-
Transition rate: upper secondary/Form VI						
1970	11.6	15.4	19.3	7.7	40.6	25.9
1980	10.0	11.6	12.0	4.3	24.2	11.5
% change p.a.	-1.5	-2.8	-4.6	-5.7	-5.0	-7.8
1980 rank	10	7	4-5	11	1	-

/a Includes Perlis where data for Perlis are not available separately. For ranking purposes the two states are counted separately, with identical scores.

/b Includes Selangor and Federal Territory.

/c A hyphen between ranks indicates that ranks are shared among states.

Source: FMP and World Bank calculations.

ANNEX 1-2
Table 1-2.2

DISTRIBUTION OF WORKING AGE POPULATION (AGE 15-64) BY EDUCATIONAL ATTAINMENT AND REGION

Region	No formal education	Secondary				College & University	Others
		Primary	Lower	Middle	Upper		
Urban Male							
Northeast							
Kelantan	18.2	31.6	11.1	10.0	2.0	1.9	25.1
Trengganu	70.8	33.4	17.0	9.7	.4	1.0	17.8
Peninsula	6.7	38.7	18.7	16.0	1.6	2.5	15.7
Urban Female							
Northeast							
Kelantan	30.5	28 5	8.1	6.5	.8	.7	24.9
Trengganu	37 1	28.3	11.0	9.2	-	.3	14.1
Peninsula	20.1	38.4	13.3	12.2	.9	.9	14.1
Rural Male							
Northeast							
Kelantan	27.5	35.9	7.8	5.6	.5	.5	22.2
Trengganu	28.3	47.5	8.4	5.0	.2	.2	13.1
Peninsular	12.6	52.0	12.4	7.3	.5	.5	14.4
Rural Female							
Northeast							
Kelantan	48.5	26.4	6.4	3.2	.1	.1	15.3
Trengganu	47.1	37.2	5.1	3.1	.2	-	10.2
Peninsula	31.8	43.3	7.9	4.8	.3	.1	11.7

Source: 1977 Agricultural Census.

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Decomposition of Income Disparities

1. Let subscripts p and s stand for the peninsula and states respectively, and let e and u identify the ethnic and urban communities. Let y stand for the mean per capita household income of an area and/or population group identified by subscripts p, s, e or u. Then:

p	-	peninsula;
s	-	state, $s = 1, \ldots, 12$;
e	-	ethnic community, $e = 1, \ldots, 4$;
u	-	urban rural division, $u = 1, 2$;
y_p	-	peninsular mean income;
y_s	-	state mean income;
y_{pe}	-	peninsular income, ethnic community e;
y_{pu}	-	peninsular income, stratum u;
y_{se}	-	state income, ethnic community e;
y_{su}	-	state income, stratum u;
y_{peu}	-	peninsular income, ethnic community e of stratum u;
y_{seu}	-	state income, ethnic community e of stratum u.

2. Then a state's mean per capita income can be decomposed on the basis of its urban-rural composition as

$$(1) \quad y_{su} = y_p + (y_{pu} - y_p) + (y_{su} - y_{pu}), \qquad u = 1,2$$

and summing over the urban and rural divisions

$$(2) \quad y_s = y_p + \sum_u^2 (y_{pu} - y_p)h_{su} + \sum_u^2 (y_{su} - y_{pu})h_{su}$$

where h_{su} is the proportion of the population in state s in stratum.

Define

$$(3) \qquad \bar{y}_{su} = \sum_u^2 y_{pu}\, h_{su}$$

and noting that $\quad y_s = \sum_u^2 y_{su}\, h_{su}$

then $$y_s = y_p + (\tilde{y}_{su} - y_p) + (\tilde{y}_s - y_{su}),$$

or $$(y_s - y_p) = (\tilde{y}_{su} - y_p) + (\tilde{y}_s - y_{su})$$

(4′)	total income disparity	=	income disparity due to urban factor	+	income disparity due to state (locational)

Hence, the difference between state and peninsular income has been decomposed into disparities due to urban-rural population composition and a residual, state or location specific factor. Since y_s and y_r are known all that is needed is y_{su}. But this is the income that a state would have if its urban and rural division received the same respective income as they do in the peninsula, something easily computed.

3. In an entirely analogous manner it is possible to decompose income disparities into those due to the states' ethnic compositions and a residual factor, hence:

(5)	$(y_s - y_p)$	=	$(\tilde{y}_{se} - y_p)$	+	$(y_s - \tilde{y}_{se})$,
(5′)	total income disparity	=	income disparity due to ethnic composition	+	income disparity due to state (locational) factors

where

$$(6) \quad \tilde{y}_{se} = \sum_{e}^{y} y_{se}\, h_{se},$$

and where h_{se} is the proportion of the population in state s in ethnic community e.

4. Finally, considering disparities attributable to the joint ethnic and urban-rural distribution one obtains

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REGIONAL DEVELOPMENT AND URBANIZATION IN THE NORTHEAST

Regression Analysis of State Household Income and GRP Data

Methodological Considerations

1. In Chapter 2 of Volume 2 (para. 2.11 - 2.17) it is argued that public development expenditures have a significant short-term impact on household income as well as a longer-term investment impact on productivity and output. Data on the magnitude of these expenditures and on the sectors which have led growth in Kelantan and Trengganu are presented to support this argument.

2. More direct evidence could be provided by multivariate analyses relating income growth during a given period to expenditure levels during the period and other explanatory variables. The regression equations presented in this annex analyze state per capita household income as a function of TMP development expenditures, distance to Kuala Lumpur (which is interpreted to reflect the Selangor Region's primacy in the peninsular economy) and east coast location. Although the results of the analysis are quite suggestive, they are statistically unreliable because of deficiencies with the data. They are presented here to illustrate the methodology and the interpretation of the quantitative results rather than as empirically valid findings. The analysis can be replicated when better data becomes available.

3. The primary deficiency is the lack of per capita household income data for both the beginning and end of the period of the TMP, 1976-80. The dependent variable in the analysis should be the change in income during the period; alternatively, income at the end of the period could be used as the dependent variable, and income at the beginning could be included as an independent variable. Although the 1977 Agricultural Census provides information about household income in 1976, income data collected during 1980 will not be available until 1983. State GRP data is reported in the FMP, but the quality of this data is questionable. Furthermore, it measures output rather than income; this is a particularly serious problem for a state such as Trengganu which experienced rapid growth in the petroleum sector during the TMP which would not be reflected in household income. In the absence of the required data, equations were generated for illustrative purposes using the 1976 mean state household income per capita from the 1977 Agricultural Census as the dependent variable.

4. There are also problems with the TMP expenditure data. Although information is available for TMP allocations, there is no reliable state-level data on actual expenditures. The ICU collects project expenditure

(6) $(y_s - y_p) = (\tilde{y}_{sue} - y_p) + (y_s - \tilde{y}_{sue})$,

(6′)	total income disparity	=	income disparity due to joint ethnic and urban/rural composition	+	income disparity due to state (locational) factors

where $\tilde{y}_{sue} = \sum_{u}^{2} \sum_{e}^{4} y_{sue} \; h_{sue}$,

and where h_{sue} is the proportion of the population in state s which is in stratum u and ethnic community e.

5. It may be desirable to attribute disparities separately to urban and ethnic factors. The problems however is that as identified in (4) and (5) these disparities will not add up to that of the joint urban/rural and ethnic distribution identified in (6), i.e, typically

(7) $(\tilde{y}_{sue} - y_p) - (\tilde{y}_{sue} - y_p) - (\tilde{y}_{se} - y_p) \neq 0$

To make up for the difference, the left hand side of (7) is included as an interaction term for the urban-rural and ethnic factor, i.e.

(8) $(y_s - y_p) = (\tilde{y}_{su} - y_p) + (\tilde{y}_{se} - y_p) + (y_{sue} - \tilde{y}_{su} - \tilde{y}_{se} + y_p) + (y_s - y_{sue})$,

or

(8′)	total income dis-parity	=	income disparity due to urban factor	+	income disparity due to ethnic factor	+	income disparity due to interac-tion of urban and ethnic factor	+	income disparity due to locational factor

where the first three terms on the right hand side represent the income disparity due to joint ethnic and urban-rural composition.

data, but its information appears to cover only about 40% of the TMP development expenditures. If there were no systematic biases across states in the information reported to the ICU, the distribution of expenditures among states in the ICU data would be the same as the actual distribution. However, there is no way to test the validity of this assumption. The TMP allocations and ICU expenditure data used in the equations are presented in Table 2-1.1. A final limitation of these data is that they do not iclude development expenditures by the state governments and public corporations. These agencies accounted for 9.8% and 7.8% of total TMP development expenditures, respectively, according to the FMP.

5. The other two independent variables used in the equations do not pose problems. The distance between the states and Kuala Lampur is measured in three alternative ways:

(a) road distance: the distance in miles between Kuala Lumpur and the state population center of gravity;

(b) bus fare: the price in M$ of a bus ticket between Kuala Lumpur and the state capital; and

(c) driving time: the time in hours for a bus to travel from Kuala Lumpur to the state capital.

The values of these distance variables for each state are presented in Table 2-1.2. The final independent variable east coast location, is a "dummy variable" which equals 1 for Kelantan, Pahang and Trengganu and 0 for the other states.

Results of the Illustrative Analysis

6. Table 2-1.3 presents the coefficients for regression equations using 1976 household income per capia as the dependent variable. In order to illustrate how such coefficients can be interpreted, the equations are discussed below as though the data were meaningful. It should be emphasized that the discussion is presented for illustrative purposes only, and the coefficients should not be treated as reliable estimates.

7. Table 2-1.3 reports four equations, using the alternative distance measures and both the allocation and expenditure variables. There is little difference among the equations, all of which have been estimated with dependent variable in logarithmic form, so that the coefficients represent the elasticity of per capita income with regard to the independent variables. The following comments refer to equation 2 which treats INC as a function of the RDST, EXP and an East Coast dummy. The beta values for the three independent variables are almost identical in the various equations (-0.46, 0.48, and -0.56 for east coast location and the log transformations of the development expenditure and distance variables, respectively, in equation 2), suggesting that the three share equally in explaining income. The following paragraphs explore the coefficient estimates of equation 2 further.

8. Distance to Kuala Lumpur is included as an explanatory variable based on the Selangor Region's role as the country's central distribution, production, and market center and its top income position. The greater the distance to this region, the greater the cost of moving there and the greater the income gap the average worker will accept without moving. There are also adjustments on the production side that will reduce earnings of fixed, immobile factors as one moves further away from Selangor. Assuming that a considerable proportion of each state's output is sold, distributed or otherwise transported through Selangor, one should find, all else being equal, that closer-by states will use land and labor more intensively than states further away. This would reduce per capita GDP as one moves away from Selangor, and it reduces per capita household income to the extent that labor is not perfectly mobile.

9. The distance elasticity of income in equation 2 is -0.2. This implies that Kelantan's income would be roughly 5% higher if it were in Trengganu's location and 12% higher in Pahang's location. These locations would raise Kelantan's income from M$54 to roughly M$57 or M$60, respectively, and reduce its income gap from 43% to 40% or 33%, respectively. It was suggested in Chapter 2 of Volume 2 (para. 2.35) that improvements in Kelantan's access to the west coast could raise net out-migration. In particular, according to a migration equation similar to the equation in Table 2.11 in Volume 2 but including the same expenditure variable used in Table 2-1.3, a 100-mile distance reduction would increase out-migration by 0.51 points. Equation 2 implies a distance elasticity of income of .2, so that a 100 mile or roughly 25% distance reduction increases income by 5% and reduces Kelantan's income gap by 2.9 points. This in turn would reduce out-migration by 0.07 percentage points. Hence the total impact of an improvement in access equivalent to a 100 mile distance reduction would raise net outmigration by 0.44 percentage points (i.e., 0.51-0.07), after accounting for the resulting income improvements.

10. Although insignificant in the migration equation in Chapter 2 of Volume 2 (paras. 2.29-2.38), east coast location is significant in the income equation, reducing income to roughly 75% of the level prevailing on the west coast. This reduction could be accounted for by variables such as ethnic composition, the sectoral composition of the east coast economy discussed earlier in the chapter and the labor force characteristics, wage patterns and cost of living differentials analyzed in Chapter 2 of Volume 2.

11. The analysis indicates the significant short-term impact of development expenditures on income and helps explain Trengganu's good performance during the 1970s. Equations 2 and a migration equation similar to the analysis in Table 2.11 in Volume 2 but using the same expenditure variable employed here imply that a M$100 increase in annual per capita development expenditures raises average annual per capita income by M$57 (i.e., M$4.75 per month) and, by reducing annual out-migration by 0.04 points, contributes another M$5 per capita to aggregate state household income. By implication, the out-of-state income leakages are therefore on the order of 38% of development expenditures. The analysis implies that without Trengganu's substantial TMP development allocations, the state's income gap would be 18 percentage points larger, which corresponds almost exactly to its relative

income gain since 1970. If Kelantan had had Trengganu's development funding (which was 30% above its own), its income would have been almost 10% higher than actually observed. Trengganu's FMP development allocation is smaller than its TMP allocation, while Kelantan's is larger; the possible impact of these allocations on the northeastern states' income levels during the 1980s is discussed in Chapter 6 of Volume 2.

12. Equity Implications of Development Expenditures. Although state per capita development expenditures were not negatively correlated with income during the TMP,/1 interstate equity objectives were an important goal of government programs, and development expenditures were made disproportionately in states that would have had below average per capita incomes without them. This can be demonstrated in three ways. First, there are two factors that reduce state per capita income according to equation 2 - east coast location and distance from Kuala Lumpur. The correlation coefficients between development expenditures and these variables are 0.84 and 0.59, respectively, indicating that the government program counteracted the negative impact of these two factors. Second, when hypothetical state incomes are calculated assuming that all states had had the average level of per capita development expenditures, the resulting income distribution is negatively correlated with development expenditures. This implies that states with smaller income potential (according to the equation) received relatively larger per capita funds.

13. Third, the actual distribution of expenditures can be compared with a hypothetical distribution calculated to satisfy the efficiency criterion of equalizing the income improvement from the marginal dollar of development expenditure across states. Equation 2 indicates that in otherwise equal east coast states (i.e., same distance and per capita expenditure levels as west coast states), the marginal development dollar yields only 75% of the per capita income improvement that it does on the west coast./2 The marginal efficiency of development expenditures would be equalized among states if west coast per capita expenditures were 50% higher

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/1 The correlation coefficients between income and the allocation and expenditure variables are 0.06 and 0.25, respectively, neither signfiicantly different from zero.

/2 The numerical estimate of the magnitudes involved is obtained by noting that the marginal income improvement of development expenditures from equation 2b is:

$$d\,INC/d\,EXP = .286(INC/EXP)$$

$$= 1.045\, e^{-.293\,EAST} \; DIST^{-.200} \; EXP^{-.714}$$

Hence the marginal East Coast development dollar raises income by exp (-.293)=.75 of a West Coast dollar.

than east coast expenditures./1 More important than the specific numerical estimates such as those generated by such an equation would be the general conclusion that regional disparities would be larger without the equity impact of public development expenditures./2

14. The model provides an estimate of how much the government would have had to raise TMP development expenditures to compensate fully for losses in per capita income associated with east coast location and rising distance. From equation 2, it follows that otherwise equal east coast states would have required roughly 36% higher development expenditures than west coast states to receive identical per capita income./3 Also, for otherwise equal states a 10% increase in distance requires a 6.5% increase in expenditures, i.e., the distance elasticity of expenditures is 0.65./4 Finally, Table 2-1.4 shows the per capita expenditures which would have been required for Kelantan and Trengganu to reach 100%, 80% or 70% of the average peninsular income. Estimates such as these are at best very rough indicators of the order of magnitude of development funds that would have been required. They may well be lower in the case of Trengganu which in the past needed 10% less funds than predicted by equation 2 to reach a per capita income of M$70 and slightly higher for Kelantan which in the past used marginally greater funds than would have been predicted to reach its income of M$54.

15. Again the specific quantitative results would not be as reliable as the conclusion that the marginal efficiency of investment is lower on the East Coast than on the West Coast. This latter point is confirmed by the marginality of many of the economic undertakings reviewed at the project and sector levels in Chapters 3-5 of Volume 2 and, to a lesser extent, by the lack of a significant private sector share in investment in the Northeast.

/1 For the two states to have an identical value of d INC/d EXP, one must have

$$EXP_1^{-.714} = e^{-.293\ EAST_2}\ EXP_2^{-.714}$$

which yields $EXP_1/EXP_2 = 1.5$, i.e., West Coast expenditures EXP_1 exceed East Coast expenditures EXP_2 by 50%.

/2 While these conclusions hinge to some extent on the logarithmic form of the estimated income equation, linear and semi-log forms of the equation turned out to be inferior.

/3 Let subscripts w and e denote a west and east coast location respectively, then if $INC_w = INC_e$ is to hold for two states with identical DIST, it follows that $EXP_w^{0.286} = \exp(-0.293 \times 1)\ EXP_e^{0.286}$ and hence $EXP_w/EXP_e = -.36$.

/4 For $INC_1 = INC_2$ to hold for it is necessary that $DIST_1^{-a}\ EXP_1^{b} = DIST_2^{-a}\ EXP_2^{b}$ where a = 0.199, and b = 0.286.

16. FMP Development Allocations. It would be useful to estimate the levels of per capita income in Kelantan and Trengganu which would result if FMP expenditure targets can be met and, conversely, the level of development expenditures necessary to achieve the FMP income goals. However, it is doubt whether an analysis of the type presented in Table 2-1.3 could be used to make these estimates directly. The stability of relationships observed during one period over time is unclear, and the success of the analysis depends largely on the consistency of the distribution of development funds over time, implying that it is unlikely to predict the effect of large, sudden shifts in the distribution of development funds accurately.

17. However, a slightly rephrased question could be answered using such an analysis. The resulting equation can be used to estimate what Kelantan's relative income position would be if it had obtained the 40% above average development allocations proposed in the FMP during the TMP (Table 2-1.4). Such a funding level would have raised Kelantan's development expenditures to about M$1,100 per capita, theoretically increasing per capita income from its actual M$54 to M$64 or 68% of the peninsular average. If the government's income targets were formulated in terms of household income rather than GDP, this level would imply achievement of the goal of raising the state to two-thirds of peninsular average income.

TMP PUBLIC DEVELOPMENT EXPENDITURE ALLOCATIONS AND
ICU TMP PROJECT EXPENDITURE DATA

State	TMP Allocations		ICU Project Data			
	Total (M$ million)	M$/capita/a	Allocation (M$ million)	Expenditure (M$ million)	Allocation (M$ per capita)	Expenditure (M$ per capita)
Northeast	3,235	2,420.7	1,797.6	1,026.3	1,345.1	767.9
Kelantan	1,744	2,077.7	828.5	579.0	987.0	689.7
Trengganu	1,491	3,000.0	969.1	447.3	1,950.0	900.0
Northwest	1,504	1,172.8	660.6	484.6	515.1	377.9
Kedah	1,261	1,104.6	552.8	397.3	484.2	348.1
Perlis	243	1,725.9	107.8	87.3	765.9	620.0
Selangor Region	5,769	2,922.0	2,956.1	2,108.6	1,496.9	1,067.7
Selangor	3,079	2,553.7	1,098.1	843.6	910.7	699.6
Federal Territory	2,690	3,499.9	1,858.0	1,265.0	2,417.4	1,645.9
Others	10,899	1,812.4	6,989.8	4,744.6	1,162.3	789.0
Johor	2,620	1,691.2	1,794.2	1,206.0	1,158.1	778.5
Melaka	566	1,171.6	295.8	212.2	612.3	439.3
N. Sembilan	905	1,575.0	513.1	378.7	893.0	659.7
Pahang	2,936	4,768.6	2,123.6	1,414.1	3,416.7	2,296.7
P. Pinang	1,396	1,531.4	854.1	509.7	736.9	559.1
Perak	2,476	1,317.4	1,428.9	1,023.9	760.3	544.8
Total Peninsula, excl. multi-state allocations	21,407	2,018.3	12,404.2	8,364.1	1,169.5	788.6

/a Based on population in 1976.

Source: FMP, Table 6-4 and Appendix A, for TMP allocations; "Fourth Malaysia Plan: Regional/State Targets and Stress Ratios for Public Expenditure" (EPU, 1980) for ICU data; and 1977 Agricultural Census for population data.

MEASURES OF THE DISTANCE BETWEEN
KUALA LUMPUR AND THE PENINSULAR STATES

State	Kuala Lumpur to State Capital			Kuala Lumpur to population center of gravity (road miles)
	Bus road (miles)/a	Bus fare (M$/person) FDST	Bus driving time (hrs) TDST	RDST
Kelantan (Kota Bharu)	411	20.00	12.0	411
Trengganu (Kuala Trengganu)	307	15.00	10.0	307
Kedah (Alor Setar)	300	15.00	10.0	270
Perlis (Kangar)	322	16.30	10.5	322
Selangor /b	25/c	1.30/d	0.9/d	25
Johor (Johor Bharu)	229	11.00	8.0	190
Melaka (Melaka)	92	4.70	3.0	92
N. Sembilan (Seramban)	42	2.20	1.5	62
Pahang (Kuantan)	173	8.75	4.5	145
P. Pinang (Butterworth)	238	12.00	8.0	238
Perak (Ipoh)	135	6.70	3.5	135

/a RDST is used in the eqations in Table 2-1.3 rather than this variable.
/b Includes Federal Territory.
/c Not available. Approximates the distance the average migrant from Selangor would be from the center of the Federal Territory.
/d Obtained by interpolation.

Source: The data in the first three columns were provided by the Licensing Board; the last column is an approximation, based on district population data.

COEFFICIENTS FOR REGRESSION ANALYSIS OF STATE PER CAPITA HOUSEHOLD INCOME

Independent variables	Dependent variable: ln INC: Natural log of average per capita household income, 1976 (1)	(2)	(3)	(4)
Road Distance: miles between Kuala Lumpur and state population center of gravity		-0.199 ln RDST /b		-0.188 ln RDST /b
Bus Fare: price (in M$) of bus ticket between Kuala Lumpur and state capital			-0.168 ln FDST /c	
Driving Time: hours required to drive from Kuala Lumpur to state capital by bus	-0.155 ln TDST /b			
Development Allocations: State per capita TMP development allocation				0.3996 ALL /b
Development Expenditures: state per capita TMP expenditures	0.327 ln EXP /b	0.286 ln EXP /b	0.381 ln EXP /b	
East Coast: equals 1 for Pahang, Trengganu and Kelantan; 0 otherwise	-0.353 EAST /b	-0.293 EAST /b	-0.384 EAST /b	-0.3939 EAST /b
Constant Term	2.636	3.655	2.402	2.487
Adjusted R^2	0.72	0.76	0.70	0.78

/a Coefficient significant at 0.01 level.
/b Coefficient significant at 0.05 level.
/c Coefficient significant at 0.10 level.

INCOME TARGETS AND REQUIRED PER CAPITA DEVELOPMENT EXPENDITURES DURING FIVE-YEAR PLAN

	Per Capita Income Per Month		Required per capita 5-year development expenditures (M$)/a
	Absolute Amount (M$)	As % of Peninsular Average	
Kelantan			
Hypothetical income targets as percent of peninsular average			
(a) 100%	95	100%	4,346
(b) 80%	76	80%	1,990
(c) 70%	67	70%	1,280
Actual performance	54	57%	690
Predicted performance	56	59%	690
Trengganu			
Hypothetical income targets as percent of peninsular average			
(a) 100%	95	100%	3,545
(b) 80%	76	80%	1,623
(c) 70%	67	70%	1,044
Actual performance	70	74%	900
Predicted performance	64	68%	900

/a Hypothetical targets computed as EXP = $(INC\ e^{-3.362\ RDIST \cdot 19941})^{1/0.2855}$.

MALAYSIA

REGIONAL DEVELOPMENT AND URBANIZATION IN THE NORTHEAST

Peninsular Emigration and Northeastern Migration to Singapore

1. In Kelantan and Trengganu, migration to Singapore is considered to be a major alternative for those who do not find employment locally. Large numbers of young adults reportedly follow this route, although there is little information to substantiate this contention. Indeed, there is generally little data available on peninsular net migration losses or gains. TMP data for 1957-70 imply a peninsular net-migration rate of zero, but this was a matter of assumption rather than derivation and is almost certainly incorrect.

2. Emigration for 1970-80 can be estimated as a residual, by netting actual growth from projected natural growth. This method is unreliable for a number of reasons, such as the use of crude growth rates unadjusted for the effect of migration and the unavailability of final population counts for 1980. Using field counts for both 1970 and 1980 (in the hope that under-enumeration problems are similar for both census years), one finds a peninsular net migration loss of 180,000 persons, or a net out-migration rate of 0.17% (Table A.2.5). This should be considered the upper limit of possible migration losses and is almost certainly an over-estimate because the large urban centers which showed most of the internal migration gains during the decade experienced the greatest under-enumeration in the 1980 census.

3. The sources and destinations of these migration losses are uncertain. Sarawak in East Malaysia experienced annual average growth of 4.4% during 1970-80, mostly fed by an inflow of Filipino refugees, but may also have attracted some peninsular labor. Also, increasing numbers of students study abroad, both because of increased government funding and because the university quota system based on ethnicity has made it difficult for all students to enter domestic universities. Finally, Singapore has attracted a growing Malaysian labor force, although reliable estimates of its size are not readily available. A 1977 household survey by the Singapore Department of Statistics found only 30,900 Malaysians employed in Singapore. However, Malaysia's Ministry of Labor and Manpower estimates the Malaysian workforce in Singapore at 100,000-120,000 workers or 10-12% of Singapore's total workforce. Including non-working family members, the latter estimate could easily imply a Malaysian population in Singapore in excess of 150,000, although it is not clear what proportion of this population left Malaysia during the 1970s rather than during earlier periods.

4. Estimates of the outflow of Kelantan and Trengganu workers to Singapore are highly uncertain, and informal estimates often appear

exaggerated. A 1980 border survey of Malaysians returning from Singapore counted 11,866 workers during a 10-day period. Of these, 56% were male, 46% were Malay and 87% gave Malaysia rather than Singapore as their permanent residence suggesting a substantial temporary (perhaps seasonal) migration. . Of those with Malaysian residence, only 2.4% came from the Northeast, while 81.2% were from Johor. However, such border crossings are unlikely to yield the true distribution of origin of Malaysians in Singapore since migrants from nearby states probably make more frequent return visits and many of those with permanent residence in Singapore may make none at all.

5. There are, however, some interesting patterns in Table 2-1.1, which shows the annual return visits of Malaysian workers in Singapore per 1,000 population in their state of permanent residence./1 The data suggest that:

(a) The incidence of east coast migration to Singapore increases as one moves from Pahang to Kelantan, with Trengganu's workers being 30% and Kelantan's workers roughtly 70% more likely than Pahang's workers to migrate to Singapore. Since this increase in the migration incidence cannot be attributed to distance from Singapore, it probably reflects the decline in income and job opportunities as one moves from Pahang to Kelantan. Such an attribution is also suggested by the higher out-migration from Perak than P. Pinang, two states with similar distances from Singapore.

(b) East coast workers are somewhat less likely to migrate to Singapore than west coast workers at similar income levels and distance from Singapore. This may reflect a higher Chinese propensity to work in Singapore.

(c) Distance between permanent residence and Singapore is the major determinant of the numbers of return visits and presumably of the propensity to seek work in Singapore in the first place.

(d) As a very rough estimate, if the typical northeastern worker taking a job in Singapore stays there for 3-6 months before returning home, the annual average number of workers from the Northeast in Singapore would have been between 2,250 and 4,500./2 This would amount to 0.5-1% of the Northeast's labor force. This order of magnitude is confirmed by a survey of school leavers from Trengganu (Table 2-1.2) and by the small level of remittances suggested by data from the 1977 Agricultural Census.

/1 The survey data have been annualized even though it is unlikely that the 10-day survey period was representative of the year. The data should therefore be used only for rough comparisons of relative magnitudes.

/2 Informal estimates, however, put the number of Kelantanese alone at 30-40,000, mostly in the construction sectors. There is, though, little corroborating evidence for this level of seasonal migration.

ANNUAL RETURN VISITS BY MALAYSIAN WORKERS IN SINGAPORE, PER THOUSAND POPULATION IN STATE OF PERMANENT RESIDENCE, 1980

Northeast	6.3
Kelantan	6.9
Trengganu	5.1
Northwest	4.0
Kedah	4.4
Perlis	1.8
Selangor Region	4.0
Other Peninsula	58.1
Johor	190.5
Melaka	28.1
N. Sembilan	16.4
Pahang	4.0
P. Pinang	5.8
Perak	10.2
Peninsula /a	33.8

/a Excluding workers with permanent residence in Singapore.

Source: Survey by the Ministry of Labor and Manpower, October 22-31, 1980.

CHARACTERISTICS OF 1975 FORM V SCHOOL LEAVERS IN TRENGGANU

Characteristics	Percent
By residence	
Continue living in Trengganu	69.8
Migrated outside Trengganu	30.2
By activity	
Employed	35.1
Student	27.4
Unemployed, out of labor force	37.5
Of the Students	
Living inside Trengganu	35.0
Migrated outside Trengganu	65.0
Of the Employed	
Living inside Trengganu	80.6
Migrated outside Trengganu	19.4
Of Those Who Left Trengganu	
By activity	
Student	58.9
Employed	22.5
Unemployed, out of labor force	18.6
By residence	
East Coasts	26.8
Peninsula, other than East Coast	69.2
Outside Malaysia	4.0

Source Based on results from a school leaver tracer survey (1975 Form V class) of six schools (one in each of the six Trengganu districts) reported in Ling Chuh Poh, "Some Important Indicators and Factors Underlying Maanpower Problems in Trengganu," 1980, Tables 1-12. Data have been aggregated for this table, based on the population distribution among districts.

MALAYSIA

REGIONAL DEVELOPMENT AND URBANIZATION IN THE NORTHEAST

The Institutional Framework for Implementing the Regional Development Strategy in the Northeast

1. This annex provides an overview of the Malaysian federal system responsible for implementing the development strategy for the Northeast, focusing primarily on the federal and state governments. Urban government is discussed in detail in Chapter 9 of Volume 2.

A. The Central-Local Distribution of Powers

2. Malaysia adopted a federal system primarily as a means of preserving the status of the Malay Rulers, who are an important symbol of Malay identity. As long as this need was met, there was little Malaysian objection to the British desire to create a powerful central government. The result was states with limited powers and weak financial bases. One study concludes that "In Malaysia the concentration of functions with the Federal Government has been carried so far that, in respect of the States of Malaya, one could almost question whether there is any justification to speak of a federation at all. Virtually all the functions of a unitary government administering a modern economy fall under the jurisdiction of the Federal Authority. The powers retained by the states, on the other hand, are mainly those which are characteristic of an administration running a poor, underdeveloped and tradition-bound economy."/1

3. The states' limited powers are evident in the legislative lists in the Ninth Schedule of the Federal Constitution, which are summarized in Table 3-1.1. The federal list includes virtually all the significant powers, and if a state law is inconsistent with a federal law, the federal law prevails. The states' most important power is their control over land, one of the states' most potent resources when they bargain with federal agencies over development programs. For example, during the 1960s when the

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/1 Walter Holzhauser, Federal Finance in Malaysia, p. 178 (Kuala Lumpur: Penerbit Universiti Malaya, 1974).

PAS /1 opposition controlled Kelantan, the state government refused to provide land for FELDA schemes because it disagreed with federal land development practices and settler selection criteria.

4. The federal government exercises administrative and financial controls over the states as well as having legislative preponderance. The secondment of federal officials to the state civil services /2 provides a form of indirect control since the officials are rotated and depend on the federal government for promotion and assignments. State agricultural and forestry officers are required to accept guidance from the federal ministries even though these subjects are included in the State Legislative List. The federal government can conduct surveys and inquiries in the states and assume state powers when emergencies are declared. Finally, and undoubtedly most importantly, the federal government controls state borrowing and thus access to development funds which the states are unable to raise because of their limited revenue bases.

B. The Distribution of Revenues

5. The financial provisions of the Malaysian federal system are an essential element of its centralist bias. Just as state powers are limited compared to those of the federal government, so are their budgets. In 1980, total federal revenues were M$12.9 billion compared to only M$2.2 billion for the states./3 Because of the states' weak revenue bases, their budgets

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/1 PAS stands for Partai Islam Se Malaysia. The conflict between Kelantan and the federal government is described in R.S. Milne and Diane K. Mauzy, Politics and Government in Malaysia, pp. 108-11 (Kuala Lumpur: Federal Publications, 1977).

/2 The states all have their own state clerical services, but only the five former Unfederated States (including Kelantan and Trengganu), P. Pinang and Melaka have state civil services which fill posts above the clerical level. However, the federal Public Service Department establishes the grading system and salary ranges for the state civil services. There are no separate federal and state departments for line agencies in Kelantan and Trengganu; instead, each department contains both federal and state posts. The federal posts tend to be the more senior ones, and if a state post cannot be filled with qualified state employee, a federal civil servant is often seconded to the position.

/3 FMP, Table 13.4, p. 248.

are heavily dependent on transfers from the federal government. For example, for the eight peninsular states for which complete income source data is reported in Table 3-1.2, federal sources accounted for just under a third of total state income in 1978. The states are even more dependent on the federal government for loans and grants to finance capital expenditures. The FMP projects that state sources will finance only 3.2% of planned development allocations during 1981-85./1

State Revenue Sources

6. The revenues assigned to the states are listed in Table 3-1.3. The more elastic revenue sources are excluded from the list and are thus reserved for the federal government. Consequently, federal revenues have grown faster than state revenues and are projected to continue to do so:/2

	Average annual growth rate	
	1971-80	1981-85
Total federal revenues	18.3%	13.6%
Total state revenues	16.8%	10.0%

7. Forests and minerals are a key revenue source for the states, and variations in the states' natural resource endowments account for much of the variation in state revenue-generating capacity (Table 3-1.2). In Kelantan, forest revenues rose from M$4.9 million in 1975 to M$22.9 million in 1980, when they accounted for 64% of the state sources of revenue (Table 3-1.4). However, logging activities have peaked in Kelantan (see Chapter 4 of Volume 2), and forestry revenues are expected to decline during the last half of the 1980s.

8. The constitutional provision for states to receive a portion of export duties on minerals produced in-state is particularly important for the tin-producing states and for Trengganu because of off-shore petroleum and natural gas production. The states are guranteed at least 10% of tin export duties, while the proportion for other mineral ores, oils and metals is to be determined under federal law. After negotiations, PETRONAS, the

/1 FMP, Appendix A.

/2 FMP, Table 6.5, p. 130, and Table 13.4, p. 248.

federal government and Trengganu agreed that the federal and state governments would each be paid 5% of gross petroleum and natural gas production as royalties. Trengganu's state sources of revenue rose from M$17.1 million in 1975 to M$136.2 in 1980, with the increase almost entirely accounted for by petroleum royalties which were M$108.4 million in 1980 (Table 3-1.5). Consultants have projected that the state's royalties in 1990 from petroleum and natural gas will be M$437-488 million (± 40%) in 1980 prices, with the high estimate based on the assumption that a gas pipeline will be built to the west coast./1

9. Although Trengganu's petroleum revenues enable the state to undertake development projects without federal participation, there are practical limitations on the state's ability to act on its own. First, the legislative lists (Table 3-1.1) define federal and state powers, and the state cannot unilaterally undertake projects in areas of federal responsibility. Second, the state's implementation capacity is very limited, and subsidized federal loans are available for good projects. Consequently it is financially more rational for the state to invest its surpluses at market rates of interest, while borrowing from the federal government at below market rates for the limited number of projects which it has the capacity to carry out. The state has been depositing its surplus funds in banks. Although state officials recognize the need to develop an investment strategy, this has not been done yet. Data on Trengganu's expenditure patterns (Table 3-1.6), especially when compared to similar data for Kelantan (Table 3-1.7), suggest a tendency to increase current state consumption. In addition to increases in personnel expenditures mandated by a national salary increase for civil servants, expenditures on acquisitions of assets and transfers to state and local agencies rose very rapidly during 1979-80.

Federal Grants

10. The states are constitutionally entitled to certain transfers from the federal government. The Capitation Grant is based on state population and calculated according to a sliding scale which favors smaller states; it is revised periodically. The State Road Grant is intended to provide funds for the maintenance of roads which meet federal standards (Annex 7-1, para. 2). A Revenue Growth Grant is being introduced to enable the states to share in the growth of federal revenues. In 1981, M$100 million will be transferred to the states. Half of the funds will be allocated on the basis of population; the other half will be distributed to the ten states with GDP per capita below the national average in 1980 in inverse proportion to state GDP per capita. The federal government also makes transfers from a State

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/1 Trengganu Coastal Region Study, Vol. 2, pp. 152-3 (Maunsell and Partners, et al., 1980). This report is cited as TCRS hereafter.

Reserve Fund to offset state deficits calculated accordng to a formula which excludes certain "non-essential" expenditures such as entertainment and religious outlays.

C. Development Expenditures

11. The states' weak revenue bases limit their ability to finance capital expenditures, and most development projects are carried out by federal ministries or public corporations. Malaysia's total development expenditure during 1976-80 was M$24.9 billion, which represents an annual average of about M$390 per capita during the period. Per capita development expenditures by the peninsular states ranged from M$18 to M$65 in 1977-78; Kelantan and Trengganu had per capita state development expenditures of M$31 and M$43, respectively (Table 3-1.2). Since the states and their SEDCs must borrow from the federal government to finance virtually all signficant state projects, these projects are also subject to federal controls. Consequently, the state governments are primarily engaged in administration and the provision of services, and they endeavor to influence development more by competing for federal projects than by undertaking their own schemes.

12. Actual development outlays consistently lag significantly behind planned expenditure in Malaysia. Under the SMP, actual development expenditure was 85% of the planned level, while performance fell to 68% under the more ambitious TMP. TMP expenditure performance in the two northeastern states was worse than in most other peninsular states.

13. Because most projects are federally funded and implemented, there are limitations on the states' abilities to influence the composition of the development programs in their jurisdictions. The states have State Economic Planning Units (SEPUs), but there are limits on their roles./1 In practice, only state projects, which represent a small percentage of total development expenditures, are thoroughly reviewed by the SEPUs. Federal projects tend to be defined in Kuala Lumpur or by federal civil servants at the state

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/1 No attempt is made in this report to review state planning capabilities because of the extensive work done on this topic in the State and Rural Development Project (UNDP Project MAL/76/014). See, in particular, Colin Bruce, Strengthening the State's Planning and Implementation System (Kuala Lumpur: State and Rural Development Project, Economic Planning Unit, 1979) and A Development Strategy for Kelantan (Kota Bharu: State and Rural Development Project, State Economic Planning Unit, no date), Part I, Chapter 3. The applicability of the SRDP recommendations to Trengganu is discussed in TCRS, Vol. 3, Chapter 20. The institutional analysis in this report is limited to that of urban governments (which has not been analyzed elsewhere) and is reported in Chapter 9 of Volume 2.

level and are usually reviewed only cursorily by the State Economic Planning Committee. Small-scale district projects normally pass directly to the State Development Office after district-level review.

14. The likelihood and intensity of SEPU review varies with phases of the planning and budgetary cycles. The most intensive reviews occur during the preparation of mid-term reviews for the five year plans and during preparation of the annual budgets. Finally, the extent to which the SEPUs can engage in comprehensive planning and policy analysis is severely constrained by their limited technical staffing. Thus, they have only limited ability to develop the strategic frameworks within which new projects can be identified and project proposals can be evaluated. In practice, much of their staff time is devoted to administrative responsibilities such as organizing meetings and preparing minutes.

D. The Role of Public Corporations in Kelantan and Trengganu

15. A distinctive feature of the Malaysian governmental system is the extensive reliance on public corporations. Public authorities organized under federal auspices play particularly important roles in the exploitation of agricultural resources. Two regional development authorities, KESEDAR and KETENGAH,/1 are overseeing the development of 2.9 and 1.1 million ac in southern Kelantan and southwestern Trengganu, respectively. FELDA /2 and other agencies are developing settlement schemes and plantations in these areas. At the state level, the State Economic Development Corporations (SEDCs) are involved in a wide range of agricultural, industrial, housing and commercial projects.

16. The importance of public corporations in certain sectors in Kelantan and Trengganu is indicated by the FMP sectoral allocations in Table 3-1.8. The two regional dvelopment authorities (KESEDAR and KETENGAH) the Federal Land Development and Land Consolidation and Rehabilitation Authorities (FELDA and FELCRA) and the Kelantan State Land Development Board (TAKDIR) account for 41% of the allocations for agriculture and rural development in Kelantan and for 56% in Trengganu.

17. The SEDCs are expected to continue to play key roles in commerce and industry, accounting for 63% of projected expenditure in this sector in Kelantan and 62% in Trengganu. PETRONAS (Petroliam Nasional Berhad), the Heavy Industries Corporation (which would be the principal public agency in an iron and steel project) and the Trengganu SEDC will be the leading agencies in the development of the urban-industrial complex in southern Trengganu discussed in Chapters 4 and 10 of Volume 2.

/1 The Lembaga Kemajuan Kelantan Selatan and the Lembaga Kamajuan Trengganu Tengah, respectively.

/2 The Federal Land Development Authority.

FEDERAL, STATE AND CONCURRENT LEGISLATIVE LISTS APPLICABLE TO PENINSULAR MALAYSIAN STATES

Federal List

External affairs; defense, internal security; civil and criminal law and procecure, and the administration of justice; federal citizenship and naturalization; aliens.

The machinery of government (subject to certain provisions of the State List).

Finance, including currency, legal tender and coinage; national savings and savings banks; loans to or borrowing by the states, public authorities and private enterprise; public debt of the Federation; banking; control of credit; foreign exchange; capital issues; and commodity exchanges.

Trade, commerce and industry, including the production, supply and distribution of goods; price control; food control; imports into, and exports from the Federation; industries, regulation of industrial undertakings; and subject to certain provisions of the State List development of mineral resources.

Shipping, navigation and fisheries, including ports and harbours.

Communications and transport, including roads, bridges, ferries and other means of communication if declared to be federal by or under federal law; railways; airways; post and telecommunications; wireless, broadcasting and television.

Federal works and power, including water supplies, rivers and canals, except those wholly within one state or regulated by an agreement between all the states concerned; electricity; gas and gas works.

Surveys, inquiries and research, including scientific and technical research.

Education, including elementary, secondary, and university education; voctional and technical education; training of teachers.

Medicine and health, including santiation in the Federal Capital.

Labor and social security; including trade unions; unemployment insurance; health insurance; widows', orphans' and old age pensions.

Newspapers; publications.

Cooperative societies.

State List

Muslim religious law.

Land, including land tenure; land improvement and soil conservation; permits and licences for prospecting for mines; mining leases; transfer of land; mortgages and leases.

Agriculture and forestry.

Local government.

Other services of a local character, such as markets and fairs, and licensing of theates.

State works and water; roads, bridges and ferries other than those in the Federal List.

Machinery of the State Government, including loans for state purposes; and public debt of the state.

Concurrent List

Social welfare; animal husbandry; veterinary services; town and country planning, except in the Federl Capital; and public health.

Source: Malaysia, Federal Construction, Ninth Schedule. Sabah and Sarawak have more extensive powers than the peninsular states.

STATE INCOME AND EXPENDITURES, 1977-79
(M$ million)

	Income			Current expenditures			
	State sources	Federal sources	Total	Personnel expenses	Contribution to consolidated dev. fund	Total /a	Development expenditures
Northeast							
Kelantan							
1977	26.5	20.3	46.8	24.5	-	43.6	25.3
1978	31.5	19.8	51.1	16.8	-	38.6	26.1
1979 (budgeted)	28.4	19.7	48.1	18.0	-	41.4/b	39.3
1977/78 average per capita	M$35	M$24	M$52		-	M$49	M$31
Trengganu							
1977	27.6	11.6	39.1	31.8	2.9	50.4	21.5
1978	-	-	59.0	30.5	3.0	53.0	-
1979 (budgeted)	77.9	8.6	86.5	31.9	-	84.6	111.8
1977/78 average per capita	M$55	M$23	M$96			M$101	M$43
Other Peninsular States							
Johor							
1977	95.5	34.2	130.7	58.1	17.0	124.5	-
1978	90.0	18.5	108.5	51.2	15.0	131.5	33.9
1979 (budgeted)	91.7	16.6	108.4	56.4	13.0	120.9/b	52.7
1977/78 average per capita	M$61	M$17	M$78			M$84	M$22
Kedah							
1977	30.2	23.7	53.9	26.9	3.0	60.8	43.7
1978	38.0	13.0	51.0	27.9	2.0	49.8	33.0
1979 (budgeted)	31.2	12.9	50.6/b	24.4	1.0	49.6/b	84.8
1977/78 average per capita	M$32	M$17	M$49			M$52	M$36
Melaka							
1977	15.0	12.4	27.4	15.4	3.2	26.8	7.0
1978	-	-	22.3	-	-	23.7	9.1
1979 (budgeted)	12.3	7.2	19.6	12.3	-	32.9	46.4
1977/78 average per capita	M$34	M$56	M$56			M$57	M$18
Negri Sembilan							
1977	46.3	11.5	57.7	29.0	5.6	55.5	13.1
1978	42.0	11.1	53.1	23.4	8.2	50.6	18.7
1979 (budgeted)	46.0	9.3	55.3	25.0	9.3	61.6	41.7
1977/78 average per capita	M$81	M$21	M$101			M$97	M$29
Pahang							
1977	75.9	15.9	91.8	35.1	10.0	100.6	-
1978	102.4	13.7	116.1	45.6	10.0	104.4	-
1979 (budgeted)	107.8	25.7	133.4	41.2	17.0	136.7	86.1
1977/78 average per capita	M$126	M$21	M$147		-	M$145	-
Pulau Pinang							
1977	24.6	17.6	42.2	14.1	39.5	54.4	29.5
1978	26.0	19.2	45.2	18.8	-	40.2	24.7
1979 (budgeted)	33.0	9.8	43.0/b	17.1	68.0	40.6/b	32.5/b
1977/78 average per capita	M$29	M$21	M$50			M$54	M$18
Perak							
1977	103.0	45.4	148.5	65.2	-	151.8	-
1978	85.3	42.5	127.8	54.4	17.5	123.1	-
1979 (budgeted)	88.2	64.0	152.1	56.1	22.4	178.4	78.5
1977/78 average per capita	M$55	M$26	M$80			M$80	-
Perlis							
1977	3.4	4.6	8.0	5.3	-	11.2	4.6
1978	-	-	8.5	5.6	-	10.4	5.0
1979 (budgeted)	3.4	3.4	6.8	6.0	-	11.4	21.8
1977/78 average per capita	M$24	M$33	M$58			M$76	M$34
Selangor							
1977	80.0	110.5	188.7	56.0	21.6	140.3	81.6
1978	109.8	112.0	221.8	44.7	114.0	214.5	93.9
1979 (budgeted))	120.3	32.3	152.6/b	41.7	177.5	231.6	119.6/b
1977/78 average per capita	M$70	M$82	M$152			M$131	M$65
Eastern Malaysia							
Sabah							
1977	669.4	46.9	176.3	58.8	120.0	556.7	196.8
1978	716.6	60.7	777.3	108.1	156.6	637.6	186.8
1979 (budgeted)	1,393.4	46.3	1,960.7/b	95.4	160.2	926.0/b	228.9
1977/78 average per capita	M$753	M$58	M$811			M$649	M$208
Sarawak							
1977	155.0	46.2	201.2	68.2	33.0	167.6	78.8
1978	184.3	54.5	238.8	100.5	72.6	289.6	138.6
1979 (budgeted)	203.2	39.3	242.5	87.9	88.8	281.5/b	139.8/b
1977/78 average per capita	M$139	M$41	M$180			M$187	M$89

/a *Includes other items in addition to Personnel Expenses and Contributions to the Consolidated Development Fund.*

/2 Actual.

Source: Ministry of Finance; 1977/78 state populations calculated from data provided in Preliminary Field Count Summary, 1980 Population and Housing Census of Malaysia, Table 1 (Department of Statistics, October 1980).

REVENUE SOURCES ASSIGNED TO THE STATES

1. Revenue from toddy shops.

2. Revenue from lands, mines and forests.

3. Revenue from licenses other than those connected with mechanically propelled vehicles, electrical installations and registration of businesses.

4. Entertainment duty.

5. Fees in courts other than federal courts.

6. Fees and receipts in respect of specific services rendered by departments of State Governments.

7. Revenue of town boards, town councils, rural boards, local councils and similar local authorities other than:

   (a) municipalities established under any municipal ordinance;
   (b) those town boards, town councils, rural boards, local councils and similar local authorities which have power under written law to retain their revenues and control the spending thereof.

8. Receipts in respect of water supplies, including water rates.

9. Rents on state property.

10. Interest on state balances.

11. Receipts from land sales and sales of state property.

12. Fines and forfeitures in courts other than federal courts.

13. Zakat, Fitrah and Bait-al-Mal and similar Islamic religions revenue.

14. Treasure trove.

Source: Malaysia, Federal Constitution, Tenth Schedule, Part III.

KELANTAN STATE REVENUES, 1979-81

	1979	1980 (estimate)	1981 (preliminary estimate)
State Sources			
Tax Revenues			
Land and minerals	4,735,348	4,395,422	4,486,860
Forest royalties	7,138,322	8,945,820	9,000,000
Entertainment	541,099	588,575	530,000
Others	238,514	195,568	230,030
	12,653,283	14,125,385	14,246,890
Nontax Revenues			
Licenses & permits	1,354,736	2,054,316	1,591,930
Services payments	-	-	-
Water supply	2,349,678	1,945,053	2,250,000
Others	1,369,102	1,812,018	1,977,030
Proceeds from sales of goods	1,016,678	-	-
Land	1,016,678	883,688	900,000
Forestry premia & others	9,565,740	11,527,483	4,586,010
Rentals	150,571	164,110	261,210
Return on investments	775,445	1,720,233	1,383,010
Others	592,276	1,502,757	1,823,990
	22,487,157	21,609,658	14,773,180
Total State Sources	35,140,440	35,735,043	29,020,070
Federal Sources			
Grants			
Road maintenance grant	3,157,480	3,218,599	3,800,000
Capitation grant	5,554,214	5,554,214	6,619,500
Revenue growth grant	-	-	4,000,000
Other	345,983	11,400,000	420,060
Total Federal Sources	9,057,677	20,172,813	14,839,560
Total Revenues	44,198,117	55,907,856	43,859,630

Source: Kelantan State Government.

Table 3-1.5: TRENGGANU STATE REVENUES, 1975-81

	1975	1979	1980	(Estimate) 1981
State Sources				
Tax Revenues				
Land rent	1,395,308	1,824,235	1,908,271	1,830,000
Timber roylaties	7,976,426	19,734,793	10,221,895	16,500,000
Petroleum royalties	-	75,114,699	108,435,711	182,000,000
Miscallenous indirect tax	-	-	-	-
Taxes	287,800	395,176	417,587	300,000
Others	4,046,425	457,161	471,886	199,260
	13,705,957	97,526,064	121,535,350	200,829,270
Nontax Revenues				
Licenses & permits	362,500	1,473,069	1,445,105	1,225,705
Services & service fees	434,770	1,262,847	910,879	730,239
Proceeds from sale of goods	2,201,460	8,630,290	8,181,140	7,564,720
Rentals	309,750	759,433	656,327	510,450
Return on investments	111,000	999,116	2,515,243	854,530
Fines & penalities	17,376	846,659	939,286	236,010
	3,436,856	13,971,414	14,647,980	11,121,654
Total State Sources	17,142,815	111,497,478	136,183,330	211,950,924
Federal Sources				
Refund of Expenditures	24,625	1,853,802	3,906,231	1,715,573
Grants				
Road maintenance grant	2,568,964	3,935,114	4,102,440	2,747,280
Capitation grant	3,371,472	4,432,208	4,432,208	4,432,218
Revenue growth grant	-	-	3,248,000	3,248,000
Other	4,129,327	466,526	810,824	451,030
Total Federal Sources	10,094,388	10,687,650	16,499,703	13,594,101
Total Revenues	27,237,203	122,185,128	152,683,033	225,545,025

Source: Trengganu State Government.

TRENGGANU STATE EXPENDITURES, 1975-81

	1975	1979	1980	1981 (estimate)
Operating Expenditures				
Personnel	19,373,578	26,231,051	34,402,931	47,175,939
Services and supplies	7,716,547	15,298,668	14,816,888	19,005,025
Acquisition of capital assets	3,053,496	11,827,293	23,008,581	48,557,103
Transfer payments	830,000	15,700,000	39,935,494	77,741,056
Interest and other debt charges	-	4,461,971	4,448,847	16,404,214
Others	156,438	34,574	92,902	112,000
	31,130,059	73,553,557	116,705,643	208,995,337
Development Expenditure				
Public works	6,612,456	17,303,145	43,575,024	118,858,103
Agriculture and rural development /a	1,260,567	4,421,238	9,191,388	13,938,870
Forestry	25,214	717,268	1,272,897	1,135,286
General and miscellaneous development schemes	8,899,971	15,732,647	31,181,896	159,752,862
Water supply	2,043,961	6,934,698	10,945,104	43,200,010
Local government and district offices	-	-	-	18,512,610
	18,842,169	45,108,996	96,166,309	355,397,741

/a Includes land development, agriculture, irrigation schemes, flood control schemes and veterinary services.

Source: Trengganu State Government.

KELANTAN STATE EXPENDITURES, 1979-81

	1979	1980	1981 (estimate)
Operating Expenditures			
Personnel	19,054,286	25,970,024	39,517,630
Services and supplies	15,135,014	10,851,799	10,051,155
Acquisition of capital assets	9,748,157	3,315,485	942,075
Tranfers	6,456,268	14,913,420	12,795,385
Interest and other debt charges	1,214,268	972,733	4,098,246
	12,653,283	56,023,461	67,404,491
Development Expenditure			
Transport	41,482,795	58,078,518	127,079,000
Agriculture & rural development	9,769,292	13,999,086	19,544,010
Commerce and industry	15,200,000	68,113,000	65,000,000
Housing	7,631,883	21,406,231	50,570,080
Water supply	4,519,256	16,728,986	26,513,100
Others	3,484,071	14,024,851	19,027,600
	82,087,297	192,260,672	307,733,800

Source: Kelantan State Government.

FOURTH MALAYSIA PLAN SECTORAL ALLOCATIONS
IN KELANTAN AND TRENGGANU, 1981-85
(M$ million)

	Kelantan	Trengganu
Economic		
Agriculture & Rural Development		
FELDA	115.66	122.80
FELCRA	47.96	41.46
KETENGAH		
KESEDAR	250.00	250.00
TAKDIR	27.00	
Other	622.40	330.56
Total	1,063.02	744.82
Commerce & Industry		
SEDCs	178.30	162.70
Heavy industries corporation		55.90
Other	105.54	46.40
Total	283.84	265.00
	571.45	474.51
Other	1,918.31	1,484.33
Social	310.75	217.99
Security	528.50	71.71
Administration	23.66	9.42
Total	2,847.75	2,023.11

Source: Fourth Malaysia Plan 1981-85, Appendix A, pp. 393-402.

MALAYSIA

REGIONAL DEVELOPMENT AND URBANIZATION IN THE NORTHEAST

FMP Regional Transportation Network Program

1. Highways. The present policy is to strengthen interregional and intraregional transport links between urban areas with inter-city highways and roads both new and improved. Table 3-2.1 indicates the major works which are also shown on IBRD Map 16084. These roads are also expected to improve accessibility to the rural hinterland through which they traverse, in some instances providing commercial access for the first time. The highway improvement will reduce journey time both by increasing average speeds in the case of upgrading and, more significantly, by considerably reducing distances to be traversed in the case of new roads.

2. The present distance from Kota Bharu to Kuala Lumpur is 660 kms but with the opening of the East/West highway along the Thai border this distance will be reduced to 510 kilometers and when the route Kuala Krai/ Kuala Lipis/Raub/Bentong/Kuala Lumpur is completed this distance will be reduced further to 310 kms, or less than one half the present distance.

3. Even more dramatic is the reduction in journey time and distance afforded by the East/West highway link between Kota Bharu and Pinang. For the journey to be accomplished within Malaysia, the present routing would be via Route III to Kuantan, then Route II to Kuala Lumpur and finally Route I to Pinang, a distance of some 980 kilometers. This will be reduced to 272 kilometers, slightly over a quarter of the present distance when the new route is opened in 1982.

4. The total length of Route III (180 miles) within Trengganu is being improved by widening the carriageway to 7.5 m, provision of hard shoulders and overslabbing. This contract is due to be completed in 1983 and should not only improve the safety of this route but also reduce journey time by 4.5%.

5. The hinterland route within Ketengah, parallel to the coastal route has short stretches which will require more maintenance than normal despite its recent construction date but is not in need of major upgrading.

6. Railways. The existing railway system is Y-shaped and consists of a West coast and a central hinterland line.

7. The present strategy is to upgrade the whole system providing new modern locomotives and rolling stock and improving the permanent way. A study is being undertaken to consider electrificaation of part of the system, but this is not likely to effect the central line which serves Kelantan. The single track narrow gauge central line running from Germais

to Negri Sembilan to Tumpat in Kelantan can expect to receive new stock and some upgrading of the track which will improve both its riding standard and speed capability and load carrying capacity and thus improve its viability as a major form of bulk transport of timber and natural resources from the central hinterland of Southern Kelantan.

8. The present rolling stock has been in use for in excess of 115 years and is subject to fairly high maintenance costs and some breakdown. The present timetable shows two trains per day traversing the complete route Tumpat to Gervais with three intermediate trains traversing part of the route. The journey time from Gervais to Tumpat is 19 hours on average./1

9. The terms of reference for a feasibility study for a new east coast rail link from Kuala Lumpur to Kuantan/Kuala Trengganu/Kota Bharu are to be issued in 1982.

10. Ports. The principal external trade ports of peninsular Malaysia are situated on the west coast and whilst the subsector program is to continuously modernize and improve these ports, the provision of an external maritime outlet for the east coast has also figured prominently in the program. A major port has been constructed at Gelang some 12 km north of Kuantan, within the state of Pahang. Kuantan port constructed in 1978-80 at a cost of M$108 million is yet to become operational due to engineering problems./2 A recent consultant's report has recommended remedial works which it is understood may cost in excess of M$100 and take 15 months to complete. This would allow the full port facilities to be available for use in 1983. At present, only part of the port is in use (that relating to the palm oil terminal).

11. There are small ports along the east coast at Kota Bharu, Kuala Trengganu, Dungun and Chukai which are important to the local east coast fishing industry but cannot be used for significant external trade (except for insignificant coastal barge traffic to Johor and Singapore). All of these ports and harbors suffer from navigation problems due mainly to siltation from the rivers and periodically during the annual monsoon season.

/1 The present volume of traffic on the central line for the last three year period, shows an 18% increase in passengers and a 13.33% increase in freight, with a corresponding 3.79% increase in passenger revenue and 23.50% increase in freight revenue. Passengers carried to the state of Kelantan in 1980 amounted to 4,145,721 and from the state 4,375,945. The principal freight out of the state was logs 464,654 tons of logs and the principal imports into Kelantan were cement 98,437 tons and petrol 48,965 tons (Source: Malayan Railways).

/2 The quay wall has rotated outwards causing the quay to settle differentially, the underground services to be fractured and for the single story warehouses, behind the quay to break their backs.

12. As part of the requirements of the oil and gas exploration undertakings in the South China Sea, off the coastline of Trengganu, a supply base is currently being constructed at Telok Kalong just north of Chukai. The present facility with caisson quay wall, mooring dolphin and breakwater is designed for supply vessels of 10,000 dwt. It is proposed to extend these first phase facilities to cater for 65,000 dwt bulk ore carriers to supply the DR/Billet plant planned for the Telok Kalong industrial area. This first phase is planned to be operational by 1984. A second phase to accommodate vessels up to 100,000 dwt is proposed in the period 1984-88 and would be for large bulk carriers of iron ore. Stage III for ocean-going vessels of 150,000 dwt and general cargo is suggested for the period past 1988. This maritime facility is further discussed in the industrial corridor section (Chapter 10).

13. A study /1 has recently been completed for a potential external trade port in the state of Kelantan. The proposed Kelantan port is to be situated at Sabak-Kemasin which is on the coast almost due east of Kota Bharu. The study proposes first stage development of a new port to cater for coastal type shipping (5,000 dwt) and possible second stage expansion to handle larger deep-sea vessels. The total planned area is some 800 acres. The first phase is estimated to cost M$88 million (1980 prices) and will take 2-3 years to build after the decision is taken to implement the project. Phase II is estimated to cost some M$300 million (in 1980 prices).

14. Facilities for the rehabilitation of the coastal fishing industry are included in the first phase, since the siltation of the Sg. Kelantan, Sg. Senok and Sg. Kemasin is making it increasingly difficult for the local fisherman to navigate. In addition the industry's continued existence and possible expansion depends on using larger boats to access fishing grounds beyond the current customary 100 km coastal range. The siltation problems are of recent origin and can be attributed directly to poor logging practices in the forest concessions upstream (which have contributed to erosion on mountain slopes and increased sedimentation in the rivers) rather than to seasonal monsoon rains.

15. Airports. A policy document for the development of airport facilities has been prepared by the Ministry of Civil Aviation./2 The airport program for peninsular Malaysia confirms Kuala Lumpur as the principal international airport with Pinang as a port of secondary international importance. The remaining airports are required for domestic flights. Johore Bharu airport is being developed to allow for use by large cargo aircraft so that this airport may also be used as an international/regional

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/1 The Feasibility Study Report for Kelantan Port Development project in Malaysia, 1981.

/2 National Airport System Plan, BAI, 1981.

cargo center from 1982 onwards. The current program includes provision of rural airstrips for use by light aircraft to provide feeder services to domestic airports, these services have not been developed to date.

16. The service to the east coast states focusses on internal domestic services radiating from Kuala Lumpur (rather than external or international links) to Kota Bharu, Kuala Trengganu and Kuantan by Boeing 737 aircraft and occasional service from Kota Bharu to Ipoh and Pinang. A helicopter and light aircraft base associated with the oil industries is to be developed at Kerteh. Other air movements associated with servicing the oil rigs and personal movements are being studied.

17. As of September 1981, a commitment has been made in principal to eventually upgrade Kota Bharu airport to accommodate wide-bodied aircraft to Boeing 747 standard, this commitment includes the lengthening of the runways, new terminal buildings, landing aids and associated works. However, Malaysian Airline Systems has produced an operational plan covering the period to 1990 and this shows that the largest aircraft that the national airline is likely to use upon this route is an A300 airbus. Thus, a more modest extension of some 2,000 ft. of runway (to 9,000 instead of 11,000) would be satisfactory for this operation together with a similar modest extension of the terminal facilities, rather than the proposed runway extension and expansion of terminal facilities required to handle B747's with the local staffing and logistical improvements required to support international transport (for cargo and passengers).

Table 3-2.1: PROPOSED AND ONGOING REGIONAL HIGHWAY PROJECTS

IBRD Map 16084 reference Number	Route	Present distance (miles)	Description of existing route	Work proposed to route	New distance (miles)	Est. saving journey time (min. est. journey time)	Description of new route	Programming	Present status
I.	Kelantan Interregional								
A.	East-West link and support								
1	Link to Jeli East/West Highway	-	-	New East/West Highway to -05 standard	135.00	(180.00)	New route 7.5 m carriageway with 2 m hard shoulders. Surfaced.	1978-81	Under construction; completion early 1982.
2	Extension of East/West Jeli to Maching	43.10	Surfaced route 14-18 ft carriageway with minimal shoulders in part	Upgrade part of existing route, part new route	40.86	19.40	Carriageway 7.5 m with 2 m shoulders to 05 standard.	1982-85	Under design.
3	Support route to East/West Highway - Maching to Pasir Puteh	12.67	Surfaced route 14-18 ft carriageway with minimal shoulders in part	Upgrade part of existing route, part new route	11.47	6.43	Carriageway 7.5 m with 2 m shulders. 05 standard.	1984-86	Under design.
4	Support route to East/West Highway - Batu Gagah to Rantau Panjang	15.44	Semisurfaced route	Upgrade existing route	15.44	25.73	Carriageway 7.0 m with shoulders. -05 standard.	1986 onwards	Under feasibility study.
5	Jeli to Dabong	34.00	Part surfaced with poor alignments	Upgrade existing route	34.00	45.00	Carriageway 5.6 m with shoulders to 03/04 standard.	Under construction. Completion 1982.	Under construction; completion 1982.
B.	North-South link and support								
6	Kota Bharu to Kuala Krai	44.00	Surfaced 17-24 ft with narrow shoulders in part	Upgrade on existing route	44.00	20.00	Carriageway 7.0 m with 1.5 m shoulders to 04/05 standard.	Part completed 1984.	Work under way; completion 1983.
7	Kuala Krai to Gua Musang	-	Mainly logging track	Upgrading of some route, mainly new route	72.00	85.00	Carriageway 7.0 m with shoulders to 04/05 standard.	1982/83	Under construction; completion 1983.
8	Gua Musang to Kuala Lipis	-	Mainly forestry logging track	Upgrade some existing route, some new route	70.00	(100.00)	Carriageway 7.0 m with shoulders to 04/05 standard.	1983-85	Design stage.
9	Kuala Lipis to Kuala Lumpur	77.00	Sub-standard road part Route II	Upgrade route, part new route	77.00	-	Carriageway 7.0 m with shoulders 04/05 standard.	1985 onwards	Under feasibility study.
10	Dabong to Kuala Krai	-	Mainly forestry logging track	Upgrading and new route with new river crossing	22.00	(38.00)	Carriageway 7.0 m with shoulders to 03/04 standard.	1984 onwards	Designed.
II.	Kelantan Intraregional links and radials								
A.	Northern Plain								
11	Kota Bharu to Pasir Puteh	32.60	Surfaced 14-18 ft carriageway with minimal shoulders in parts	Upgrade existing route	32.60	20.00	Carriageway 7.0 m with 2.0 m shoulders to 05 standard.	1985	Under feasibility study.
12	Pasir Mas to Rantau Panjang	11.00	Sufaced 14-18 ft carriageway	Upgrade existing route with new river crossing	11.00	5.00	Carriageway 7.0 m with shoulders to 04 standard.	1985	Under design.
B.	Interior Hinterland								
13	Gua Musang to Lasah	-	Logging tracks	Upgrading	65.00		Widening and improvement of surface.	1981-84	Part under construction; part under study.
14	New route Kuala Krai - Gua Musang to Kuala Brang	-	Logging tracks or no route	Upgrading and new route	60.00 approx.		Carriageway 5.5 m to 03 standard.	1985 onwards	Under study.
15	Dabong to Gua Musang	-	Logging track or no route	Upgrading and new route	27.00		Widening and improvement of surface.	1983 onwards	Under study.
III.	Trengganu Interregional (coastal)								
16	Route III boundary with Kelantan to boundary with Pahang	180.00	Surfaced 16-20 ft with varying width of shoulder	Upgrade on existing alignment with some improvements and overslabbing	180.00		Carriage 7.0 m with shoulders to 04 standard.	1981-83	Under construction.
IV.	Trengganu Intraregional								
17	Kuala Trengganu new river crossing	-	Existing town roads to be used for approaches	Improvement of approaches and new river bridges	-		Carriageway 7.0 m with shoulders.	1983 onwards	Under study.
18	Kuala Trengganu to Kg. Dendang Baharu	38.00	Surfaced 14-18 ft with limited shoulders	Widening an d improvement onwards shoulders.	38.00		Carriageway 7.0 m with	1983	Under study and design.
19	Chukai Bypass	-	-	New route	1.00		Carriageway 7.0 m with shoulders.	15-25 years	Under study.
20	Kerteh Bypass	-							

MALAYSIA

REGIONAL DEVELOPMENT AND URBANIZATION IN THE NORTHEAST

FMP Regional Utilities Network Program /1

1. Power (Electrification). Power is a Federal function carried out by LLN. The objective is to provide power to all the population by 1990. The strategy /2 calls for the construction of a number of new generating stations using a variety of power sources, hydropower natural gas and oil. These generating stations are to be linked to a national grid at 275 kV and ultimately ringed.

2. As far as the northeastern states are concerned the policy is to connect Kelantan and Trengganu to the national grid and discontinue the present system of generation by small diesel fuel power stations (with total existing capacity, after a 12 MW addition in 1981, of roughly 50 MW vs. demand of about 36 MW) and hold it in reserve as a backup system.

3. A 400 MW capacity hydro-electrical power generation station is under construction at Temengor (Perak) and is scheduled for operation in 1982/83. This will be connected to the national 275 kV grid and will in the first instance act as a spur supply of 50 MW to Tanah Merah in Kelantan giving the grid supply of that state enough power to replace 100% of existing capacity immediately. A further extension from Tanah Merah to Kuala Krai and Gua Musang is currently being appraised by the World Bank. Ultimately, the 275 kV grid will be connected through to Trengganu by 1985 and form a complete national grid ring.

4. Another 415 MW capacity hydropower generation station is under construction at Kenyir (Trengganu) scheduled for operation in 1985/86. This again will be connected to the 275 kV national grid and will also give a direct 132 kV supply to parts of Trengganu.

5. A third 450 MW capacity power generation station, this time using natural gas as a power source, is being built at Paka (Trengganu). This is scheduled for operation in 1984. This station will also be connected to the 275 kV national grid but will have a direct 132 kV connection to the industrial areas of Kerteh, Telok Kalong and Kuantan to supply up to 342 MW for industrial projects.

/1 For reference see Map IBRD 16084.

/2 A study on energy resources in Peninsular Malaysia is currently underway, see Annex 4-3.

6. The combined capacity of these three generation stations will exceed the internal demand in the Northeastern region. Thus, they have to be viewed against the national demand. Additional generation could be achieved in the area by the provision of a second 450 MW capacity gas-fired station at Paka in Trengganu and possibly by hydropower at the Dabong Dam site in Kelantan. The 275 kV grid link from Temengor to Tanah Merah (Kelantan) is at present under implementation and is expected to be operational in 1982/83. The Kenyir generating station and Paka stations are both scheduled for operation in 1984/85. A grid system at 132 kV is also either being implemented or is planned to serve the urban and rural areas. The rural electrification scheme (which consists of distribution only) has been about 86% completed in Kelantan and 80% in Trengganu. Urban power requirements, particularly for Kuala Trengganu and Kota Bahru are discussed in Chapters 8 and 9.

7. Telecommunications. Telecoms is provided by Jabatan Telekom on a national basis, with a policy of making telephone and telex communication available for all demand. During the FMP period development of additional methods of communication such as telefax will be explored.

8. At present there is a shortage of circuits in certain areas of the north-eastern states due to lack of equipment but this is being remedied by the provision of new exchanges and additional cables. Within Kota Bahru these exchanges have a capacity of 7,400 lines, with 6,554 subscribers and a waiting list of 1,400. However, a new exchange is being constructed and improvements are being made which will add about 6,000 lines by early 1982, sufficient capacity for the next five years. In Kuala Trengganu current capacity is 8,000 lines (after extension in 1980/81) of which only 3,500 are in use. However, there exists nevertheless a waiting list and new subscribers are being connected at a rate of about 200 per month.

9. All telex communication for the north eastern states are at present handled by the exchange in Kuala Lumpur. Subscribers total 52 in Kota Bahru and 13 in Kuala Trengganu with a waiting list of 13 and 5 respectively. A new telex exchange is planned in the Kota Bharu area which will allow for automatic switching for all telex messages from Kelantan and Trengganu. At the present time the national average of outstanding requests for telephone connections is 33% whilst in Kelantan the figure is 34% (26% domestic and 8% commercial) and in Trengganu 16.8% (9% domestic and 7.8% commercial). The detailed provisions of telecoms is discussed in both the urban and industrial sections of Chapters 8 and 9.

10. Water. Water is a state function and is being provided, so far as capital costs are concerned, by the states with the aid of Federal loans or grants. The Malaysian Government has adopted the principles of the World Health Organization "Water Decade" and is aiming at those objectives.

11. In Kelantan the existing underground sources serving Kota Bharu are being further exploited and the existing treatment works replaced by

larger modern plants. The first stage for extraction from the River Kelantan is planned to supplement and meet immediate forecasted demand (5 years) for domestic and industrial purposes. Surface sources are used to supply other urban communities and rural areas. In parallel with the national policy to provide piped water to all the population, is the National Agricultural Policy whose guidelines lay down the objective to irrigate when possible. This latter demand is also being met from surface sources. The agricultural program shows an eventual area of approximately 87,900 ha to be irrigated. With a possible peak demand of residual flow required in the river to combat salinity the total demand on the Sq. Kelantan would be in order of 190 cu mecs in the year 2000. The implications of this total demand figure at periods of "low flow" conditions is discussed in chapters 8-10 where it should, however, be noted that a water shortage can occur in Kelantan in the near future if the present policy of uncontrolled development (particularly logging practices) in the Sq. Kelantan catchment area in South Kelantan continues coupled with 10-15 year recurring "low flow" conditions. A decision should be taken at a very early date on the recommendation put forth in the Land Use and Forest Management Study/1 to try to mitigate peak flow, sedimentation and low flow conditions. It will also be desirable to re-evaluate the decision regarding the impounding and control of flows within the River Kelantan Basin.

12. In Trengganu water is obtained from surface sources for Kuala Trengganu in the order of 4 mgd. In some instances, the present intake is being affected by salinity at low flow periods in the river Sg. Trengganu. A new scheme is being implemented for Kuala Trengganu with the intake further upstream which should meet the forecasted requirements for the next three years. Improved pumping and treatment equipment is being provided for Kemaman and Dungun whilst a new temporary scheme is planned for the Paka/Kerteh area together with a new scheme to serve the industrial area of Telok Kalong. The water sources in Trengganu should be adequate to meet the forecasted demands to the year 2000. The schemes proposed allow for a use of 50 ghd in urban areas and 30 ghd in rural areas together with the known needs of planned industries. These standards are similar to those adopted for the remainder of peninsular Malaysia. The schemes /2 together with phasing, are discussed in more detail in chapters 8-10 (see paras. 8.26-8.27 and 10.13-10.17).

13. Drainage - Foul. The provision of foul drainage is the responsibility of the local authority and has, to date, received a low priority in

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/1 Land Use and Forest Management Strategy for Southern Kelantan, Halcrow ULG, 1981.

/2 Water resources interim report, Binnie Dan Rakan, 1981.

implementation. Loans and in some cases grants are sought from the Federal Government for the carrying out of this service. Feasibility studies have or are currently being undertaken for 18 of the larger conurbations. Currently, a feasibility study is being carried out for Kuala Trengganu and the terms of reference are about to be issued for Kota Bharu, these studies are being funded from federal sources. There is a legal requirement under the Sewerage and Industrial Effluent Regulations (1979) which are being enforced from January 1, 1981 "for all housing developments having 30 or more dwelling units to meet the appropriate effluent standards."

MALAYSIA

REGIONAL DEVELOPMENT AND URBANIZATION IN THE NORTHEAST

Industrial Incentives

1. Pioneer Status (PS) has been the most important of the incentive schemes, used by 55% of all projects that received incentives. To qualify for PS, a project must be in an industry that does not exist or currently has an uneconomic scale but for which future potential is favorable and expansion is in the public interest. These conditions are obviously very flexible and are defined only on a case-by-case basis, which permits considerable leeway in granting assistance. Once granted, PS entitles firms to a tax holiday of from 2-8 years. The length of the holiday rises with the level of capital investment, from 2 years for expenditures of M$250,000 or less up to 5 years for expenditures of M$1 million or more. To this can be added a year each for priority products, Malaysian content and location in a Development Area (DA). Taxes exempted are the company income tax, development tax and taxes on dividends on tax exempt income paid to shareholders.

2. Labor Utilization Relief (LUR) is the least important of the incentive schemes, used by less than 3% of the projects granted an incentive. It provides projects deemed in the public interest with tax holidays that rise with the number of employees, from 2 years for firms with at least 50 employees to 5 years for firms with 351 or more employees. All other rules are identical to those under PS, i.e., the same taxes are exempted and there are up to 3 additional years of tax holidays for priority products, Malaysian content and a location in a DA. There are two reasons for the limited use of this incentive. It does not apply to small firms and it is advantageous only to firms with very small capital expenditures. For example, as a comparison with PS incentives shows, a firm with 50 employees would prefer LUR to PS only if its investment per worker was below M$5,000; a firm with 351 employees would use PS only if its investment per worker is less than M$2,850. In contrast, even firms without tax incentive averaged investments of M$20,000 per worker in recent years.

3. Locational Incentives (LI) were only established in 1974 when it became obvious that the one-year extension of the tax holiday for firms with (DA) locations were an insufficient incentive for decentralization. The LI provides firms that locate in a Location Incentive Area (LIA) tax relief on the basis of either employment or capital expenditures. Thus a 5-year tax holiday is allowed firms with capital expenditures of less than M$250,000 or less than 100 employees (thus eliminating the minimum employment requirement of the LUR). The tax holiday rises to 8 years for firms with capital expenditures of more than M$1 million or a work force of more than 350. An

additional year each is added for priority products and Malaysian content. Overall useage of this incentive has been limited to about 5% of all projects that received incentives. Unfortunately, no breakdown of incentives by state or LIA is available for recent years, but a rough estimate would be that as much as 30-40% of the projects with incentives, located in LIAs received LI.

4. Investment Tax Credit can be made available to firms that do not receive PS, LUR or LI tax holidays. The credit equals 25% of the total capital expenditures incurred during the first five years, with an additional 5% each for firms satisfying the priority product, Malaysian content or development area conditions, for a maximum credit of 40%. The credit can be carried forward until fully utilized. Because of this and because the credit is directly proportional to capital expenditures, rather than to taxable income as the other incentives, one would expect it to be popular with projects that have high capital expenditures relative to income or that show little income or losses during their early years of operation. Indeed, projects approved under this incentive are consistently more capital-intensive than PS projects, and the incentive in recent years has been used by 35% of all projects with incentive.

5. Tables 3-4.1 through 3-4.4 present data on projects granted incentives.

PROJECTS APPROVED ACCORDING TO TYPE OF INCENTIVE, MALAYSIA 1976-81

Incentive	1976	1977	1978	1979	1980	Jan-Feb 1981	Total
Pioneer status	24.7	24.5	25.7	21.9	22.6	15.9	23.8
Investment tax credit	17.9	14.0	16.8	12.6	15.9	15.5	15.4
Labor utilization relief	1.6	2.8	1.4	0.8	0.4	0.7	1.4
Location incentives	1.6	3.5	3.0	2.5	1.1	1.8	2.3
Other incentives	1.6	0.7	0.5	-	-	-	0.5
Without incentive	52.5	54.5	52.6	62.2	60.0	66.1	56.6
Total (%)	100.0	100.0	100.0	100.0	100.0	100.0	100.0
absolute	425	400	428	760	460	277	2,197

Source: MIDA; data include Sabah and Sarawak.

APPROVED PROJECTS BY IMPLEMENTATION PROGRESS IN MALAYSIA, KELANTAN AND TRENGGANU, 1970-1980

Year	Projects approved			Projects implemented			Projects in initial implementation stages			Project not implemented		
	Mal.	Kel.	Treng.	Mal.	Kel.	Treng.	Mal.	Kel.	Treng.	Mal.	Kel.	Treng.
1970	334	-	4	178	-	-	6	-	-	150	-	4
1971	304	2	1	174	-	-	5	-	-	125	2	1
1972	355	2	5	218	1	2	3	-	-	134	1	3
1973	473	4	6	278	3	2	17	-	-	178	1	4
1974	525	3	4	299	2	1	33	-	-	193	1	3
1975	461	9	7	264	3	5	54	1	-	143	5	2
1976	425	8	4	244	5	3	78	-	-	103	3	1
1977	400	10	7	288	4	6	57	-	1	55	6	-
1978	428	6	9	297	2	7	98	-	2	33	4	-
1979	484	10	7	309	5	4	142	4	3	33	1	-
1980	460	11	9	181	2	2	262	9	7	16	-	-
Total	4,649	65	63	2,730	27	32	756	14	13	1,163	24	18

Source: MIDA.

APPROVED PROJECTS, PROPOSED INVESTMENT SIZE AND INVESTMENT PER WORKER IN PROJECTS WITH PIONEER STATUS AND PROJECTS WITHOUT TAX INCENTIVES, MALAYSIA, 1973-1979

	Number of approvals		Proposed investment per project (M$ million)		Proposed investment per worker (M$ 1,000)	
	PS	No incentives	PS	No incentives	PS	No incentives
1973	179	236	5.0	0.6	18.2	9.1
1979	166	305	5.9	1.1	26.1	16.0
1975	95	788	3.4	1.2	35.4	22.1
1976	105	223	6.0	1.3	42.2	29.0
1978	98	218	2.9	0.9	26.4	17.2
1979	107	301	5.4	3.6/a	21.5	58.6/a
Annual average	123	257	4.7	1.4	29.2 (30.5)/b	24.8 (19.2)/b

/a Excluding petroleum and coal projects.

/b Average excluding 1979 data.

Source: MIDA; data include Sabah and Sarawak.

INTRA- AND INTERREGIONAL DISTRIBUTION OF APPROVED PROJECTS BY INVESTMENT INCENTIVES, PENINSULAR MALAYSIA 1970-1977

Region/Incentive Category	1970	1971	1972	1973	1974	1975	1976	1977	1980
				Intra-regional /a					
Kelantan, Trengganu, Kedah, Perlis									
Pioneer status	54.6	75.0	66.7	44.4	40.5	28.3	28.2	22.5	
Other incentives	9.1	25.0	33.3	14.8	20.0	32.1	35.9	50.0	
Without incentives	36.4	-	-	40.7	40.5	39.6	35.9	27.5	
Total (Absolute)	11	8	18	27	37	53	39	40	43
Peninsula									
Pioneer status	49.0	52.3	43.1	37.7	31.1	20.7	24.3	22.6	
Other incentives	10.1	10.0	9.4	12.0	10.4	16.7	22.9	21.2	
Without incentives	40.9	37.6	47.5	50.2	58.5	62.6	52.8	56.2	
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	
				Inter-regional /b					
Kelantan, Trengganu, Kedah, Perlis									
Pioneer status	4.1	4.1	8.7	7.5	10.0	17.2	12.2	11.1	
Other incentives	3.3	7.1	20.0	7.8	14.0	24.3	16.5	26.3	
Without incentives	3.3	-	-	5.2	5.3	8.0	7.1	5.5	
Total	3.7	2.9	5.6	6.4	7.7	20.0	10.5	11.2	105
Peninsula (Absolute)									
Pioneer status	145	16	138	160	150	87	90	81	
Other incentives	30	28	30	51	50	70	85	76	
Without incentives	121	108	152	213	282	263	196	201	
Total (Absolute)	296	282	320	424	482	420	371	358	411

/a Percent of total in each region.

/b Percent of total of each incentive category in the peninsula.

Source: D. Spinanger, Regional Industrialization Policies in a Small Developing Country: A Case Study of West Malaysia, Table 19 (Kiel: Institut fur Weltirtschaft, 1980), except for 1980 for which data are directly from MIDA.

MALAYSIA

REGIONAL DEVELOPMENT AND URBANIZATION IN THE NORTHEAST

Mineral Resources in the Northeast

1. Metallic Mineral Resources. There is in general very little mining activity in either Kelantan or Trengganu. In particular, apart from a small tin mining operation near Bukit Rakit in Trengganu, the mining of iron, wolfram and manganese has declined to the point that by 1980 there was almost no significant mining of metallic minerals in the Northeast. This low level of mining activity has not always been the case, particularly in Trengganu. As noted in TCRS, until the closure of the Bukit Besi open-cut iron ore mine in the late 1960s, Trengganu was the most important iron ore producing state in Peninsular Malaysia./1 During this period the mine was the economic backbone of the state. In fact, the mine continued extracting tin ore between 1970-76, and it was only with its final closure in 1976 that there was an impetus to create an alternative economic base in southern Trengganu which led to the establishment of Ketengah as a regional development authority charged with opening up the Trengganu hinterland.

2. The mineral resources in both Kelantan and Trengganu have not been comprehensively surveyed to provide adequate information on their potential. Production of land use maps and survey reports have all relied upon surface evaluation and previous mine operation records. As yet, a comprehensive geochemical or aerial geophysical survey has not been conducted for the whole region. The most comprehensive survey to date has been the CIDA (Canadian International Development Authority) survey in 1977-79 of the 31,000 sq km of the "Central Belt Project Area" which excluded the coastal regions of the Northeast but included the central part of Pahang state. Follow-up work has commenced by the Malaysians. However, prospecting is at a very preliminary stage and is very selective, excluding inaccessible areas of the hinterland. The 1977-78 data reconnaissance report has just been completed but not yet published. The findings are apparently encouraging, but the information, particularly on metallic mineral deposits, is being treated as highly confidential pending negotiations for more in-depth exploration by mining corporations (e.g. the Malaysia Mining Corporation, MMC, in Kelantan, etc.)

3. The initial surveys have confirmed the availability of the following deposits in the Northeast region:

/1 Up to 1965 Bukit Besi had produced 36 million tons of ore, almost half the total production for Malaysia.

Molybdenum	Bauxite
Tin	Quarry sites (Granite, Limestone,)
Mercury	Ilmenite/Rutile
Kaolin/Illite	Clay (suitable for brick making)
Silica	Graphite
Tungsten	Iron
Gold	

However, the size of these deposits, in terms of recoverable reserves, their concentration and the economic viability for mining, is not known from the available information. It is probably safe to assume that, since exploration is still in very preliminary stages, these deposits do not represent major possibilities for mining production in the 1980s, except in the case of some nonmetallic minerals discussed next.

4. Nonmetallic Mineral Resources. Production of nonmetallic minerals in the Northeast is at present very small. For example, production data for Trengganu for 1977 provided in a geological survey report (cited in TCRS, Vol. 2, Table 4-1.1) shows a gross output valued at under M$3 million. However, nonmetallic minerals are found throughout the Northeast and do represent potentially exploitable reserves. For example, clay deposits are available which are suitable for brick making, pipe manufacture, building tiles and a range of ceramics. And proposals to exploit this resource are under consideration in both states./1 However, in the case of Trengganu it is unlikely that there will be adequate demand during FMP to justify exploitation of the Trengganu coastal region's clay resources to any significant degree if the proposed Kentengah project to be located near "city E" is implemented.

5. Quarry stone deposits also abound in the Northeast and are likely to be exploited for future construction activity, including road works./2

/1 The Kelantan SEDC is proposing to invest M$1.0 million in a Pasir Mas bricks and clay products factory to commence operations in mid-1982 and employ 30 workers. A much larger, M$7.0 million, joint venture is under negotiations between Ketengah (in Trengganu) and a German firm (with an initial Ketengah equity holding of 40% increasing incrementally to 75%). This project is also likely to commence operations in 1982 and employ approximately 115 workers (to produce 14 million bricks and 4.5 million roof tiles annually as well as an assortment of flooring and wall tiles and pipes).

/2 Possible expansion of the Bukit Buloah/Machang aggregates firm in Kelantan to include a new pre-mix concrete plant at a cost of M$1.2 million is under consideration by Kelantan SEDC. Similarly, a pre-mix plant with an annual capacity of 70,000 tons is under consideration by Ketengah with 100% of the output to be marketed in the Kerteh-Kemaman area where substantial construction activity is anticipated during the FMP.

However, none of the plants currently under consideration will employ more than 10 workers since they have been scaled to ensure that the availability of raw materials and a ready market is not a problem.

6. Silica sand deposits are found, primarily in the coastal region of Trengganu, and the eight major known deposits, with approximate reserves ranging from 1-5 million tons each, represent a significant raw material with potential for further processing in a range of glass products./1 However, no firm proposals have yet been made to identify a scale of operations and the markets to be served, even though Dungun has been selected by the Trengganu SEDC as the preferred location for production since it can draw on the availability of gas in Trengganu.

7. Thus, the scale of operations currently under consideration for the exploitation of clay, stone and sand deposits by the public sector are generally small and though useful in terms of utilizing local natural resources will not be major contributions to regional VA and employment. It should be noted, however, that the public sector does not account for a major share of the processing of nonmetallic minerals and that data on private sector operations and investment programs are not readily available.

8. Cement. Of the proposals to use the region's nonmetallic mineral resources, the potentially most significant in scale is cement production in Kelantan. A number of preliminary geological surveys report the existence of half a dozen major limestone outcrops in Kelantan ranging in size from 70 million tons at Gua Setir and Gua Maka in the northern part of the state (of which 20 million tons at Gua Setir are considered to be workable reserves and adequate to support a cement plant with annual capacity of 500,000 tons for 25 years) to 185 million tons in Dabong and north of Bertam in the center of the state, to as yet undetermined but potentially much larger reserves in Gua Musang in the southern heartland of the KESEDAR region. The reserves in and around Gua Musang in Ulu Kelantan are considered to be more easily quarried than those in the north. However, they are also located the furthest away from major domestic centers of cement consumption as well as export oriented ports.

9. A prefeasibility study of the Kelantan Cement Plant /2 shows that as of 1980, 100% of Malaysian cement production was located on the west

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/1 Trengganu's SEDC has listed the anticipated product range as: bottles, sheet glass, light bulbs, decorative glass, fibre or float glass, fluorescent light tubing, foam glass, pharmaceutical glass, pressed glass rolled glass, laboratory ware tempered safety glass, etc.

/2 M. Stevens, The Prospects for Cement Production in Kelantan (Kota Bharu: State and Rural Development Report, May 1981).

coast, that the east coast (Kelantan, Trengganu and Pahang) accounted for 12% of peninsular cement consumption (or 326,000 tons out of 2,809,000 tons, Vol. II, Table 4.4) and that any shortfall in domestic production was made up by imports through west coast ports and distributed from there to the east coast. This resulted in intermittent shortages of building materials on the east coast, particularly Kelantan due in part to the unreliability of the old rolling stock used on the rail link to Kota Bahru.

10. The current annual consumption of cement on the east coast falls substantially short of a minimum economic scale of about 500,000 tons required for an "integrated" cement plant. However, demand has been growing rapidly both in the peninsula as a whole and in the Northeast in particular (Tables 4-1.2, 4-1.3 and 4-1.4). The elasticity of demand for cement on the peninsula has been estimated at 1.44 with respect to GDP and 1.34 with respect to construction sector value added. Using these elasticities and FMP growth targets, annual cement demand on the peninsula could reach between 7.0-7.8 million tons by the end of the decade. Assuming no change in the East coast share of this high projection of peninsula cement consumption,/1 or a lower projection for the peninsula but with a shift in the east coast share due to the acceleration in regional construction activity likely to accompany the major project and infrastructure investments contemplated for the decade, the east coast annual demand for cement by 1990

/1 As noted in the prefeasibility study, these are high estimates of cement consumption growth and may overstate the position. In the first place the relationship between cement consumption and GDP growth of recent years may not be stable. At some point cement consumption will fall into line with national average without assuming an unrealistic share of total output. Malaysia is adjusting to a higher relative level of cement usage, and demand may continue to grow at exceptional rates. But at some point above average growth will be checked. Consumption has grown only 9% per annum over the past five years, and possibly the adjustment has already begun.

There is also the question of whether the high GDP growth rates of the 1960's and 70's can be repeated in the decade Malaysia is now entering. The judgment of the FMP is that the country will enjoy sustained growth for the next five years, at least. Beyond that there questions raised by such factors as the tightening of the domestic labor market diminishing reserves of new land, and the uncertainties of the world economic situation. Taking all these factors into account, it may be be said that although past trends support a growth in national cement demand of 12% per annum, for planning purposes a figure of 10% may be more realistic.

could be on the order of 1.0 million tons, which is more than adequate to support an economically scaled cement plant for the east coast as a whole, but not necessarily for Kelantan alone./1 However, before these preliminary demand figures can be used to justify establishing a cement producing capability on the east coast, particularly in Kelantan, a number of alternative arrangements to supply this demand must be explored carefully.

11. The prefeasibility study focuses only on Kelantan as the site of production and qualitatively evaluates the merits of five alternatives: (a) a bagging plant, (b) a clinker mill, (c) a small-scale 120,000 ton per annum (M$50-80 million) integrated cement plant for Kelantan, (d) a full-scale 500,000-1.0 million ton (M$300-500 million) integrated cement plant for export, and (e) a full-scale integrated cement plant for the domestic market.

12. The preliminary conclusions of this study are as follows. The first two alternatives are the easiest to implement during FMP and could in principal be designed to phase into a more integrated operation over time. However, since they will not use local limestone deposits and will have to import their raw material, the most economic location would probably be near principal centers of consumption such as Kota Bahru. This would make it less economical for an eventual integrated plant to take advantage of local limestone deposits which are located inland. The third alternative is too small to be of interest to a joint venture partner. It would, therefore, most likely have to be financed by the state government (via SEDC), which is very risky for the state since it lacks the expertise and the capital cost per job is too high to justify the use of limited public funds from the point of view of employment generation. In addition any growth above the present 120,000 tons required to supply the Kelantan market will still have to be met by out-of-state producers. The last two alternatives are the most attractive from the point of view of the state since they provide the

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/1 "A similar methodology can be adopted for the Kelantan market, although in this case it is more difficult to attach a figure to the State's growth of output. The logic of the NEP requires double digit growth if Kelantan is to close the gap in living standards with richer States. But it is hard to see this occurring given Kelantan's nonrepresentation in the two fastest growing sectors of the Malaysian economy, manufacturing and mining. The FMP GRP projections imply a growth rate of 13.9% p.a. for the State, but such figures are more in the nature of targets than realistic estimates. (For a discussion see SRDP paper "Forecasts of Kelantan's Economic Growth" April 1981). What can be said, on the basis of the above calculations, is that if the Kelantan economy achieves sustained real growth in excess of 5% per annum, the State cement market stands a chance of reaching half a million tons, the minimum scale of an economic plant, before the year 2000. At 8% growth, the threshold may be reached by 1986/87. At 12% growth, the threshold may be reached by 1983." ibid., p. 5.

opportunity to fully use Kelantan's substantial limestone deposits with maximum value added locally and the direct employment of up to 500 people. The major disadvantage is that the scale of production would greatly exceed Kelantan's requirements during the 1980s, hence the bulk of the output would have to be shipped out of the state, raising problems of transportation and marketing.

13. The prefeasibility study was produced for the Kelantan SEPU and hence it did not evaluate alternatives to a plant located in Kelantan. However, a number of other locations outside of Kelantan have been considered for cement plants to supply the northeast. The first is in Pahang in Bukit Pesak, 17 miles northwest of Kuantan. It would be easier to supply eastern Pahang and southern Trengganu from this location than from Kelantan (particularly Gua Musang). In terms of transportation costs, a plant in Kuantan would also be in a better position than a plant in Gua Musang to supply the central Trengganu coastal area, but not necessarily in a better position than a plant in Kota Bahru or Tanah Merah. The issue of scale of operation still applies to the Kuantan location since the Pahang market is currently about the same size as the Kelantan market, although it is likely to grow a bit faster if the Kerteh-Kemaman market, which is better served from Kuantan, is included in the Pahang market. Unless the scale of production is of a size to take advantage of economies of scale, it is unlikely that a producer in Kuantan could supply Kota Bahru any more efficiently than current suppliers in Kuala Lumpur (using road and rail transport via Gua Musang) or likely future suppliers from Perak (using the east-west highway to be completed in 1982). It is also very unlikely that during this decade the east coast market can absorb two cement producers at a scale of 0.5-1 million tons annually each.

14. Another alternative recently proposed by the Heavy Industries Corporation of Malaysia (HICOM) is to supply clinker for the whole east coast market (from Kota Bahru to Kuantan) from Lankawi Island in the Northwest of the peninsula via coastal barges. The cost-effectiveness of this approach has not yet been established. However, even though it would support clinker mill operations in both Kelantan and Pahang, this proposal has the drawback from a regional perspective that it would not allow Kelantan to exploit the industrial potential of its local natural resources or expand employment opportunities, particularly those derived from forward and backward linkages associated with a major investment. Clearly the choice of location for a cement production facility to serve the northeastern market (as well as its scale and timing) is a national rather than regional decision/1 which will have to be based on a careful evaluation of principal

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/1 For example, should the plant be located on the East Coast? If it is to be located on the east coast, should it be located in the Northeast region? And where in the region: in-land near the natural resource but away from major centers of labor and services, or at a break of bulk point (for export-oriented production) or at the junction in the domestic transportation network.

alternatives to ensure that the operation is technically and financially viable and that the economic benefits/1 outweight the costs./2

15. From this brief discussion and given the gestation period for cement production it should be apparent that during FMP cement will most likely have to be imported into the region, (even maybe over the next ten years). However, ensuring sufficient cement for the Northeast's investment program should be treated as a separate activity to local production. This will require continued improvements in the regional transport network, from the repair of Kuantan port (to ensure its use as an import entry point during periods of domestic shortfall) /3 to upgrading of the rail link through Kelantan (possibly including purchase of additional wagons and locomotives for transporting domestic production from the west coast). It should also be pointed out that since uniform national prices via price controls on marketed cement inhibit distribution to the Northeast during periods of domestic shortage as a result of the extra distribution/transportation costs, the Federal Government will have to continue to review its price control policy (as it has in the past) in order to avoid intermittent shortages of building materials crucial to the Northeast development programs, even though in the first instance this could result in further increases in cement prices (and therefore the cost of the major infrastructure investments) in the Northeast.

/1 Both direct and indirect via multiplier effects.

/2 Which in the case of an inland facility may have to include much of the new "regional" infrastructure created to serve the facility or at least that part not shared with other productive investments.

/3 Though this may not be as urgent upon the completion of the Northern East-West Highway which would enable Piriang Port to provide the same function.

ANNEX 4-1
Table 4-1.1

PRODUCTION DATA,/1 NONMETALLIC MINERALS IN TRENGGANU 1977

District	Crushed Stone		Sand/Gravel		Bricks	
	Production (000 c.yd)	Value (M$ 000)	Production (000 c.yd)	Value (M$ 000)	Production (mln. pcs.)	Value (M$ 000)
Kemamen	15.0	135.6	20.5	41.0	-	-
K. Trengganu	157.7	1,340.5	15.0	30.0	6.4	577.0
Dungun	29.0	260.9	.5	1.0	-	-
U. Trengganu	19.4	174.3	2.9	5.7	-	-
Besut	9.8	98.3	4.8	9.6	0.9	93.6
Marang	2.0	18.0	2.0	4.0	-	-
Total	233.0	2,027.6	45.7	91.3	7.3	670.6

/1 The numbers of operating units related to the above production were as follows:

Granite quarries	12 (all producing less than 50,000 cubic yards/annum)
Brickworks	10 (all producing less than 2 million bricks per annum)
Sand/gravel producers	40

Source: Geological Survey Report (as quoted in TCRS, Vol. 2).

CEMENT PRODUCTION AND DEMAND, PENINSULAR MALAYSIA

Year	Domestic Production	Demand	Average annual Growth
1961	331	396	
1962	326	518	
1963	362	589	13.6%
1964	446	630	
1965	738	660	
1966	784	703	
1967	899	732	
1968	937	772	2.4%
1969	973	721	
1970	1,030	772	
1971	1,096	884	
1972	1,160	1,067	16.5%
1973	1,278	1,250	
1974	1,364	1,473	
1975	1,446	1,626	
1976	1,739	1,778	
1977	1,777	1,930	
1978	2,196	2,100	8.9%
1979	2,264	2,300	
1980	?	2,500	

Source: MIDFIC/MIDA

ESTIMATED CEMENT CONSUMPTION: KELANTAN /1

Year	Demand ('000 tons)
1977	61
1978	78
1979	101
1980	120

/1 Figures for the Kelantan market are less easily obtained.

Source: A brief report on file by Ube Industries of Japan (presumably based an official estimates). These figures are slightly higher than those provided by Enforcement Division of the Ministry of Trade and Industry, which record actual deliveries to the State by road and rail. An estimated 75,000 tons were delivered in 1979, and 89,680 tons in 1980. The lower figures reflect production and delivery shortfalls, and the MTI estimate of 120,000 tons effective demand is probably a more accurate reflection of the present magniture of the State market than recorded deliveries.

PROJECTED CEMENT CONSUMPTION: KELANTAN
('000 tons)/1

GRP Growth Rate p.a.	4%	6%	8%	10%	12%
1980	120	120	120	120	120
1985	158	181	206	235	266
1990	209	272	352	460	591
1995	275	409	603	903	1,311
2000	362	616	1,032	1,769	2,908

/1 The following projections of cement demand are made based on different Gross Regional Product assumptions.f

Source: State and Rural Development Project.

MALAYSIA

REGIONAL DEVELOPMENT AND URBANIZATION IN THE NORTHEAST

Oil and Gas Resources in the Northeast

1. Both northeastern states have commercially exploitable quantities of gas and in the case of Trengganu oil. However, the Kelantan gas fields are generally located in areas which overlap Thai jurisdiction; hence their potential has yet to be exploited. As a result, the following discussion will focus on the development of Trengganu's oil and gas resources, which from the details provided by Petronas, is a nationally significant source of petroleum and natural gas production and reserves.

Oil Reserves

2. Malaysia's oil reserves are presently located in 37 fields (almost all off-shore) in Sabah, Sarawak and Trengganu. Official estimates of remaining recoverable reserves as of January 1981 (adjusted to account for 1980 production) were 1.74 billion barrels from oil initially in place estimated at 8.7 billion barrels. Trengganu accounts for 58% of remaining recoverable reserves as summarized in Table 4-2.1.

3. The estimate of remaining recoverable reserves is generally considered conservative, in part because presently estimated recovery ratios for new fields coming on-stream are likely to be low, particularly for those off Trengganu (which should benefit from the most advanced secondary and tertiary recovery technology to bring the recovery ratio up to 30-35% from the present 27% average). In addition, the above estimates do not include results from drilling during the year. As noted in the footnote to Table 4.5 in Vol. II, PETRONAS revised its official estimates of total reserves upward from 1.7 billion barrels to 2.5 billion barrels as of September 1981. However, extrapolating from existing field information, industry estimates put ultimately recoverable reserves nationally at 3.0-3.5 billion barrels. Many of the new finds were off Trengganu, but even if Trengganu's share of revised national reserve estimates remains unchanged (i.e., about three-fifths), Trengganu's reserves should be on the order of 1.5-2.0 billion barrels rather than 1.0 billion as shown in Table 4-2.1.

Oil Production

4. Oil production from the Trengganu fields commenced only in 1978. However, output from these fields has steadily accounted for a greater percentage of national oil production each year as illustrated in Table 4-2.3.

5. Production from the Trengganu's offshore petroleum and natural gas reserves is in its infancy,/1 and only the EPMI (Esso Petroleum of Malaysia Inc.) /2 exploration area which is 160 miles offshore is producing./3 Even in this area, development and exploration activity is still underway.

6. Based on existing information on reserves and annual rates of production, the Trengganu fields should last over 24 years./4 To extend the life of existing oil fields, Malaysia has instituted regulations on the rate of depletion. However, the latest Malaysian five-year plan demonstrates the vulnerability of longer term resource development objectives to short-term national financial needs. Government expenditures are up 72% to M$18 billion as a result of an acceleration of industrial, infrastructure and other development. As a direct consequence, PETRONAS will almost certainly have to relax depletion controls in the short to medium-term to generate the revenue contribution required from the country's oil production based on currently foreseeable lower world oil prices, since it is unlikely that such a target could be achieved without raising the production ceilings.

/1 Until 1981 only the crude petroleum extracted was stored and shipped for export. Over 90% of the associated natural gas from the producing fields was flared (see Table 4-2.4 for 1980 data). Concerned at the waste of valuable gas, in 1977 the government introduced restrictions on the amount of gas flared at individual fields, thus restraining oil production in some cases. In 1981, EPMI completed installing a system to reinject gas back into the offshore Trengganu fields until alternative uses could be found and plans to use gas developed (as discussed in the section on gas developments).

/2 Production from the EPMI area is on a production-sharing arrangement between EMPI and PETRONAS.

/3 Production from these fields is fed by pipeline to a Single Anchor Leg System (SALs) and thence to a permanently moored storage tanker (167,000 DWT), located close to the Tapis field platforms. All production is currently exported directly from the floating tanker storage by shuttle tankers (50,000-100,000 DWT).

/4 Using the minimum reserves of 1,017 x 10^6 barrels and the 1980 rate of production of 0.177 x 10^6 bpd or 42.7 x 10^6 barrels per annum. This figure is substantially higher than the 7-9 year life of the fields estimated by TCRS in 1978, and improves the potential viability and economic life of proposed investments.

On-shore Petroleum-based Developments

7. At present production activity is wholly off-shore based. A number of relatively small on-shore projects related to crude petroleum development have been planned for Trengganu during FMP. With the exception of the supply base at Tanjong Berhala, the rest are to be located in Kerteh. All of these projects have either been commenced, or have proceeded to an advanced stage of planning. In addition, with the decision to relocate all of EPMI/PETRONAS on-shore activities from Singapore to Trengganu, several infrastructure projects are also to be undertaken during FMP. Data about these projects is summarized in Tables 4.7 and 4.8 (in Vol. II).

8. However, as noted in the TCRS, there are not many linkages to the local economy from the above capital-intensive oil resource related investments apart from local distribution of part of the refinery's products. In fact, such activities will not be entirely new as the same products are already being distributed from a West Coast source. Of greater immediate local impact will be employment generated during the construction phase of these projects during FMP and the housing development for EPMI and other personnel south of Kerteh and, to a lesser extent, the off-shore supply base at Chukai (see Chapter 10).

Gas Resources

9. Malaysia has very sizeable gas resources, with proven recoverable reserves estimated in the neighborhood of 36.0 TCF as of September 1981 (see footnote 3 of Table 4.9, Vol. II) two-thirds of which was non-associated gas. As in the case of petroleum, Trengganu represents a significant portion (61%) of proven recoverable reserves.

10. Malaysia is expected to shift from being a net exporter to being a net importer of oil by the end of the decade Developing Trengganu's gas resources could potentially contribute significantly to ensuring a favorable external balance of payments, and contributing to both Federal and State government revenues by minimizing current and future dependence on high cost oil with its associated adverse impacts on economic development, and secure an indigenous source of reliable, cheap energy to stimulate industrial development. However, extracting the gas for use in the peninsula (or for export) will not necessarily contribute to the establishment of an industrial base in Trengganu founded on local natural resources, until a number of trade-offs have been explored or studied explicitly, even though the government is already pursuing a program of investments in gas-based industries in Trengganu. These are discussed in the next few sections.

Gas Production

11. Associated gas was produced at the rate of about 245 MMSCFD for Malaysia and 69 MMSCFD for Trengganu in 1980 (see Table 4-2.4). As noted in the table, until 1981, about 96% of associated gas produced in

Trengganu was flared. At present most of this is being reinjected. There are also about 20 fields with non-associated gas offshore Malaysia,/1 the majority of which are located near Trengganu (and are very recent discoveries). Although none of these fields is producing yet, several are being developed (see Table 4-2.6).

On-shore Gas-based Developments

12. Developing the full potential of Trengganu's gas reserves will not be easy. Generally the capital cost of natural gas exploitation for both domestic and export markets is markedly greater than that of crude oil per calorie produced. In addition, the potential domestic market outlets for gas are much more limited (in terms of their accessibility) than those of oil products.

13. Gas can be liquified and exported or used domestically:

(a) as input into electric power generation, requiring the installation of new gas-fired power plants or conversion of existing ones to the use of gas;

(b) as a direct energy source in industrial processes e.g. in steel, aluminum, cement, glass and ceramics production; the production of these products can substitute for imports if the domestic market is adequate to support an economically-size production unit, or export-oriented which puts a premium on quality and price competitiveness;

(c) as feedstock in industrial production e.g. ammonia, urea, ethelyne, HDPE, LDPE, etc. with the same concerns as listed in (c), and

(d) as direct energy source in residential uses, e.g. heating and cooking, requiring a gas distribution system based either on piped gas or bottled LNG.

14. Given both the peninsula's geography and demography and the high capital cost of a gas distribution system, the short to medium term outlets for gas are likely to be confined to large consumers such as power stations and industrial plants near the gas pipeline landfall in Trengganu.

/1 Two fields offshore Sarawak are under development by Shell in order to supply gas to an LNG plant in Bintulu coming on-stream in 1983.

15. The current program is to initially develop Trengganu's gas resources potential/1 through a gas gathering system off-shore Trengganu. This system will first draw associated and nonassociated gas from the EPMI fields around 1984-85 and later, nonassociated gas from Carigal's Guyong fields, around 1987-88. This gathered gas will be delivered on-shore by 1984-85 (via a 30 in 104 mi submarine gas trunkline with a capacity of 400 MMSCFD) at the same landfall as the oil pipeline. The gas is to be delivered to a gas processing plant (to be built simultaneously in Kerteh with the laying of the pipelines) with an initial capacity of 130 MMSCFD and an eventual capacity of 400 MMSCFD.

16. Of the initial 130 MMSCFD, 70 MMSCFD will be delivered via pipeline from Kerteh northward to Paka for the first phase of the Paka power station with a capacity of 450 MW. This capacity will exceed considerably Trengganu's requirement, for electricity particularly with the (450 MW) of electricity to be generated by the Kenyir hydro-power dam coming on-stream at the same time. However, Trengganu should be linked to the National LLN Electricity grid by then, and the excess capacity will be transmitted to the west coast. Eventually, it is proposed that the capacity of the Paka power station be expanded to 900 MW with the addition of another 450 MW unit, perhaps in 1987/88, if demand warrants.

17. Another pipeline from Kerteh, southward to Chukai (Telok Kalong Industrial Estate) will deliver 44 MMSCFD of gas for use in a 600,000 ton capacity direct reduction sponge iron and billet plant/2 which is expected to be the first phase of a proposed integrated steel mill.

18. The phasing of the integrated steel complex was proposed in a consultant study. As the Heavy Industries Corporation of Malaysia (HICOM) currently envisages the complex, it will initially consist of a 600,000 tpa direct reduction sponge iron plant which will sell 13% of its output on the domestic market and use 87% in the production of 560,000 tpa of billets in an attached billet plant. All of the billets are to be sold to rolling mills on the west coast and delivered by truck or coastal barge. Eventually it is envisaged that, if economically feasible, cold and hot rolling mills will be built in 1985/86 and 1988/89, respectively, adjacent to the initial plants, which would require an expansion of the sponge-iron plant.

19. It is proposed that the M$1 billion first phase of the complex be built as a turn-key project, and bids are currently being evaluated. Commitment to this project has proceeded far enough to have resulted in a

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/1 Trengganu's gas, particularly the associated gas, contains considerable propane, butane and condensates which through processing would yield LPG (Liquified Petroleum Gas) and natural gasoline.

/2 For which gas is the preferred fuel.

revision of a number of infrastructure projects in the area. Water capacity is now to be increased to accomodate the substantial water requirements of the proposed direct reduction plant. Similarly, a study has been commissioned to evaluate and design an expansion of the capacity of the "supply base" at Tanjung Berhala, including an additional quay to handle 900,000 tons per annum of imported iron-ore (See Tables 4-2.7-4-2.10 for additional brief specifics of the direction reduction and a billets plant), and dredge the harbor to handle ships of 60,000 DWT as opposed to the 10,000 DWT for which it is currently designed. In addition, Federal Route 3, the principal trunk highway on the east coast, is being rerouted around the industrial estate proposed as the location of the direct reduction plant (Chapter 10 reviews the infrastructure implications of the proposed heavy industries complexes in the Kerteh-Kemaman area).

20. The status of FMP gas-related projects under implementation in Trengganu (as well as Sabah and Sarawak) is presented in Table 4.10 (Vol. II).

21. The remaining 16 MMSCFD of the initial 130 MMSCFD output of the Kerteh Gas Processing plant is expected to be used for a glass plant in Kemaman based on the use of silica deposits in Trengganu as well as a cement plant in Kuantan if the gas pipeline is extended another 20 mi southward from Telok Kalong to a site 17 mi northwest of Kuantan.

22. The expansion of the gas processing plant to its eventual 400 MMSCFD capacity is conditional on a number of proposals which are actively under study. In addition to the second phase of the Paka power station (70 MMSCFD) and the follow-up phases of the Integrated Steel Complex (44-66 MMSCFD), these include the establishment of a petrochemical complex using gas both as feedstock and fuel. These are listed, with possible locations, in Table 4.11 (Vol. II).

23. According to PETRONAS, except for the methenol plant, the projects are likely to be located in Trengganu. All of the proposed petrochemical projects are likely to be primarily export-oriented (foreign-exchange earning) as opposed to the import-substituting (foreign-exchange saving) projects already under implementation in Trengganu. The principal reason for assuming Trengganu will be selected as the location of these projects, should studies underway prove that they are economically feasible, is that the bulk of the smaller reserves available in Sabah and Sarawak have already been committed. The methenol plant, which is technically the least complex and could therefore be implemented soonest, is also potentially the largest user of gas. Whether or not Trengganu is selected as the location for this plant is important in the sense that, as will be noted later, Trengganu has substantially more gas reserves than outlets for its use.

24. Moreover, all of the proposed projects to utilize gas, both those underway and those under study, raise fundamental sectoral and locational

issues, most of which are national rather than regional in essence. Even though the sector-specific issues are outside the scope of this study, they are still very important, and decisions resolving them could profoundly effect the extent and type of investment that can be directed or attracted to Trengganu during the 1980s and the degree to which Trengganu's gas resources can be utilized as a base for developing the state's industrial potential.

25. Since 60% of Trengganu's gas reserves are nonassociated and much of the associated gas previously flared is being preserved for future use with the recent installation of a reinjection system, the urgency of implementing gas using activities has diminished. Nonetheless, the momentum of the earlier urgency coupled with the recognition that some benefits of gas-utilization may be unnecessarily foregone by keeping it in the ground has led to a number of seemingly ad hoc decisions which could preempt the preparation of a sector development strategy and program for the country as a whole.

26. For example, in July 1980, a prefeasibility study /1 (by Mitsui and Co., Ltd.) of a US$1.2 billion steel and petrochemical complex /2 concluded that a project with a 15-year life span (1985-2000) was financially viable with profitability indices before taxes (including "worst" case scenarios) of 6-32% on investment and 20-106% on shareholders capital, and with internal rates of return before tax of 10-26%. These indices of project viability were based on some explicit and implicit assumptions which are rather restrictive:

(a) Natural gas (NG) prices were assumed to be M$1.47/MMBTU and that in the worst case the NG price did not exceed $5.0/MMBTU vs. estimated 1981 NG prices of over M$6.0/MMBTU based on fuel oil equivalent heating value (See also footnote para. 30).

(b) Corporate income taxes were assumed to be zero as a result of the various tax holidays associated with pioneer status (local incentive, priority products, Malaysian content, etc.) and the carrying forward of losses incurred during the tax holiday period.

(c) Products to be marketed domestically were assumed to be priced 30-40% higher than those exported, requiring tariffs of 20-30% to protect the domestic market against imports.

/1 Preliminary Feasibility Study for an Industrial Complex in Trengganu State, Malaysia, July 1980, Mitsui & Co.

/2 Including ammonia plant, methanol plant, gas processing plant, ethylene, low density polyethelyne (LDPE) and high density polyethelene (MDPE) plants.

(d) Exemption from sales taxes as well as from taxes on imported materials and equipment.

(e) Availability of long-term finance at 8% and short-term finance at 12%.

(f) The implicit assumption that social and physical infrastructure would be provided by the Federal and state governments.

27. There are many costs and some benefits to the nation that are not fully evaluated in the above prefeasibility study. In particular, there is no comprehensive cost-benefit study of the series of infrastructure and productive investments the Government appears to be committing itself to in Trengganu. Only two major studies are underway. The first is a "Master Plan for Gas Utilization Study" initiated by Petronas in May 1981, and the second is a "national energy resource survey" also commissioned in 1981. The former should clarify a number of issues including:

(a) The trade-off between current vs future consumption and the implications of this trade off for resource conservation policies and the rate of extraction.

(b) The trade-off between domestic vs foreign use in the case of current consumption. Export-oriented sales of natural gas will be exclusively LNG based, requiring the installation of LNG plants and tanker facilities and long-term contracts with foreign customers. Export orientation is in fact the only real development alternative in the case of Sabah and Sarawak as the local domestic market is too small relative to resource availability in those states. In the case of Peninsular Malaysia the issue is not as clear-cut since there are a number of potential domestic uses (as noted above).

28. Clearly the analysis will have to take account of the strategic case for diversifying the sources of primary energy supply, particularly for the electricity generating sector, by weighing the advantages of indigenous energy production against possibly cheaper imported energy options available based on Australian coal imports or from an ASEAN super grid developed from Sumatra coal production, as well as the proposal to import indigenous hydro-generated electricity from Sarawak to the peninsula. This issue, i.e. the relative merits of various energy sources (hydro, oil, gas, coal, etc.) for power production and use in industrial processes, will probably not be resolved by the gas utilization study, but should be resolved by the "National Energy Resources Survey." The resolution of this issue will, however, have a bearing on the extent to which the Trengganu gas fields should be developed and the types of industries that should be encouraged since many are likely to be "national" industries located in Trengganu rather than regional industries.

29. Another key issue, which is in fact necessary to resolve the relative merits of various energy sources is the cost of delivered energy to various consumers and of generated electricity based on gas supplies. This is a third issue on which the terms of reference for the Master Plan Study has requested clarification, i.e., Natural Gas pricing. The cost of production is often considerably lower than the price based on fuel oil equivalent heating value. The latter is the preferred opportunity cost of gas if the country is a net importer of fuel oil. If it is not a net importer then the preferred opportunity cost is the f.o.b. export price of LNG which is often less than the fuel oil equivalent and more than the cost of production. Between them, these three prices bracket two ranges: (i) cost of production price to LNG price, and (ii) LNG price to Fuel Oil equivalent price. A careful analysis of the justification for a uniform or differential gas pricing structure is required, particularly if there are reasons for the financial price of gas to be different from either of the opportunity costs bracketing the second range noted above (see also paras. 4.60-4.62 in Vol. II).

30. In the case of Sabah and Sarawak natural gas resources exceed by a substantial margin the amount required to substitute for the use of fuel oil. In fact, the substantial hydro power potential of the region could be utilized to substitute for the use of fuel oil in power generation. Hence, the LNG price is likely to be the "correct" opportunity cost in Sabah and Sarawak. This is not the case in Trengganu at present since Peninsular Malaysia is a major importer of fuel oil, primarily for power generation. Given that gas is a preferred, clean substitute for power generation on the peninsula (as compared to coal) and given that the peninsula's availability of hydro potential, is more limited, it seems appropriate that gas be priced at its fuel oil equivalent price until the bulk of fuel oil imports for power generation have been substituted for. However, as long as the financial price of gas is equal to its fuel oil equivalent opportunity cost it will be difficult, if not impossible to proceed with developing the last two of the four principal uses of gas noted above./1 The reason is that even though a social cost benefit analysis using the "correct" opportunity cost might conclude that a certain industrial investment is beneficial nationally from a development point of view, (taking into account the

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/1 As noted by Johnson (ibid.), there is no way that a Malaysian aluminum plant, steel complex or methanol plant can be internationally competitive if its energy supply is priced, for example, at the FOB LNG price of $5.85-5.90 per million BTUs (equivalent to $33 per barrel of oil) agreed by Indonesia in 1981 with its Japanese buyers. It is even more questionable whether some of the industrial proposals would be viable based on the full cost plus return on investment of producing and delivering the gas from certain of the more far-flung offshore gas fields via a gas gathering pipeline system.

effects of linkages and multipliers), the conclusion may not be sustained in a private financial profitability analysis based on the same opportunity cost price, thereby making it difficult to attract foreign joint venture partners for production, finance and marketing.

31. In a sense the exploitation of peninsula Malaysia's and hence of Trengganu's natural gas reserves is crucially bound up with the country's stated economic objectives of developing heavy industry which hinges crucially on the delivered price of gas to potential joint venture investors whether in Trengganu or elsewhere in the Peninsula. In fact, as noted earlier, the financial viability, if not the economic justification, of these projects is in question if gas is priced financially at its full economic opportunity cost. Hence, there is a need to evaluate the appropriateness of an implicit price subsidy for energy used as an intermediate product. That is estimating onshore employment and industrial added-valued benefits of using the gas for diversifying the economy into energy intensive heavy industries will be necessary to justify pricing the gas below its c.i.f. fuel oil equivalent (FOE) import price (there is no justification for pricing it below the lower f.o.b. LNG export price). Such justification has to also consider the value added that might be gained from implementing an LNG plant in Trengganu (see para. 4.66) and of investing the revenue from LNG sales elsewhere in the economy.

32. Also of importance for purposes of assessing the development potential of Trengganu is the issue of location of production facilities utilizing gas given the spatial distribution of centers of consumption of the products of these facilities. According to PETRONAS, the Master Plan Study will assess the suitability of locating various industries in Sabah, Sarawak or Peninsula Malaysia. However, where the industries to be directed to the peninsula are to be located (in Trengganu, in the east coast, or in the west coast) is not to be discussed in the study. As a result a number of important issues will remain unresolved, e.g. should Trengganu have a monopoly on gas delivery for the first 5-10 years /1 after the gas pipeline reaches land fall in 1984 as requested by the Trengganu SEPU. The State's rationale for such a position, is that it has virtually no other major comparative advantage in natural resources on which to found an industrial base for sustained long-term growth of the State's average per capita income. Excluding industries using gas as fuel or feedstock in Trengganu will also limit the State's opportunities for productive investment of oil and gas royalties in employment creating activities.

/1 A 2-3 year monopoly would not be sufficient, given the existing distribution of infrastructure on the peninsula which favors the West Coast, and the fact that the market size required to justify substantial domestic processing of oil and gas resources will not materialize until the last few years of this decade (1987 onwards).

33. On the other hand, granting a monopoly to Trengganu will imply postponing any investment in extending the land-based gas pipeline beyond Trengganu borders, initially to Kuantan in Pahang/1 and eventually to the west coast. Whereas, this will limit the competition from these locations for piped gas based industrial activities it will also deprive the major centers of electric power production of an alternative fuel source. Since power production is potentially a major source of demand for gas the alternative to a gas pipeline to the west coast is an electric transmission line to the west coast for power generated in Trengganu. This should be possible with the extension of the national grid to Trengganu contemplated for 1985. However, it raises the issue of the relative economies of investing in the expansion of power production facilities on the east coast requiring transmission to the west coast vs investing in the conversion of west coast power facilities to the use of gas requiring an additional investment in a gas pipeline across the peninsula./2

34. Other major issues to be confronted in formulating development policy for Trengganu's (and therefore the peninsula's) natural gas resources arises from their relative abundance in relation to need (this is discussed in Chapter 4)and the impact of an urban industrial complex based on gas on the local economy in Trengganu (this is discussed in Chapters 4, 6 and 10).

/1 An exception may have to be made for the provision of gas to the Kuantan cement factory if the decision is made to proceed with it rather than one in Kelantan (Annex 4-1, paras. 13-14).

/2 Implementation delays are foreseen in the latter case arising from problems associated with acquisition of land along power transmission routes which legally have only aerial right of way.

ANNEX 4-2
Table 4-2.1

ANALYSIS OF OIL RESERVES
(million barrels)

By region	OIIP	Production start-up	Production to 1/81	Remaining recoverable 1/81	Recovery ratio
1. Trengganu: /a	4,100	1978	96.0	1,017	27%
a. Exxo	3,863	1978	96.0	1,017	29%
b. Carigali	237	-	none	n.a.	n.a.
2. Sarawak (Shell only)	2,708	early 1960s	432.2	373	30%
3. Sabah	1,925	1972	n.a.	350	n.a.
a. Esso	200	1972	n.a.	52	n.a.
b. Shell	1,728	1972	115.7	298	30%
Total	8,733		525	1,740	

Source: PETRONAS

TRENGGANU, ANALYSIS OF OIL RESERVES
INFORMATION BY FIELD /a
(million barrels)

	OIIP	Production start-up	Production/b to 1/81	Remaining recoverable 1/81	Recovery ratio (%)	Status	Maximum annual production/c major fields
Trengganu-Esso							
Tapis	638.6		{	250.7	38	Prod.	11.52
Bekok	476.4	1978	{ 53.3	106.2	22	Prod.	8.30
Pulai	164.2		{	56.1	34	Prod.	18.80
Guntong	1,079.0	{ Delayed	-	261.0	24	Dev.	
Palas	308.0	{ to 1985	-	102.8	33	Pre-Dev.	
Tiong	304.6	1982(e)	-	85.8	28	Dev.	
Kepong	30.0	1982(e)	-	8.4	28	Dev.	
Seligi	162.0	1982(e)	-	29.0	19	Pre-Dev.	
Tabu	135.0	-	-	25.0	18	Pre-Dev.	
Irong Barat	200.0	-	-	80.0	40	Pre-Dev.	
Serok	85.0	-	-	25.0	29	Pre-Dev.	
Liang	260.0	-	-	30.0	12	Pre-Dev.	
Ophir	n.a.	-	-	n.a.	n.a.	Pre-Dev.	
Trengganu-Carigali							
Anding	n.a.	-	-	n.a.	n.a.	Pre-Dev.	
Sotong	236.6	-	-	n.a.	n.a.	Pre-Dev.	

/a Source: Petronas and Petroconsultants S.A.

/b Production by individual field is currently only available up to 1980.

/c Due to the National Depletion Policy.

ANNEX 4-2
Table 4-2.3

OIL PRODUCTION 1970; 1975-1980
Unit: tbpd /1

Year	Sabah & Sarawak	Trengganu	Total	Trengganu as % of total
1970	18.0	-	18.0	0.0
1975	98.0	-	98.0	0.0
1976	163.4	-	163.4	0.0
1977	183.6	-	183.6	0.0
1978	174.7	43.2	216.9	19.9
1979	179.1	103.9	283.0	36.7
1980	159.0	117.0	276.0	42.4
1981 (present)	...	...	255.0	...

Source: PETRONAS.

/1 Thousand barrels per day.

ASSOCIATED GAS FLARED FOR 1980
(Unit MMSCFD)

	Volume	% of production
Sarawak	120.05	92.1
Sabah	55.00	100.0
Trengganu	69.30	95.9
Total	245.00	95.0

Source: PETRONAS.

ANNEX 4-2
Table 4-2.5

ASSOCIATED GAS RESERVES IN TRENGGANU AS AT 1/1/80 GIIP AND REMAINING RECOVERABLE (EXPECTATION AND PROVEN) - BY FIELD, STATUS, YEAR OF DISCOVERY AND YEAR OF COMMERCIAL PRODUCTION

State/ contractor	Field	Reserves - BSCF GIIP Expectation	GIIP Proven	Remaining recoverable Expectation	Remaining recoverable Proven	Status	Year of discovery	Year of commercial production
Trengganu								
EPMI	Tabu	2,122.0	1,591.5	1,624.0	1,218.0	Predevelopment	1979	-
	Palas	1,615.4	1,361.5	1,362.4	1,021.8	Predevelopment	1977	-
	Guntong	1,653.9	1,?40.4	955.3	716.5	Development	1978	-
	Bokok	1,537.3	1,?52.9	943.9	707.9	Producing	1975	1978
	Tapis	715.1	536.3	499.3	374.5	Producing	1970	1978
	Tiong	542.3	406.7	285.5	214.1	Development	1978	-
	Seligi	260.1	195.0	141.9	106.4	Predevelopment	1971	-
	Pulai	244.4	183.3	168.8	127.4	Producing	1975	1978
	Semangkok	190.0	142.5	115.0	86.3	Predevelopment	1978	-
	Liang	171.0	128.2	85.0	63.8	Predevelopment	1978	-
	Serok	164.0	123.0	87.0	65.3	Predevelopment	1979	-
	Kepong	142.4	106.8	95.6	71.7	Predevelopment	1979	-
	Ledang	77.4	58.0	43.2	32.4	Predevelopment	1978	-
	Ophir	75.0	56.2	45.0	33.8	Predevelopment	1978	-
	Irong-Barat	50.0	37.5	30.0	22.5	Predevelopment	1979	-
	Damar	27.0	20.2	20.3	15.2	Predevelopment	1979	-
	Inas /a	490.0	367.5	367.5	275.6	Predevelopment	1979	-
	Berntai /a	185.0	138.7	108.0	81.0	Predevelopment	1979	-
	Serok /a	162.5	121.8	125.0	93.7	Predevelopment	1979	-
	Noring /a	1,370.0	1,027.5	1,030.0	772.5	Predevelopment	1979	-
	Bedong /a	815.0	611.3	612.5	459.4	Predevelopment	1979	-
	Subtotal	12,809.8	9,606.0	8,745.9	7,159.8			
CARICALE	Sotong	306.0	-	184.0	-	Predevelopment	1973	-
	Total	13,115.8	9,606.0	8,929.9	7,159.8			
Sarawak		4,219.3	3,624.2	1,683.9	1,252.1			
Sabah		2,083.8	1,667.7	1,087.8	854.4			
	GRAND TOTAL	19,418.9	14,898.7	11,701.6	9,266.3			

/a Indicate "inconclusive fields." For purpose of computation, 50% of the total reserves value for these fields are taken as nonassociated gas and the other 50% as associated gas.

Notes: (1) Except for Central Lucenia, Duyong and the fields numbers 6-13 under Trengganu/EPMJ, the status of fields refer to those of oil fields.

(2) For EPMI, the proven reserves are assumed to be 75% of the expectation reserves.

NONASSOCIATED GAS RESERVES IN TRENGGANU AS AT 1/1/80 GIIP AND REMAINING RECOVERABLE (EXPECTATION AND PROVEN) - BY FIELD, STATUS, YEAR OF DISCOVERY AND YEAR OF COMMERCIAL PRODUCTION

State/ contractor	Field	Reserves - BSCF GIIP Expectation	GIIP Proven	Remaining recoverable Expectation	Remaining recoverable Proven	Status	Year of discovery	Year of commercial production
Trengganu								
EPMI	Pekok	374.2	280.6	276.0	207.0	Producing	1973	1978
	Tapis	235.0	176.2	118.0	88.5	Producing	1970	1978
	Pulai	121.0	90.7	87.9	65.9	Producing	1973	1978
	Guntong	202.0	211.5	223.0	167.3	Development	1978	-
	Tiong	488.8	366.6	390.0	292.5	Development	1978	-
	Seligi	874.6	655.9	642.9	482.2	Potential	1971	-
	Lawit	3,690.0	2,767.5	2,360.0	1,770.0	Potential	1979	-
	Jerach & Herach Barni	3,560.0	2,670.0	2,457.0	1,842.8	Potential	1969	-
	Pintang	3,160.0	2,370.0	2,506.0	1,879.5	Potential	1970	-
	Ledang	132.6	99.4	106.8	60.1	Potential	1978	-
	Pelumut	355.0	266.2	250.0	187.5	Potential	1970	-
	Lemar	1,760.0	1,320.0	1,055.0	791.3	Potential	1975	-
	Sujat	240.0	180.0	180.0	135.0	Potential	1970	-
	Damar	1,513.0	1,134.7	1,134.0	851.1	Potential	1979	-
	Angai	1,045.0	763.7	356.0	267.0	Potential	1974	-
	Tujuh	600.0	450.0	450.0	337.5	Potential	1979	-
	Pujang	900.0	675.0	710.0	532.5	Potential	1970	-
	Pilong	760.0	570.0	570.0	427.5	Potential	1971	-
	Inan /a	490.0	367.5	367.5	275.6	Predevelopment	1979	-
	Perantal /a	185.0	138.7	108.0	81.0	Predevelopment	1979	-
	Telok /a	162.5	121.8	125.0	93.7	Predevelopment	1979	-
	Nering /a	1,370.0	1,027.5	1,030.0	772.5	Predevelopment	1979	-
	Dadong /a	815.0	611.3	612.5	459.4	Predevelopment	1979	-
	Subtotal	23,113.7	17,334.8	16,116.4	12,087.4			
CARICALE	Duyong	1,312.0	-	787.0	-	Under appraisal	1970	-
	Total	24,425.7	17,334.8	16,903.4	12,087.4			
Sarawak		22,643.8	15,423.2	14,640.9	9,781.3			
Sabah		168.9	126.9	101.5	76.1			
	GRAND TOTAL	47,238.4	32,884.9	31,645.8	21,944.8			

/a Indicate "inconclusive fields." For purpose of computation, 50% of the total reserves value for these fields are taken as nonassociated gas and the other 50% as associated gas.

Notes: (1) Except for Central Lucenia, Duyong and the fields numbers 6-13 under Trengganu/EPMI, the status of fields refer to those of oil fields.

(2) For EPMI, the proven reserves are assumed to be 75% of the expectation reserves.

Direct Reduction/Billet Plant in Trengganu

1. Location: Telok Kalong Industrial Estate, Chukai, Trengganu

2. Products: (a) Direct reduced iron (DRI) or sponge iron.
   (b) Billets.

3. Proposed Start-up: Mid 1984

4. Estimated Project Cost: M$1,050 million.

5. Water Requirement: (a) Industrial Water - 8,470 cu m/day.
   (b) Portable Water 290 cu m/day.

6. Power Requirement: 515,000 KV year.
   (maximum power demand is about 120 megawatt).

7. Gas Requirement: 29,190 normal cu m/hour.
   (Ncum)

8. Major sources of input:
   (a) Iron ore: 900,000 tons/year.
      (i) Pellets (50%) - initially import from Brazil and Sweden, and later from India and Australia.
      (ii) Lumps (50%) - Australia.
   (b) Steel scrap - 115,000 tons/year. (from USA)
   (c) Limestone - 70,000 tons/year. (obtained locally)
   (d) Coke - 14,000 to 15,000 tons/year. (from Indonesia and Sarawak)

9. Market for Output: Domestic market.
   (a) The DRI plant will produce 602,000 tons annually of sponge from out of which 523,000 tons/year are meant for its own production of billets and the remaining 79,000 tons/year, are to be sold to the domestic market.
   (b) The Billet plant will produce 560,000 tons annually for consumption by steel plants on the west coast.

10. Manpower Requirement: 855

Categories	Number of personnel
Managerial	14
Staff	85
Foreman and supervisor	31
Skilled labor	119
Semi-skilled labor	394
Unskilled labor	193
Clerical staff	19
Total	855

11. Present Status: Invitation for turnkey bids for the project was issued on October 15, 1981.

Evaluation of bids commenced on 16, Nov. 1981.

Source: HICOM, Sept. 1981

PROPOSED DEVELOPMENT OF A HEAVY INDUSTRIES COMPLEX IN TRENGGANU

3A: Classification of Hydrocarbon-Based Industrial Projects

Industrial Projects	Project owner	Project stage
Kerteh Industrial Estate		
Oil pipeline & crude oil terminal	PETRONAS	Preliminary design (1982)
Gas processing plant	PETRONAS	Planning (1984)
Refinery	PETRONAS	Implementation (1982)
Kertah power station	PETRONAS	Implementation (1982)
Telok Kalong Industrial Estate		
Methanol	n.a.	Conceptual
Ammonia	n.a.	Conceptual
Petrochemical comples	n.a.	Conceptual
Steel complex	MIDA	Implementation (1984)

3B: Selected "Other Industries" for Kerteh and Telok Kalong

Category	Product	Remarks
Other gas-based	-Carbon black	-2,500-3,000 PPY for type manufacturing.
Energy intensive	-Aluminium smelting	-Feasibility entirely dependent on electricity price.
	-Salt (Brine) Electrolysis	-Feasibility dependent on electricity price. To be compared with VCM project.
	-Ferroalloys	-Feasibility dependent on electricity price. Ferromanganese possible.
	-Fiberglass	-Small factory 2,000-3,000 TPY for FRP crafts.
	-Ceramics & sanitaryware	-Relatively large-scale factory feasible.
Downstream	-Rolling of reinforcement bars	-Increase of demand in Eastern Peninsul Malaysia -- more than 50,000 TPY.
	-Plastic sheet & film	-Relatively large-scale manufacturing.
	-Acetic acid	
Supporting	-Iron & steel working	-Steel structure fabrication, foundry, machine shop and so forth.
	-Woodworking	
	-Electrical & electronics working	-Heavy electrical machinery repair, electronics instrument repair.
	-Servicing & repairing vehicles	-Heavy vehicles and automotives repair.
	-Construction materials supply	-Ready mixed concrete, concrete products.
	-Other services	-Heat insulation, piping, industrial gas supply, etc.

3C: Staged Implementation of Industrial Development

Period	1981-84	1983-88	After 1988
Industrial Development	Oil pipeline Oil terminal Gas pipeline Gas processing Oil refinery DR/Billet Cold rolling Supporting I	Ammonia methanol Ethylene LDPE HDPE (DR/Billet Expansion) (Hot rolling) Supporting II	(Al smelter) (Salt Electrolysis) (VCM)
Infrastructure Development	Port Expansion I Power Station 1 (450 MW) Kerteh Water Supply Telok Kalong Water Extension Wastewater Treatment Housing and New Town	Port Expansion II Water Supply System Housing (Road Expansion)	Port Expansion III (Power station II) Housing and new Town

Source: Engineering Consulting Firms Association, Japan, Preliminary Development Plan Study for Telok Kalong and Kerteh Industrial Estates, Trengganu 1981).

REQUIREMENTS OF RAW MATERIALS, UTILITIES, ETC., FOR NATURAL GAS BASED INDUSTRIES

Industry		Ammonia Plant	Methanol Plant	Ethylene Plant	LDPE Plant	HDPE Plant	DR/Billet Plant	Cold-Rolling Steel Mill
Capacity	(t/y)	330,000	300,000	150,800	95,000	50,000	S/I: 600,000 Billets: 540,000	32,500
Type of product		Liquid	Liquid	-	-- Pellet (Bag)--		S/I: 80,000 Billets: 540,000 (Bulk)	sheets/ coils
Ship for product and/or raw materials	(D.W.T.)	Tanker 10,000	Tanker 30,000	-	--General Cargo-- 15,000	 15,000	Bulk carrier 10,000 ~ 60,000	
Assumed year of completion		1986	1986	1986	1988	1988	1984	1984
Raw Materials (annual requirement)								
Natural gase (MMSCFD)							25	2
Ethane	(t/y)	35	35	-	-	-	-	-
Ethylene	(t/y)	-	-	194,080	-	-	-	-
Iron ore /a	(Bulk)(t/y)	-	-	-	98,000	52,000	900,000	-
Scarp /b	(Bulk)(t/y)	-	-	-	-	-	110,000	-
Lime stone	(Bulk)(t/y)	-	-	-	-	-	85 700	-
Bulky materials	(Bulk)(t/y)	-	-	-	-	-	25,000	351,600
Hot coils /a	(Bulk)(t/y)	-	-	-	-	-	-	
Utilities								
Power	(kWh/h)	500	3,000	---------	32,000	---------	70,000	11,000
Water	(m^3/h)	560	500	---------	600	---------	580	500
Land area	(area)	35	35	40	30	30	100	40
Manpower		400	400	400	---- 500 ---		890	550

/a To be imported.
/b Domestic supply.

Source: ECFA Mission.

OVERALL REQUIREMENTS OF GAS BASED INDUSTRIES

	Land (acres) Industries	NG (MM SCFD) Requirement	NG (MM SCFD) No processing plant	Power (MW)	Water (m3/hr)	Port Cargo volume ('000 t/y) BL: Bulk L: Liquid (Max. ship size) In flow	Port Cargo volume ('000 t/y) BG: Bagged Out flow
1981	140	-		-	-		
1982	140	-		-	-	E&M	
1983	140	-		-	-	E&M	
1984	210	27		90	1,600	BL: 736.0 (60,000 DWT)	BL: 500.0 (15,000 DWT)
1985	210	27		90	1,600	BL: 1,472.3 (60,000 DWT)	BL: 940.5 (15,000 DWT)
1986	310	97		95	2,400	BL: 1,472.3 (60,000 DWT)	BL: 940.5 L: 660.0 (30,000 DWT)
1987	310	97		95	2,400	BL: 1,472.3 (60,000 DWT)	BL: 1,472.3 L: 660.0 (30,000 DWT)
1988	310	300/b	C^2+separation (300)	130	3,500	BL: 1,472.3 (60,000 DWT)	BL: 940.5 L: 660.0 (30,000 DWT)
1989	310	300		130	3,500	BL: 1,472.3 (60,000 DWT)	BG: 145 (15,000 DWT)
1990	310	300		130	3,500	BL: 1,472.3 (60,000 DWT)	BG: 145 (15,000 DWT)

Source: ECFA Mission.

MALAYSIA

REGIONAL DEVELOPMENT AND URBANIZATION IN THE NORTHEAST

Forest Resources

1. The decline in the share of peninsula forest resources located on the west coast as a result of earlier logging has focussed attention on the need to more fully develop the use of east coast forest resources. In 1975 the east coast was estimated to contain approximately 64% of the peninsula's forest area./1 Over 40% of the east coast forest area was in Kelantan and Trengganu.

2. At present 60% of Trengganu's forest area and only 21% of Kelantan's forest area is gazetted as forest reserve. Only the forest rserves are under the direct jurisdiction of the State Forestry departments and subject to silviculture programs to regenerate logged areas for a sustained yield program. No additional land is expected to be gazetted as forest area in Trengganu. However, the Kelantan forestry department has submitted a proposal to degazette 55,000 ha of forest reserve for agricultural purposes and to gazette an additional 485,000 ha as forest reserve based in part on the recommendations of the SRDP forest resource management study./2 This would result in a final forest reserve area total of approximately 40% of Kelantan's land area. However, less than 50% of the forest reserve in the NE is likely to be available for sustained yield exploitation./3

Logging and Log Production

3. Log production quadrupled in Kelantan and doubled in Trengganu in the decade 1970-80 (Table 4-3.1) compared to only a 40% increase in the peninsula's physical output. A significant proportion of the growth was due to land clearance operations for agriculture. In fact Trengganu's log output doubled by 1976 and hovered thereafter around 1.3 million tons p.a. coinciding with the Ketengah region's peak activity period, whereas Kelantan's growth accelerated in 1980 as work expanded in the Kesedar region, which commenced many years after Ketengah. According to TCRS

/1 2.9 million ha in Pahang, 1.1 million ha in Kelantan and 0.9 million ha in Trengganu.

/2 SRDP, "Land Use and Forest Management Strategy for Southern Kelantan," Malcrow-HLG, April 1981.

/3 Ibid and TCRS.

clearance in Ketengah and the Kenyir Dam storage areas together put 1.36 million cubic meters of logs onto the market in 1978 compared to only 389,750 cubic meters from timber agreements and timber complex concessions in the Permanent Forest Estate of Trengganu.

4. There has also been sustantial timber wastage due to selective creaming practices of loggers. All timber extraction is carried out by logging contractors. In the case of land clearance operations, which spawned a host of small-scale operators concerned primarily with the rapid redemption of mortgaged equipment, this wastage was quite significant. Despite improved forestry department controls and adoption of new guidelines both the SRDP forestry study and the TCRS are critical of the present logging practices in Kelantan and Trengganu respectively.

5. Even if recent recommendations for improving logging practices are put into effect, the 1983 timber extraction rate of 1.47 million cu m p.a. in Kelantan /1 and the 1979 rate of 1.77 million cu m p.a. in Trengganu are likely to represent the peak output for forestry production.

Forest industries

6. The federal government has a policy aimed at increasing raw material processing in Malaysia. In the case of forestry resources this policy has been successful in reducing the peninsula's export of unprocessed logs progressively from 1.15 million tons p.a. in 1970 to approximately 0.16 million tons p.a. in 1980. During this period sawn timber output in the peninsula grew from 1.6 million tons p.a. to 3.5 million tons p.a. Sawn timber is now peninsular Malaysia's principal wood product export (Table 4-3.7) and it has become the dominant exporter of this product in Southeast Asia.

7. Despite the dramatic expansion in sawmilling output the number of sawmills increased by only 25%. The expansion occurred basically with the installation of larger units even though the overall recovery rates at 60-65% are still well below Korean and Taiwanese standards.

8. Studies undertaken during the mid-1970s recommended a large shift in the sawmilling and timber processing capacity from the West Coast to the East, a shift to be completed during the period 1986-90. Some of this shift has already taken place, even though the state shares of sawmills licensed and in operation based on the number of mills and their capacity did not change in the period (1970-80) in Kelantan (0.65% of peninsula total) Table 4-3.2), and changed only marginally in Trengganu from 0.5% to 0.8%.

/1 Table 4-3.1, 1 cu m = 0.706 tons of 50 cu ft.

However, in Kelantan sawn timber output more than doubled from 65,000 tons p.a. in 1970 to 210,000 tons p.a. in 1980, and in Trengganu sawn timber output increased in the early 1970s, even though it remained steady at about 420-440,000 tons (double Kelantan's output) in the period 1976-79.

9. As a result of the expected decrease in logging in the mid-1980s, no additional milling capacity is likely to be approved in either state though some approved mills have yet to be built. Two of those approved but not yet built are potentially significant. In Trengganu the Dungun integrated timber complex is being built at Durian Mas, in the Ketengah region, with an expected log consumption of 125,000 cu m p.a., almost one third of Trengganu's secure log supply in the second half of the 1980s. In Kelantan a large integrated timber complex is being built at Kemubu and additional milling capacity will also go to Jeli and Gua Musang, all in Southern Kelantan's Kesedar region.

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TONS OF TIMBER LOGGED IN KELANTAN AND TRENGGANU
('000 cu m)

Year	Kelantan	Trengganu	Northeast
1970	200	649	849
1975	325	881	1,206
1976	394	1,504	1,898
1977	448	1,964	2,412
1978	595	1,699	2,294
1979	691	1,777	2,468
1980	915	1,536	2,451
1981	1,140	1,374	2,514
1982	1,310	1,294	2,604
1983	1,470	1,076	2,546
1984	1,210	826	2,036
1985	1,190	608	1,798
1986	880	499	1,379
1987	630	405	1,035
1988	630	405	1,035
1989	630	405	1,035
1990	820	374	1,197

Sources: Trengganu figures from the Trengganu Coastal Region Study citing the Forestry Department (figure from 1979 onward are estimates or projections). Kelantan figures for 1975-80 are from the Forestry Department; projections from 1981 onward are from Halcrow-ULG "Land Use and Forest Management Strategy for Southern Kelantan," April 1981.

TIMBER UTILIZATION IN THE NORTHEAST
('000 tons)

	Kelantan				Trengganu			
	Log production	Principal consumption: Saw-mills	Principal consumption: Plywood mills	% processed locally	Log production	Principal consumption: Saw-mills	Principal consumption: Plywood mills	% processed locally
1970	-	-	-	-	-	-	-	-
1975	325	143	14(?)	48.3	-	-	-	-
1976	334	147	33(?)	53.9	1,193	465	36	42.0
1977	456	192	32	49.1	1,242	518	33	44.4
1978	598	207	35	40.5	1,076	272	35	28.5
1979	692	248	34	40.8	1,363	377	43	30.8
1980	865	469	55	60.6	n.a.	n.a.	n.a.	n.a.

PRODUCTION OF LOGS
('000 tons)

Year	Peninsular Malaysia	Malaysia
1960	1,589	3,920
1961	1,563	4,248
1962	1,633	4,542
1963	1,905	5,541
1964	2,105	5,920
1965	2,278	6,836
1966	2,691	8,702
1967	2,966	9,540
1968	3,587	10,729
1969	3,789	11,203
1970	4,621	12,542
1971	5,053	11,658
1972	6,304	13,257
1973	6,849	16,951
1974	6,094	13,572
1975	5,324	13,495
1976	6,776	18,784
1977	7,404	19,239
1978	6,750	19,076
1979	7,060	18,790
1980	6,479	17,967

Source: Forestry Department, Malaysia.

PENINSULAR MALAYSIA - ANNUAL LOG CONSUMPTION BY SAWMILLS AND PLYWOOD/VENEER MILLS, 1970-80
(In '000 cubic meters /a)

Year	Sawmills		Plywood/veneer mills		Total	
	Amount	%	Amount	%	Amount	%
1970	2,300.0/b	...	265.3/b	...	2,565.3/b	...
1971	3,757.7	85.7	627.3	14.3	4,385.0	100.0
1972	4,442.2	80.8	815.7	19.2	5,257.9	100.0
1973	5,483.2	85.4	936.3	14.6	6,419.5	100.0
1974	5,859.7	86.5	913.4	13.4	6,773.2	100.0
1975	5,167.3	87.1	766.8	12.9	5,934.1	100.0
1976	6,911.7	86.9	1,076.2	13.1	7,987.9	100.0
1977	7,900.3	86.5	1,238.4	13.5	9,138.7	100.0
1978	8,124.0	87.4	1,175.0	12.6	9,299.0	100.0
1979	7,843.0	87.1	1,166.0	12.9	9,009.0	100.0
1980	7,137.0	86.49	1,115.0	13.51	8,252.0	100.0

/a One cu m = 0.706 metric tons (of 50 cu ft).

/b Chandrasekharan, 1976, as quoted in The Forest Economy of Peninsular Malaysia, December 1976 (FAO ?).

Source: Economic Unit of the Forestry Department, Malaysia.

PRODUCTION OF SAWN TIMBER

('000 tons)

Year	Peninsular Malaysia	Malaysia
1960	729	739
1961	711	740
1962	756	766
1963	831	840
1964	947	960
1965	951	968
1966	1,004	1,026
1967	1,219	1,244
1968	1,419	1,440
1969	1,454	1,475
1970	1,644	1,664
1971	1,742	1,936
1972	2,315	2,572
1973	2,535	2,817
1974	2,490	2,767
1975	2,369	2,632
1976	3,275	3,636
1977	3,690	4,100
1978	3,299.9	3,498.8
1979	3,978.8	4,174.3
1980	3,465.1	3,975.7

Source: Statistics Office of Forestry Department, Malaysia.

PENINSULAR MALAYSIA - PRODUCTION OF PLYWOOD

Year	Volume ('000 sq ft)	Equivalent ('000 cu m) /a
1970	388,423	180.4
1971	490,409	227.8
1972	720,508	334.7
1973	814,164	378.2
1974	570,980	265.2
1975	678,820	315.3
1976	967,209	449.2
1977	977,826	454.2
1978	951,525	442.0
1979	1,239,822	595.8
1980	1,125,000	540.7

/a One cu m = 0.706 tons (of 50 cu ft).

Source: Statistics Office of Forestry Department, Malaysia.

MALAYSIA - EXPORT OF LOGS AND SAWN TIMBER

Year	Logs				Sawn timber				Plywood export by major countries	
	Volume (´000 tons)	Value (M$ mln)	Unit value (M$)	% of total export value	Volume (´000 tons)	Value (M$ mln)	Unit value (M$)	% of total export value	Volume (mln sq ft)	Value (M$´000)
1960	...	...	...	...	...	...	...	...		
1961	1,823.2	136.7	74.97	4.20	...	...	...	...		
1962	2,067.3	162.9	78.79	4.99	334.2	49.3	147.51	1.51		
1963	2,571.9	205.7	79.97	6.17	396.7	64.3	162.08	1.93		
1964	2,851.6	205.3	72.17	6.08	512.0	92.3	180.27	2.72		
1965	3,370.5	262.9	78.00	6.95	532.0	90.9	182.17	2.56		
1966	4,551.1	385.5	84.70	10.02	503.4	82.6	164.08	2.14		
1967	5,015.8	475.6	94.82	12.77	605.8	106.9	176.46	2.87		
1968	5,922.8	549.0	92.69	13.31	786.8	149.3	189.75	3.62		
1969	6,175.4	603.4	97.71	11.94	834.2	166.8	199.95	3.30		
1970	6,295.4	643.4	102.20	12.46	960.0	201.1	209.47	3.89	256.9	39.7
1971	6,189.7	641.8	103.68	12.79	927.5	193.3	208.40	3.05	388.2	56.0
1972	6,443.7	591.2	91.74	12.20	1,210.0	277.1	229.00	5.72	582.7	81.0
1973	7,145.1	986.3	138.03	13.37	1,511.2	560.4	370.83	7.60	808.3	158.1
1974	6,745.0	1,032.4	153.05	10.12	1,244.6	438.2	357.86	4.29	470.0	101.4
1975	5,980.1	669.3	111.92	7.25	1,205.5	391.5	324.80	4.24	537.9	96.9
1976	8,588.6	1,471.5	171.33	10.94	2,071.8	354.4	412.38	6.35	893.8	188.5
1977	9,005.2	1,402.0	155.68	9.36	2,003.6	789.0	393.80	5.27	675.7	213.2
1978	16,033.6	2,779.7	100.12	11.47	2,767.9	760.4	274.72	4.45	84.9	168.1
1979	11,323.2	2,779.7	173.40	11.47	2,172.5	1,223.7	397.80		43.3	269,134.1
1980	10,737.4	2,621.9	172.44	8.39	2,125.1	1,181.1	392.50	3.78	35.6	76,683.0

Source: Ministry of Primary Industries.

PENINSULAR MALAYSIA - EXPORT OF LOGS AND SAWN TIMBER

Year	Logs		Sawn timber	
	Volume ('000 tons)	Value (M$ mln)	Volume ('000 tons)	Value (M$ mln)
1960	275.4	15.5		
1961	282.4	15.5		
1962	305.1	17.0	196.0	30.7
1963	417.1	24.3	245.5	40.3
1964	492.8	26.8	324.0	59.7
1965	574.6	31.0	335.4	60.9
1966	777.4	43.2	344.6	55.9
1967	815.7	59.0	409.2	70.2
1968	941.1	76.1	564.5	106.3
1969	1,040.6	85.6	611.9	122.6
1970	1,150.5	99.2	729.6	150.3
1971	1,137.9	101.8	724.1	145.8
1972	1,069.2	92.4	990.0	225.6
1973	470.5	56.5	1,340.5	472.5
1974	412.3	53.8	1,109.4	392.5
1975	295.4	37.9	1,052.7	333.0
1976	260.3	36.2	1,867.0	735.0
1977	243.9	23.4	1,823.2	690.3
1978	154.7	12.4	2,552.3	675.2
1979	141.7	23.4	1,994.9	1,091.0
1980	160.5	22.0	1,833.9	998.8

Source: Ministry of Primary Industries.

PENINSULAR MALAYSIA - NUMBER OF TIMBER PROCESSING MILLS, 1970-80

	1970 /a	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
Sawmills	487	478	490	504	529	536	540	551	585	595	602
Plywood/veneer factories	25	31	33	34	35	35	35	35	35	35	35
Wood preservation plants	...	52	55	57	61	101	134	134	-	-	-
Match factories	...	2	3	3	3	3	3	3	4	4	-
Woodwool slab factories	...	2	2	2	2	2	2	2	3	3	-
Particle board factories	...	1	1	1	1	1	1	1	2	2	-
Pencil factories	...	1	1	1	1	1	1	1	1	2	-
Small diameter sawmill	...	-	-	-	-	-	34	88	-	-	-

/a Source: Chandrasekharan, 1976, as quoted in The Forest Economy of Peninsular Malaysia, December 1976 (FAO). (Note: it is presumed by the mission that the 1970 figures for sawmills refer to licensed rather than operating units.)

Source: Economic Unit of the Forestry Department, Malaysia.

PENINSULAR MALAYSIA - NUMBER OF SAWMILLS BY STATE, 1971-80

State	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
Johor	47	48	48	52	55	55	60	65	69	71
Kedah	32	32	32	34	34	35	35	36	37	37
Kelantan	31	31	31	32	32	32	33	37	37	39
Negeri Sembilan	38	38	38	39	39	39	39	49	47	49
Pahang	91	92	97	106	107	108	110	112	113	112
Pulau Pinang	32	32	32	32	32	32	32	32	34	34
Perak	90	91	91	92	92	92	97	97	99	101
Selangor	79	81	85	85	85	86	86	54	53	52
Trengganu	24	29	35	41	43	43	43	45	48	48
Perlis	4	4	4	4	4	4	3	3	3	3
Wilayah Persekutuan	-	-	-	-	-	-	-	42	42	42
Total	478	490	504	529	536	540	551	585	595	602

Source: Economic Unit of the Forestry Department, Malaysia.

PENINSULAR MALAYSIA - NUMBER OF PLYWOOD MILLS BY STATE, 1971-80

State	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
Johor	7	7	7	8	8	8	8	8	8	8
Kedah	2	2	2	2	2	2	2	2	2	2
Kelantan	-	1	1	1	1	1	1	1	1	1
Melaka	1	1	1	1	1	1	1	1	1	1
Negeri Sembilan	2	2	2	2	2	2	2	2	2	2
Pahang	6	7	8	8	8	8	8	8	8	8
Pulau Pinang	-	-	-	-	-	-	-	-	-	-
Perak	7	7	7	7	7	7	7	7	7	7
Perlis	-	-	-	-	-	-	-	-	-	-
Selangor	5	5	5	5	5	5	5	1	1	1
Trengganu	1	1	1	1	1	1	1	1	1	1
Wilayah Persekutuan	-	-	-	-	-	-	-	4	4	4
Total	31	33	34	35	35	35	35	35	35	35

Source: Economic Unit of the Forestry Department, Malaysia.

LOG PROCESSING ON EAST COAST

State	Log production (000 ton)	Log consumption/a Saw mill --(000	Log consumption/a Ply-wood ton)--	Processed output Sawn timber --(000	Processed output Ply-wood* ton)--	Recovery Rate Saw-mill ---- (%)	Recovery Rate Ply-wood ----	Employment Saw-mills	Employment Ply-wood mills	Number of mills Sawmills licensed/ in oper.	Number of mills Plywood mills Lic./in oper.
Kelantan											
1970	199.4	104.3	...	65.2	...			1,023	145	32/31	1/1
1975	324.8	134.9	13.9	99.3	...	73.6		1,023	145	32/31	1/1
1976	394.2	147.3	32.8	99.3	12.8	67.4	39.0	774	558	32/32	1/1
1977	447.5	187.4	32.3	128.9	9.3	68.8	28.8	834	519	35/33	1/1
1978	597.8	206.6	35.4	139.3	10.4	67.4	29.4	1,000	507	37/36	1/1
1979	691.8	248.3	34.4	178.8	16.5	72.0	48.0	1,034	506	40/37	1/1
1980	865.1	468.9	54.8	210.2	13.9	44.8	25.4	1,294	427	41/40	1/1
Trengganu											
1970	649.0			...						../24	1/1
1975										../..	1/1
1976	1,061.8	511.9	36.3	461.0	9.2	81.3	n.a./b	2,851	900	42/42	1/1
1977	1,386.3	570.4	32.5	521.0	12.9	91.3	n.a./b	2,938	496	45/45	1/1
1978	1,199.5	632.6	35.1	410.8	11.7	65.9	n.a./b	1,565	491	47/47	
1979 (est.)	1,351,6	720.0	43.0	443.3	4.7	61.6	n.a./b	4,181	502	47/47	1/1
1980	n.a.	n.a.	n.a.	n.a	n.a.	n.a.	n.a./b	n.a.	n.a.	n.a.	n.a.
Pahang											
1970											
1975	1,729.3	1,072.7	95.9	663.4	120.8	61.8	n.a./c	6,256	2,550	108/107	
1976	2,554.7	1,262.7	180.7	848.1	144.2	67.2	n.a./c	6,296	2,542	108/105	8/8
1977	3,251.1	1,604.1	220.4	965.8	58.7	60.2	n.a./c	6,729	2,457	114/113	8/8
1978	2,583.6	1,489.3	323.7	891.5	91.8	59.9	n.a./c	7,130	2,540	115/113	8/8
1979	2,754.5	1,424.7	239.4	1,015.4	52.7	71.3	n.a./c	7,379	3,594	117/116	8/8
1980	1,922.4	1,674.0	227.9	1,067.4	61.0	63.8	n.a./c	7,413	1,959	117/116	8/8

* Based on conversion of 2,153 sq ft per cu m and 1.416 cu m per ton of 50 cu ft.

/a Excluding consumption as firewood and charcoal, etc.

/b Not calculated as plant produced both plywood and veneer. The latter output in million sq. ft. for the period 1976-80 was: 1976: 46.1; 1977: 89.2; 1978: 62.0; 1979: 18.2; 1980: n.a. p.a. respectively.

/c Not calculated as plants produced both plywood and veneer. The latter output in million sq. ft. for the period 1976-80 was: 1975: 135.4; 1976: 231.8; 1977: 179.0; 1978: 117.6; 1979: 166.8

Sources: Total log production and sawmill log consumption and output for Kelantan 1970-80 from SRDP; Land Use and Forest Management Strategy for Southern Kelantan, 1981. Same data for 1976-78 from Maunsell: Trengganu Coastal Region Study, 1980. All other figures from State Forestry Department annual reports for each state.

POTENTIAL LOG RESOURCE SUPPLY: TRENGGANU, 1978-90
('000 cu m)

Year	Source of yield							
	Land conversions		Timber complexes					
	Ketengah	Other	Besut	Pesama	Dungun	Kenyir Dam	PFE	Total
1978	780	31	31	31	-	546	327	1,746
1979	780	31	31	31	62	546	296	1,777
1980	546	31	31	31	70	546	281	1,536
1981	468	31	31	31	101	468	249	1,379
1982	390	31	31	31	125	437	249	1,294
1983	312	31	31	31	125	312	234	1,076
1984	234	31	31	31	125	140	234	826
1985	156	31	31	31	125	-	234	608
1986	78	31	31	31	125	-	203	499
1987	-	31	31	31	125	-	187	405
1988	-	31	31	31	125	-	187	405
1989	-	31	31	31	125	-	187	405
1990	-	-	31	31	125	-	187	374

Source: Forestry Department, Malaysia, as quoted in TCRS.

PROPOSED EXPLOITATION IF AGRICULTURAL DEVELOPMENT
IS REDUCED AND DELAYED
KELANTAN

Year	Forest clearing (sq km) /a	Current long-term agreement (sq km) /b	New agreement (sq km) /c	Second cut (sq km) /d	Yield (mln cu m)
1981	140	148			1.14
1982	115	140			1.14
1983	85	160			1.09
1984	85	144			1.02
1985	85	140			1.00
1986	57	116	19		0.85
1987	57	112	19		0.84
1988	57	112	19		0.84
1989	43	112	19		0.77
1990	20	104	19		0.84
1991		92	38		0.78
1992		88	38	10	0.79
1993		80	38	10	0.74
1994		80	38	10	0.74
1995		68	38	20	0.71
1996		68	38	20	0.71
1997		68	38	20	0.71
1998		64	38	30	0.72
1999		64	38	30	0.72
2000		60	38	30	0.70

/a Yield assumed to be 3,500 cu m/sq km in 1981, but 4,550 cu m/sq m thereafter, reflecting improved exploitation as a result of slower tempo.

/b Yield assumed to be 4,400 cu m/sq km for long-term agreements, rising to 6,000 cu m/sq km in 1990, reflecting improved communications and species substitution. SEDC Kemubu assumed to come into production in 1983.

/c The area available to new agreements is larger as a result of reduced clearing.

/d Yield assumed to be 3,600 cu m/sq km.

Source: Land Use and Forest Management Strategy for Southern Kelantan, 1981, SRDP.

KELANTAN: ESTIMATED FUTURE LOG REQUIREMENTS/a, /b
(Million cubic meters)

Year	Under current policies	Under proposed strategy
1981	1.14	1.14
1982	1.31	1.14
1983	1.37	1.09
1984	1.11	1.02
1985	1.09	1.00
1986	0.78	0.85
1987	0.53	0.84
1988	0.53	0.84
1989	0.53	0.77
1990	0.69	0.84
1992	0.63	0.79
1995	0.54	0.71
2000	0.53	0.70

/a Excluding the Kemubu complex's concession area.

/b The left-hand column of figures shows the likely outcome if all planned land clearance schemes are carried out in accordance with current policies; the right-hand column shows what log production would be if the recommendations of this report for land use management and forest conservation were adopted.

Source: Land Use and Forest Management Strategy for Southern Kelantan, 1981, SRDP.

MALAYSIA

REGIONAL DEVELOPMENT AND URBANIZATION IN THE NORTHEAST

Cash Crops

1. The following sections describe the development potential of selected cash crops, primarily as raw material for industrial processing.

2. Rubber. Rubber has been the dominant crop in Peninsular Malaysia, accounting for more than 35% of agricultural value added, 55% of cultivated land and 65% of total agricultural employment./1 Total production is roughly 1.5 million metric tons annually, most of which is exported after minimal local primary processing. Efforts are under way to increase the amount of secondary processing which in 1980 amounted to only 45,391 metric tons or 3.1% of total production (Table 4-4.36).

3. Despite its disproportionate share in total peninsular land the Northeastern share in national rubber production is very limited. In 1980 the Northeast produced only 59 256 tons or 4.0% of the peninsular total (Table 4-4.2). Lack of suitable land and lack of access to major ports are two of the reasons. Also production and distribution has long been dominated by a few large foreign firms which may have inhibited production in the region in comparison to other parts of the peninsula as the Northeast did not actively encourage foreign investment (e.g. Kelantan does not permit foreigners to own land). Finally, plantation rubber yields in the Northeast are 20% below the Peninsular average, due to unfavorable climatic conditions and reduced tapping during peak production periods which concide with peak monsoon months. Hence, while there is some room for an increased northeastern share in peninsular rubber production as the result of hinterland development, particularly in southern Kelantan, the total Northeastern share of peninsula production is unlikely to exceed 6% (para. 7).

4. For several years rubber production has been declining both in Peninsular Malaysia and the Northeast. This decline has come despite some increase in total planted area. As is seen from Table 4.42 Peninsular rubber output was 1.612 million metric tons in 1976 but only 1.549 million tons in 1980. Output declines in Trengganu and Kelantan have roughly paralleled peninsular decline but are more dramatic. Production in the two states combined peaked in 1977 with 69,923 m tons but was only 59,256 tons in 1980, a 15% drop in four years. Roughly 90% of this decline is attributable to the smallholder sector where output dropped by 20% from 48,788 tons in 1977

/1

to 39,216 tons in 1980. Part of the explanation may be that the age of rubber trees had progressed beyond the point of peak yields. As is seen from Table 4-4.24 the production in the smallholder sector falls rapidly after age 15 and drops to zero somewhere between age 30 and 35. However, another part of the explanation may well be the very stength of government replanting efforts during the 1970s. Statistics cited by TCRS indicate that between 1973 and 1976 some 40% of smallholder rubber in Trengganu was replanted, and this effort may have continued beyond 1976, for which there is no data. Replanting in the short term may deepen a production trough since it removes marginally productive trees and replaces them with seedlings which will not produce for 5 or 6 years. Clearly, the removal of 40% of tree stock should have this effect and one should thus expect rapid production gains during the early 1980s.

5. In broader terms, whether variations in production levels should be avoided (as sometimes implied) is not obvious. If much of the tree stock was planted at the same time cyclical production levels must be expected. To spread planting schedules over time so as to reach a stationary production level requires a 25-year forecast of desired stationary levels and in general is neither practical nor optimal. Long term cyclical fluctuations are part of the price paid for rapidly expanding the tree stock in response to favorable market opportunities.

6. Further growth in rubber production will result from rubber planted in the Kesedar and Ketengah regions. The Northeast's total planted rubber area has already increased substantially between 1976 and 1980, presumably as a result of FELDA or RISDA settlement schemes, and SEDC estates associated with the two hinterland regions./1

7. Additional rubber development during the 1980s will be substantial, particularly in the Kesedar region, though exact projections are not available. In Ketengah the growth in rubber planted area may be in the neighborhood of 4,000 ha, noting that the total area approved but not yet planted for all types of crops is around 40,000 ha and that 10% of Ketengah's approved development is for rubber. In the Kesedar region 95,782 ha remain to be developed, of which 44,833 ha were approved for development as of 1980. No crop breakdown is available but most of it is for rubber. It thus seems reasonable to expect the total area under rubber cultivation in the Northeast to expand by 60,000 ha or one third over 1980 levels. Allowing for the additional impact of replanting, the use of higher yielding trees, improvements in smallholder management and the effect of past developments that have not yet reached maturity, rubber production may well double by the mid-1990s. Even so, this will not substantially change the ranking of

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/1 It is not clear why the rubber statistics associates the entire growth in planted area with the smallholder sector. Presumably, FELDA schemes in this case are counted in the smallholder sector.

ranking of Trengganu and Kelantan as two of the Peninsular states with the smallest rubber production. Because Peninsular rubber output is projected to increase by 50% by 1990,/1 the Northeastern share in Peninsular production would not exceed 6%.

8. Oil Palm. Oil palm was first introduced to Peninsular Malaysia in a large scale in the early 1960s. Since then acreage and production has been constantly rising, as part of a government effort to diversify agricultural output and to reduce the dependency on rubber. As is seen from Table 4.46, peninsular growth in palm oil production has averaged more than 18% since 1960, a rate projected to slow to roughly 9% during the 1980s as suitable lands for expansion become exhausted. Immature trees as a percentage of total planted trees have gradually decreased from 47% in 1970 to 31% in 1980. Even this percentage is high, however, and implies that based on present planted capacity alone output will grow by close to 50% as trees mature.

9. The planted area is roughly evenly divided between so-called smallholdings and estates, with the smallholder share rising rapidly. (Table 4-4.1). The smallholdings sector in the case of oil palm consists almost exclusively of FELDA and similar settlement schemes for which the term smallholding is less than appropriate. For example, in 1980, 351,045 ha or 81.7% of 429,631 ha in so called smallholdings were in FELDA, RISDA and FELCRA settlement schemes./2 Outside these schemes few private smallholders have adopted oil palm as a crop despite the fact that by most measures returns on oil palm are as much as twice those for rubber and may be as much as three times those for padi. This has raised serious questions as to the desirability of maintaining present restrictions on changing crops, such as existing legal constraints in the form of crop quotas and crop specifications in land titles, financial constraints due to long gestation periods in tree crops, and government incentive schemes that encourage replanting and yield improvement on the basis of existing crop choice rather than evaluating crop alternatives. Should these restrictions decline in the future it is obvious that oil palm projections would have to be revised upward.

10. As in the case of rubber, the northeastern share in total Peninsular production of palm oil is small. Only 112,686 tons or 4.7% of the 2.4 million tons produced in peninsular Malaysia comes from the Northeast and this percentage declined marginally over the last decade (Table 4-4.11)./3

/1 In Young, et al., op. cit. p. 268.

/2 See Oil Palm Fact Sheet, 1981.

/3 Crude Plam Oil Production in Kelantan and Trengganu according to the Ministry of Primary Industries was 134,341 tons (Table 4.2 Vol. II and Tables 4-4.19 and 4-4.20).

11. Given the large land reserves in the Ketengah and Kesedar areas one would expect the Northeast's share in peninsular palm oil production to increase. However, current development plans indicate this will not happen during the 1980s. That is, during the present decade the Northeast's growth rate in palm oil production will be below the peninsular rate of 8.6% per year. A first approximation of the growth in palm oil production is the growth in productive oil palm land. In the case of Trengganu, for example, development plans have advanced further and most of the region's oil palm growth is likely to take place there. Yet, the Ketengah area's total palm oil productive land was 31,868 ha in 1980 and is planned to be 53,472 ha in 1985, implying a growth rate of 10.9% p.a./1. Since 90% of Ketengah land is developed with oil palm this growth rate must also approximate the growth rate of productive oil palm area. No explicit plans are available for 1990. However, KETENGAH anticipates a projected 19,469 ha under development in 1985. Development includes site clearance, planting, and a four year period before oil palms reach productivity. Hence land not under development in 1985 cannot reach maturity by 1990 and growth of productive land in the period 1985-90 must be limited to 19,469 ha or 6.4% p.a. The annual average growth rate in the period 1980-90 would therefore be 8.6%, about the same rate at which oil palm production is projected to grow in Peninsular Malaysia.

12. But since areas outside Ketengah had as much as 22% of Trengganu's planted oil palm land and since areas outside Ketengah should experience a much lesser growth than Ketengah during the 1980s, one must conclude that Trengganu's total palm oil production will grow below Peninsular rates. This conclusion has to be modified somewhat because the current average age of the tree stock is low, and palm oil production increases not only because of additions to tree stock but also as a result of yield increase (as the average age of the tree stock advances to peak yield). More likely, however, this becomes important only in the 1990s. As to Kelantan, since Kesedar plans to develop most of its land with rubber rather than oil palm the above conclusions are unlikely to be substantially altered.

13. In summary, Northeastern palm oil production during the 1980s will grow at rates below or at best equal to projected peninsular rates. As a result, production over the decade should roughly double. However, northeastern growth rates will likely exceed peninsular rates during the 1990s when production rates could once more double as the remainder of Ketengah's and Kesedar's agricultural land becomes productive and as average yields approach peak levels.

14. Tobacco. Tobacco production has grown rapidly in Peninsular Malaysia. Total acreage has risen from 20 acres in 1959 to a peak of 35,700

/1 Source: KETENGAH, 1981 based on a disaggregation of data in Table 3.2, Vol. II. This should not be confused with the eventual area for Palm Oil production of 200,000 ac approved but not planted (Table 3.3, Vol. II).

acres in 1975. Since then acreage has fluctuated around the 30,000 acre mark. Most tobacco is grown in the Northeast. That region in 1980 accounted for 95% of the 43,486 registered Peninsular growers, 90% of the planted area of 31,850 acres, and 84% of the total crop of 23,142,000 lb. Within the Northeast, Kelantan is the major producer with 76% of the region's growers.

15. Tobacco production, under an import substitution policy is for domestic consumption, with all aspects of production, processing and marketing regulated by the National Tobacco Board. The board fixes the Malaysian tobacco content of international brands and is responsible for the licensing and quotas of growers.

16. Production suffers from high production costs, low yields, poor leaf quality, and high wastage. Because of industry regulations there is little incentive to eliminate any of these problems. Tobacco is one of the few crops that grows well on bris soil /1 which is pervasive in Trengganu's coastal area and in Kelantan's Bachok and Pasir Puteh districts. Despite the obvious comparative advantage that tobacco has on bris soil most of Kelantan's tobacco is grown on the clayey padi soil for which several cropping alternatives exist. Government's intention is to extend production to bris soils as total production requirements expand. However, no effort has yet been made to improve existing cropping choice, by reducing tobacco quotas for padi smallholders, or by eliminating the quota system altogether.

17. According to the Trengganu Coastal Region Study, the potential for establishing additional tobacco processing capacity in the Northeast is presently limited. Though the Northeast is the principal tobacco grower of the nation, it has attracted only one domestic brand manufacturer of cigarettes and none of the two major foreign manufacturers that together control 95% of domestic sales. Because of intense brand loyalty new brands have had difficulties in capturing a viable share of the market and capacities of the two leading manufacturers are expected to be adequate until 1990.

18. The above assessment must be contrasted with the actual performance of the tobacco manufacturing sector in Kelantan. Both according to data from the Census of Manufacturing and more comprehensive estimates of paid manufacturing employment by Kelantan's SEPU, tobacco manufacturers provided roughly 50% of Kelantan's total manufacturing jobs in both 1970 and 1980, and this sector's absolute growth exceeded by far that of any other sector, raising employment from roughly 2,900 jobs in 1970 to 14,500 in 1980. A likely explanation for the discrepancy between the statistical data and MIDA and observations in the Trengganu Coastal Region Study could be that the statistical data includes leaf drying operations under tobacco manufacturing.

/1 A coarse textured, infertile, pre-draining raised beach ridge soil, overlying marine clay.

AREA OF PLANTED RUBBER IN PAHANG, TRENGGANU AND KELANTAN
(Ha)

	1976	1977	1978	1979	1980
Pahang					
Estates	44,114	43,258	43,379	46,370	45,751
Smallholdings /a	59,517	63,619	67,704	79,518	90,965
Total	103,631	106,877	111,083	125,888	136,716
Trengganu					
Estates	11,742	11,185	11,009	10,647	10,318
Smallholdings /a	57,821	60,165	65,374	68,232	76,176
Total	69,563	71,350	76,383	78,879	86,494
Kelantan					
Estates	19,531	20,294	19,858	23,069	21,240
Smallholdings /a	67,488	70,327	72,137	73,749	74,524
Total	87,019	90,621	91,995	96,818	95,764
Malaysia	1,997,818	1,998,980	2,011,300	2,015,500	2,023,000

/a RISDA's registration.

Source: Rubber Statistics Handbook, Malaysia.

ANNEX 4-4
Table 4-4.2

PRODUCTION OF NATURAL RUBBER IN PAHANG, TRENGGANU AND KELANTAN
(Metric tons)

	1976	1977	1978	1979	1980
Pahang					
Estates	38,975	38,991	41,252	40,114	41,902
Smallholdings	86,366	83,762	86,278	86,368	90,751
Total	120,341	122,753	127,530	126,482	132,653
Trengganu					
Estates	3,180	2,924	2,933	3,277	3,426
Smallholdings	19,675	19,694	15,121	16,525	16,214
Total	22,855	22,618	18,054	19,802	19,640
Kelantan					
Estates	17,224	18,211	17,484	16,822	16,614
Smallholdings	23,885	29,094	27,333	24,496	23,002
Total	41,109	47,305	44,817	41,817	39,616
Total Production /a in Pahang, Trengganu & Kelantan	184,305	192,676	190,401	187,602	191,909
Malaysia	1,612,479	1,588,055	1,606,556	1,599,876	1,549,315

/a Of which approximately 13% was exported in the form of latex.

Source: Monthly Industries. Statistics of Malaysia as provided by Ministry of Primary Industries.

ANNEX 4-4
Table 4-4.3a

KETENGAH AGRICULTURAL LAND, BY DEVELOPMENT STATUS

Development status	1980	1985
For future development	30,367	11,344
Under planning	24,994	43,248
Under development	40,302	19,469
Productive land	31,868	53,472
Total	127,530	127,530

Source: KETENGAH.

SUMMARY OF PENINSULAR MALAYSIA RUBBER STATISTICS

	1977	1978 /a	1979 /a	1980 /b
Stocks at beginning of period	239,077	214,806	245,482	240,071
Imports	47,243	49,076	40,990	43,101
Production				
Estates	627,646/c	642,099	638,036	607,617
Smallholdings	883,919	888,047	890,053	875,702
Total	1,511,565	1,530,146	1,528,089	1,483,319
Total Available for Disposal During Period	1,797,885	1,794,028	1,814,561	1,766,491
Exports	1,577,637	1,537,591	1,577,740/d	1,460,100
Local consumption	37,223	38,607	40,453	45,391
Losses by fire, accident and estate factory thefts	229	219	106	162
Stocks at end of period /e	214,806	245,482	240,071	249,817
Total Disposed During Period	1,829,895	1,821,899	1,858,370/d	1,755,470
Balancing Adjustment	+32,010	+27,871	+43,809	-11,021

/a Subject to revision.

/b Preliminary.

/c Includes year-end adjustment of estate production figures.

/d Amended.

/e Includes government stocks.

Source: Ministry of Primary Industries.

PRODUCTION OF RUBBER IN PENINSULAR MALAYSIA, BY STATE

(Tons DRC)

State	January-December 1979 /a			January-December 1980 /b		
	Estates	Small-holdings	Total	Estates	Small-holdings	Total
Johore	161,301	260,646	421,947	153,002	263,618	416,620
Kedah and Perlis	105,867	124,255	230,122	102,601	122,633	225,234
Kelantan	16,822	24,496	41,318	16,614	23,002	39,616
Malacca	40,204	59,401	99,605	38,538	52,742	91,280
Negeri Sembilan	103,898	92,916	196,814	99,481	96,396	195,877
Pahang	40,114	86,368	126,482	41,902	90,751	132,653
Penang	9,823	35,023	44,846	8,210	31,132	39,342
Perak	80,062	140,656	220,718	74,496	134,369	208,865
Selangor	76,668	49,767	126,435	69,347	44,845	114,192
Trengganu	3,277	16,525	19,802	3,426	16,214	19,640
Total	638,036	890,053	1,528,089	607,617	875,702	1,483,319

Source: Ministry of Primary Industries.

ANNEX 4-4
Table 4-4.5

SUMMARY OF OIL PALM STATISTICS, PENINSULAR MALAYSIA
(metric tons)

	Stocks at beginning of period	Imports	Productions	Total available for disposal during period	Exports	Local comsumption	Losses by fire accident & estate factory thefts	Stocks at end of period	Total disposal during period	Balancing adjustment
Crude Palm Oil										
1978	119,255	-	1,640,311	1,759,566	429,670	1,133,582	51	195,212	1,758,515	- 1,051
1979	195,212	-	2,032,983	2,228,195	203,045	1,778,619	120	220,340	2,202,124	-26,071
1980	220,340	10,637	2,396,507	2,627,484	45,830	2,442,578	63	146,750	2,635,221	+ 7,737
Palm Kernals										
1978	12,308	10,784	339,816	362,908	1,122	333,783	421	28,713	364,039	+ 1,131
1979	28,713	13,501/a	441,040	483,254	-	458,727	431	33,436	492,594	+ 9,340
1980	33,436	40,646	514,506	588,588	-	520,863	421	33,125	554,409	-34,179

/a Revised.

Source: MIDA

MALAYSIA: PRODUCTION OF PALM OIL

(tons)

Year	Peninsular Malaysia	%	Malaysia	Rate of growth
1960	92,150	100.0	92,150	-
1970	402,300	93.3	431,000	22.5
1971	550,800	93.5	588,900	36.6
1972	657,000	90.2	728,600	23.7
1973	739,300	91.0	812,200	11.5
1974	942,300	89.8	1,049,260	29.2
1975	1,136,796	90.4	1,257,573	19.9
1976	1,260,608	90.6	1,391,965	10.7
1977	1,483,591	92.0	1,612,747	15.9
1978	1,640,311	91.9	1,785,525	10.7
1979	2,220,983	92.9	2,188,301	9.3
1980 /a	2,396,507	93.0	2,575,639	17.7
Projected				
1985	3,700,000		4,000,000	
1990	5,500,000		6,000,000	

/a Projected originally as 2.2 million tons by Malaysian Oil Palm Growers Council.

Source: Oil Palm Monthly Statistic of Malaysia for period up to 1980.
Projections for 1985, 90 by Malaysian Oil Palm Growers Council (based on committed acreage.

PENINSULAR MALAYSIA - PALM OIL ACREAGE
ESTATES AND SMALLHOLDING BREAKDOWN
(hectares)

Year	Estates	% of total	Growth	Small-holdings/a	% of total	Growth	Total
1970	190,288	70.4	-	79,903	29.6	-	270,191
1971	215,629	70.3	13.31	91,062	29.7	13.96	306,691
1972	247,973	67.8	14.99	117,783	32.2	29.34	365,756
1973	374,900	63.1	10.85	161,097	36.9	36.77	435,997
1974	315,964	58.9	14.93	220,068	41.1	36.60	536,032
1975	339,132	54.6	7.33	239,815	41.4	8.97	578,947
1976	351,290	56.8	3.58	267,026	43.2	11.34	618,316
1977	367,050	54.8	4.48	303,050	45.2	12.49	670,100
1978	n.a.	-	-	n.a.	-	-	763,851
1979	n.a.	-	-	n.a.	-	-	821,310
1980	494,461	53.5	-	429,631	46.5	-	924,092

/a Includes FELDA, RISDA, State Governments Schemes, FELCRA and Private Smallholdings.

Sources: Ministry of Agriculture: MOPGC. Summary of Estimated Oil Palm Future Acreage and Production.

PLANTED AREA UNDER OIL PALM IN PENINSULAR MALAYSIA
(in hectares)

Year	Mature	Immature	Total planted
1960	40,024	14,610	54,634
1970	138,902	122,297	261,199
1971	169,482	124,667	294,149
1972	208,129	140,612	348,741
1973	250,338	161,732	412,070
1974	290,291	209,953	500,244
1975	340,971	227,799	568,770
1976	403,157	234,460	637,617
1977	490,676	221,326	712,002
1978	531,574	232,140	763,714
1979	599,634	220,311	819,945
1980	633,212	290,817	924,029

Source: 1. Department of Statistics
2. MOPGC
3. PORLA
As published in the Palm Oil Statistical Handbook, 1980.

ESTIMATED YIELD OF D x T AND D x P OIL PALMS
(In tons (FFB) per ha per year)

Year of planting	Low	Mean	High
1	-	-	-
2	-	-	-
3	4.52	7.03	8.03
4	7.53	13.06	16.32
5	12.55	17.07	22.09
6	16.57	20.09	25.61
7	19.08	22.09	27.62
8	19.83	23.10	28.87
9	20.34	23.60	29.63
10	20.34	24.10	30.13
11	20.09	23.85	29.88
12	20.09	23.60	29.63
13	19.83	23.35	29.38
14	19.58	22.85	28.87
15	19.58	22.60	28.87
16	19.58	22.09	28.12
17	19.33	21.84	27.87
18	19.08	21.59	27.62
19	18.83	21.34	27.37
20	18.58	21.09	27.12
21	18.33	20.84	26.87
22	18.08	20.59	26.62
23	17.83	20.34	26.37
24	17.58	20.09	26.12
25	17.33	19.84	25.87

Source: Palm Oil Statistical Handbook, 1980.

YIELDS OF FFB, COPO AND PALM KERNEL FROM 1970 TO 1980
(In tons/ha)

Year	Fresh fruit bunches (FFB)	Crude palm oil (CPO)	Palm kernel
1970	15.72	3.00	0.65
1971	17.07	3.23	0.70
1972	16.48	3.44	0.72
1973	15.34	3.19	0.67
1974	16.82	3.49	0.72
1975	17.95	3.66	0.74
1976	16.16	3.48	0.71
1977	16.32	3.54	0.74
1978	16.25	3.33	0.70
1979	17.76	3.64	0.76
1980	18.72	3.84	0.81

Source: Department of Statistics, Kuala Lumpur, as published in the Palm Oil Statistical Handbook, 1980.

PRODUCTION OF CRUDE PALM OIL AND PALM KERNELS
BY STATE IN PENINSULAR MALAYSIA
(metric tons)

	Johore	Kelantan	Negeri Sembilan	Pahang	Perak	Selangor	Trengganu	Other states	Total
Crude Palm Oil									
1970...1978	516,253	16,211	95,802	265,338	250,178	391,789	66,217	38,523	1,640,311
1979	660,263	20,214	139,931	341,187	309,540	431,933	78,657	51,258	2,032,983
1980	761,708	27,035	168,183	456,853	355,232	462,349	85,651	79,495	2,396,507
Palm Kernels									
1970...1978	108,173	3,360	18,920	49,977	53,483	83,281	14,526	8,096	339,816
1979	143,795	4,116	30,683	67,800	69,312	94,662	17,999	12,683	441,040
1980	164,873	5,453	36,661	89,829	78,522	101,739	19,176	18,253	514,506

Source: MIDA

CONSUMPTION OF CRUDE PALM OIL AND PALM KERNELS
BY STATE IN PENINSULAR MALAYSIA
(Metric tons)

	Johore	Pulau Pinang	Perak	Selangor	Other states	Total
Crude Palm Oil						
1970...1978	297,963	151,268	136,660	446,970	100,721	1,133,582
1979	633,311	198,963	214,069	601,957	130,319	1,778,619
1980	954,620	265,787	366,036	699,346	156,789	2,442,578
Palm Kernels						
1970...1978	113,709	73,457	9,015	134,454	3,148	333,783
1979	155,797	88,531	15,690	195,408	3,301	458,727
1980	164,163	94,008	15,657	243,904	3,131	520,863

Source: MIDA

ANNUAL EXPORT OF CRUDE AND PROCESSED PALM OIL,
PENINSULAR MALAYSIA, 1960-80
(Tons)

Year	Crude palm oil		Processed palm oil	Total
	Peninsular Malaysia	Malaysia		
1960	97,568	97,568	-	97,568
1961	94,028	94,928	-	94,928
1962	107,386	107,386	-	107,386
1963	116,736	116,736	-	116,736
1964	125,247	125,247	-	125,247
1965	141,477	141,477	-	141,477
1966	181,282	181,282	-	181,282
1967	180,020	188,916	-	188,916
1968	267,923	285,965	-	285,965
1969	330,809	356,743	-	356,743
1970	373,280	401,930	-	401,930
1971	535,096	573,356	-	573,356
1972	625,306	696,983	-	696,983
1973	724,772	797,808	-	797,808
1974	813,044	901,566	-	901,566
1975	829,192	957,411	203,232	1,160,643
1976	749,088	877,424	457,951	1,335,375
1977	577,538	701,078	726,046	1,427,124
1978	429,670	574,021	935,519	1,509,540
1979	203,045	358,173	1,543,179	1,901,352
1980	45,830	214,997	2,062,246	2,277,243

Source: Department of Statistics, as published in the Palm Oil Statistical 1980 Handbook.

EXPORT VOLUME, EXPORT EARNINGS AND FOB UNIT VALUE
OF PALM OIL AND PALM OIL PRODUCTS, 1976-80

Palm oil products	1976	1977	1978	1979	1980
Crude Palm Oil					
Export volume ('000 tons)	1,184.4	1,107.0	975.3	858.9	771.5
Export value (M$ million)	1,076.5	1,387.5	1,212.1	1,170.4	923.8
FOB unit value ($/ton)	908.9	1,253.4	1,242.8	1,362.7	1,197.4
% of total export	8.0	9.3	7.1	4.8	3.3
Palm Olein					
Export volume ('000 tons)	78,709	192,230	305,052	496,031	870,942
Export value (M$ million)	78.8	292.0	445.8	697.5	1,102.4
FOB unit value ($/ton)	1,001.2	1,519.0	1,461.4	1,406.2	1,265.8
% of total export	0.6	1.9	2.1	2.9	3.0
Palm Stearin					
Export volume ('000 tons)	478,780	85,810	173,927	454,563	495,387
Export value (M$ million)	41.0	84.7	170.7	519.9	489.0
FOB unit value ($/ton)	858.1	987.1	981.4	1,143.7	987.1
% of total export	0.3	0.6	1.0	2.1	1.7
Palm Kernel Oil					
Export volume ('000 tons)	123,604	104,976	132,122	203,378	217,929
Export value (M$ million)	121.3	136.9	188.8	386.0	301.9
FOB unit value ($/ton)	981.4	1,304.1	1,429.0	1,879.9	1,385.3
% of total export	0.9	0.9	1.1	1.6	1.1

Source: The preliminary figures of external trade of Malaysia.

PALM OIL MILLS IN PENINSULAR MALAYSIA, 1977

State	Factories off estates	Factories on estates
Johore	19	10
Melaka	-	1
Negeri Sembilan	4	3
Selangor	14	11
Perak	14	7
Pulau Pinang	2	-
Kedah	1	-
Perlis	-	-
Kelantan	2	3
Trengganu	5	-
Pahang	15	6
Total	76	41

Source: Oil Palm, Coconut, Tea and Cocoa Statistics, 1978.

NUMBERS OF MILLS AND REFINERIES IN OPERATION AND INSTALLED CAPACITY IN MALAYSIA, 1976-80

Year	Palm oil mills		Palm oil refineries	
	Number of mills	Capacity (ton FFB/hour)	Number of refineries	Capacity (ton CPO/year)
1976	109	3,105	18	4,205
1977	117	3,261	23	6,075
1978	129	3,506	29	7,105
1979	141	3,815	39	8,785
1980	149	4,082	45	2.88 mln

Source: PORLA Annual Report 1979; PORLA Palm Oil Update, January 1981.

NUMBER OF APPROVED PALM OIL REFINERIES AND INSTALLED/APPROVED CAPACITIES BY STATES IN PENINSULAR MALAYSIA
(March 31, 1980)

State	Number of refineries	Installed/approved capacity
Johore	16	976,500
Kelantan	-	-
Negeri Sembilan	3	129,000
Pahang	8	303,000
Perak	11	468,000
Selangor	17	1,039,000
Trengganu	2	138,000
Province Wellesley	6	372,000
Kedah	1	24,000
Malacca	1	60,000
Total	65	3,449,500

Source: MIDA.

MIDA PROJECTIONS OF PALM OIL SUPPLY AND DEMAND
(Tons)

Year	Projected supply of crude palm oil	Number of refineries in operation	Potential demand for crude palm oil at 100% operating capacity	Surplus/ deficit of crude palm oil supply
1979	1,987,320	38	2,247,000	-259,680
1980	2,234,400	45	2,627,500	-393,100
1981	2,401,000	49	2,837,500	-436,500
1982	2,597,000	60	3,224,500	-627,500
1983	2,891,000	63	3,449,500	-558,500
1984	3,136,000	63	3,449,500	-313,500
1985	3,340,000	63	3,339,500	-195,000

Note: The 45 refineries in 1980 conist of the existing 39 refineries which are in operation, 5 companies in the stage of installing plant and machinery which are expeced to be in production by the end of 1980, and 1 existing refinery operating previously without approval from the Ministry of Trade and Industry and has recently been recommended for a Manufacturing License by the ACI.

Source: MIDA study.

OIL PALM/PALM OIL INDUSTRY IN KELANTAN, 1976-80

Year	Acreage (ha)	CPO production (tons)	Number of mills	Number of refineries
1976	6,279	11,493	3	-
1977	6,431	13,188	3	-
1978	7,201	16,211	4	-
1979	n.a.	20,209	4	-
1980	19,168	27,034	4	-

Source: Ministry of Primary Industries.

OIL PALM/PALM OIL INDUSTRY IN TRENGGANU, 1976-80

Year	Acreage (ha)	CPO production (tons)	Number of mills	Number of refineries
1976	21,271	60,259	5	1
1977	21,674	65,917	6	1
1978	24,297	66,217	6	1
1979	n.a.	98,064	6	1
1980	66,353	107,307	6	1

Source: Ministry of Primary Industries.

OIL PALM/PALM OIL INDUSTRY IN PAHANG, 1976-80

Year	Acreage (ha)	CPO production (tons)	Number of mills	Number of refineries
1976	52,207	193,670	17	-
1977	55,143	229,808	20	-
1978	61,255	265,338	20	-
1979	n.a.	341,782	26	2
1980	262,486	460,669	28	2

Source: Ministry of Primary Industries.

AGRICULTURAL PRODUCTIVITY

	East Coast	Peninsula
Padi (units/acre)	400	600
Oil palm (tons FFB/acre)	6-7	9-12

Source: SEPU, Trengganu.

AVERAGE PADI YIELDS (KELANTAN, KEDAH AND PENINSULAR MALAYSIA), 1971-75
(Kilograms per hectare)

Type of padi	Kelantan	Kedah	Peninsula
Main season	2,109	3,424	2,766
Off season	2,641	3,669	3,198

Source: SEPU, State and Rural Development Project Report, UNDP/World Bank, p. 916.

SUGGESTED COEFFICIENTS OF PRODUCTION - TRENGGANU CROPS, AVERAGE CONDITIONS

Tree crops	Year							
	6	7	8	9	10-15	16-20	21-25	35
Rubber (lb/ac dry)								
Estate	600	900	1,200	1,400	1,500	1,400	1,300	0
Smallholder	200	600	800	900	1,000	850	700	0

	Year								
	4	5	6	7	8	9-11	16-20	21-25	30
Oil palm (tons FFB/ac)									
Estate	3.0	5.0	7.0	7.8	8.5	8.0	7.5	6.0	0
Smallholder	2.0	4.0	5.5	6.0	6.8	5.5	5.0	4.0	0

	Year						
	3	4	5	6	7-15	16-25	30
Cocoa (lb/ac dry)							
Estate	150	400	600	700	800	650	0

	Year						
	6	7	8	9	10-25	26-40	50
Coconuts							
Smallholder (MAWA) /a	30	40	60	70	75	60	0
Smallholder /b	6	8	11	14	17	14	0

/a Nuts/tree.

/b Copra-pikul/acre.

Source: SEDC, Trengganu.

MALAYSIA

REGIONAL DEVELOPMENT AND URBANIZATION IN THE NORTHEAST

Smallholder Problems in Agriculture in the Northeast

1. One of the two groups which ranks at the bottom of the income scale /1 is the agricultural smallholder. In this annex their problems are analyzed in the context of analyzing sources of poverty in the Northeast.

2. A large part of Northeastern agricultural production is in smallholder hand. For Trengganu exact percentages are available: More than 60% of the rubber, 100% of the rice and 95% of the coconut but less than .5% of oil palm acreage is smallholder operated. For Kelantan these percentages are similar as far as can be ascertained. For example, SEPU estimates that at least 182,000 of 290,000 acres or 63% of the rubber acreage as in smallholder hand though some caution must be exercised with all such estimates as they are based on registered land use. Because of large differences in the profitability of different crops it is believed that there is substantial illegal planting of the more profitable crops.

3. Low productivity in smallholder operations can be traced to many different factors including limited soil quality, topography, the severity of East Coast monsoon, the advanced age of rubber trees, lack of mechanization, the high average age of smallholders and concomitant lack of investment, land fragmentation and small size of average land holdings.

4. Land fragmentation, the result of continuous subdivision of land under Islamic inheritance laws is one of the major contributing factors to rural Malay poverty. Within a generation or two, once large land holdings can become too small to support a family and ownership becomes too fragmented to transfer land to new and better uses. It seems significant that the rural Chinese whose incomes are considerably above that of rural Malays have also much larger land holdings. While there is little information on this subject presumably Chinese customs force surplus rural Chinese to move to urban areas rather than to subdivide the land. /2 At any rate Peninsula-wide rural Chinese income is 80% above that of Malays while their land holdings are 130% above Malay holdings. The corresponding percentages in the Northeast are 149% and 201%.

/1 The other group is fishermen (see Chapter 3).

/2 Since in Kelantan the Chinese community by law cannot expand its aggregatge land holdings the larger holdings of smallholder families cannot be explained by new land purchases.

5. In general, there is a clear correspondence between the average number of acres operated by a smallholder and average income. Indeed, the rural Chinese in the Northeast and particularly in Trengganu have higher incomes than the rural Chinese in the Peninsula, and this difference corresponds closely to the difference in land holdings. Table 4-5.1 illustrates this point further. It shows that differences in rural incomes between regions and ethnic groups considerably narrow when accounting for size of land holding.

6. This suggests the need for land consolidations as one measure to improve rural incomes. Average land holdings in the Northeast and in Kelantan in particular are smaller than in any other state and this is a major source of low rural incomes.

7. Other measures to improve rural incomes would be to cultivate smaller holdings more intensively or alternatively to supplement agricultural income with non-farm earnings. Data from the agricultural Census indicates that both these measures are already being undertaken (e.g. the wet padi operators in Table 4-5.2.)/1 As the size of land holding decreases so does income though less than proportional. Roughly speaking, a 50% drop in size of holdings decreases income by only 25%, which is in part offset by the increased earnings from wage and salaried employment (including estate work) and more intensive cultivation efforts as indicated by rising agricultural income per acre.

8. These results are quite encouraging, first because they deny the contention that yields decline with the smallness of holding./2 Rather, there exists some flexibilty in the choice of technology and intensity of labor input through which smaller operators can partly compensate for lack of land./3 Second, smallholders find and make use of off-farm job opportunities.

/1 Operators has been defined as households earning more than 10% of their income from agriculture, and who operate land, whether owned or rented.

/2 For example Alice Galenson in Malaysia: Growth and Equity (IBRD, 1980), "As in turn for smallholders in rubber, low yields appear to go along with small holdings." (p. 230).

/3 Of course, it is still true that for crops cultivated by estates, such as rubber, estate yields exceed smallholder yields. This may in part be due to more efficient management but equally important are the use of higher yielding crops, a better age distribution of trees due to tighter replanting schedules, and a higher level of mechanization, as a result of greater availability of capital. In the smallholder sector replanting is also inhibited by the relatively advanced age of the average smallholder and by the long gestation period of tree crops which leaves smallholders without funds in the interim.

9. The means by which Government attempts to raise agricultural income for the smallholder population will have considerable consequences for the urbanization and industrialization of the Northeast and must be in tune with urban/industrial policies. For example, land consolidation schemes that increase the average size of a smallholder farm would reduce the absolute size of the agricultural population and require a complementary urban policy of rapid infrastructure growth and employment expansion. On the other hand, to raise rural incomes through non-farm earnings requires improved rural access to non-agricultural, primarily industrial jobs, through better public transportation and the industrialization of rural areas. Or as a third example, income improvements through improved crop choice and intensification efforts would, if feasible, reduce pressures on urban growth and industrialization efforts. Unfortunately there is considerable disagreement which of the income policies are feasible or what the pay-off from each would be.

LAND OPERATED AND MONTHLY INCOME

	Rural monthly per capita household income (1)		Mean acres operated (2)		Monthly income per acre (1)÷(2)	
	Malay	Chinese	Malay	Chinese	Malay	Chinese
Northeast	47	117	3.61	10.88	13.0	10.8
Kelantan	45	106	3.27	9.74	13.8	10.9
Trengganu	50	144	4.22	13.57	11.8	10.6
Northwest	48	85	3.74	9.85	12.8	8.6
Selangor region	100	156	6.48	8.93	15.4	17.4
Other	59	92	4.64	9.81	12.7	9.4
Peninsula	59	106	4.28	9.87	13.8	10.8

Source: 1977, Agricultural Census.

MEAN MONTHLY GROSS HOUSEHOLD INCOME /a AND SOURCES OF INCOME FOR AGRICULTURAL OPERATORS /b BY NUMBER OF ACRES OPERATED, AND MAJOR AGRICULTURAL PRODUCT, KELANTAN 1976

Type of Operators/Type of Income	Number of Acres 0-2.5	2.5-5.0	5.0-7.5	7.5+	All operators
Wet Padi Operators (#)	24,114	14,944	3,380	1,452	43,892
Mean monthly gross income ($)	110.00	120.75	149.32	241.29	120.70
Income sources (% of total)					
Wage and salary	22.3	13.9	7.1	11.4	17.9
Agriculture	45.5	59.6	61.7	65.0	52.2
Livestock	5.7	5.8	9.2	10.3	6.2
Rent	19.0	16.0	17.9	8.9	17.6
Transfers	4.3	2.2	2.0	0.3	3.2
Other	3.2	2.5	2.1	4.1	2.9
Coconut Operators (#)	3,668	1,408	640	312	6,028
Mean monthly gross income ($)	114.73	159.16	138.39	123.65	128.10
Income sources (% of total)					
Wage and salary	16.6	18.7	6.6	10.1	15.7
Agriculture	42.5	57.5	66.3	69.0	49.9
Livestock	4.1	4.4	2.3	9.2	4.2
Rent	23.1	11.7	15.6	10.6	19.0
Transfers	8.0	4.3	4.8	1.1	6.4
Other	5.7	3.4	4.4	0.0	4.8
Rubber Operators (#)	2,332	4,268	4,108	5,600	16,312
Mean monthly gross income ($)	127.56	145.42	175.67	277.51	195.83
Income sources (% of total)					
Wage and salary	19.5	15.8	12.8	16.9	15.9
Agriculture	46.0	60.2	68.2	60.7	60.3
Livestock	4.9	3.0	4.4	5.4	4.4
Rent	21.4	15.6	10.6	12.2	14.0
Transfers	4.3	5.12	1.2	1.1	2.4
Other	3.9	0.3	2.8	3.7	3.0
Other Operators (#)	4,432	624	900	628	6,580
Mean monthly gross income ($)	122.43	126.74	143.65	130.09	126.44
Income sources (% of total)					
Wage and salary	20.0	6.8	13.4	6.9	16.6
Agriculture	41.9	61.4	47.8	69.8	47.2
Livestock	5.1	7.9	12.5	9.4	6.8
Rent	19.3	14.8	21.2	15.8	18.8
Transfers	11.5	9.0	1.9	0.0	8.8
Other	2.2	.1	3.2	-2.0	1.8

/a Income includes earnings from paid employment, net business income from agricultural holdings, net income from unincorporated business, net property income and transfer receipts. Income also includes payments in kind, consumption of own produce, and imputed net rents from owner-occupied houses.

Source: 1977 Agricultural Census.

NUMBER OF HOUSEHOLDS WITH AGRICULTURAL LAND HOLDINGS /a AND
MEAN ACRES OPERATED BY REGION AND RACE OF HOUSEHOLD HEAD, 1976

Region/state	Malay		Chinese		Other		Total	
	Household	Mean acres operated	Household	Mean acres operated	Household	Mean acres operated	Household	Mean acres operated
Northeast	148,203	3.61	3,020	10.88	2,341	4.36	153,564	3.76
Kelantan	95,721	3.27	2,124	9.74	1,935	3.84	99,780	3.41
Trengganu	52,482	4.22	896	13.57	406	6.84	53,784	4.40
Northwest	116,062	3.74	7,600	9.85	4,479	6.19	128,141	4.19
Selangor region	31,239	6.48	9,017	8.93	2,187	4.27	42,443	6.88
Other	258,917	4.64	80,167	9.81	7,784	9.99	346,868	5.95
Peninsular Malaysia	554,421	4.28	99,004	9.84	15,991	7.82	671,016	5.17

/a Household holdings comprise all land operated by all members of the household as of 12/31/76 for agricultural purposes, irrespective of the tenure of the land, irrespective of the locat ion of the land, and irrespective of whether the land area planted with crops are kept vacant for future agricultural use. Land in FELDA and other state schemes is not included. Households that own agricultural land but do not operate it (use land or exercise management control over its use) are not included.

Source: 1977 Agricultural Census.

DISTRIBUTION OF AGRICULTURAL OPERATORS, /a BY NUMBER OF ACRES OPERATED AND MAJOR AGRICULTURAL PRODUCT, KELANTAN 1976

Type of operator	Number of acres				Percent	Average
	0-2.5	2.5-5.0	5.0-7.5	7.5+		
Wet padi	54.9	34.0	7.7	2.9	100.0	43,892
Coconut	60.8	23.4	10.6	5.2	100.0	6,028
Rubber	14.3	26.2	25.2	34.3	100.0	16,312
Other	67.4	9.5	13.7	9.4	100.0	6,580
Total	47.4	29.2	12.4	11.0	100.0	72,812

/a The definition of agricultural operators is identical to that in footnote a of Table 4-5.3, except that the present table excludes all operators deriving less than 10% of their income from agriculture, or more than 10% from fishing, or without income information.

Source: 1977 Agricultural Census.

MALAYSIA

REGIONAL DEVELOPMENT IN THE NORTHEAST

Fishery Resources in the Northeast

1. The Northeast has a substantial fishing industry which in 1977 produced 77,800 tons or 16% of the Peninsula's total catch of fish (Table 4-6.2). Of this, 84% is landed in Trengganu which has 205 miles of shore line compared to Kelantan's 64. Thus, most of the following comments apply primarily to Trengganu.

2. Trengganu's fishing industry employs 13,100 workers or 8% of the state's work force, operating out of 38 coastal villages and towns distributed along the entire coast. Coastal fishing conditions in the South China Sea are ideal, with limited currents, a suitable ocean bed despite some areas of coral and mud, and warm shallow waters that produce a high fish stock density. The sea floor remains shallow throughout the 200 mile exclusive Economic Zone, never dropping below 100 m in depth, making Trengganu's off-shore area the largest trawlable fishing zone of any state on the peninsula. It also extends the fleet range required to engage in deep sea fishing.

3. Trengganu's total catch, despite these favorable conditions, remains modest when compared to that of northern West Coast States. As seen from Table 4-6.2, Selangor and Perak, despite shorter shorelines /1 have a substantially larger catch. Measuring productivity in terms of catch (in tons) per km shoreline Perak, Kedah and Perlis have twice the productivity of Trengganu. Part of these differences may be explained by differences in fishing grounds and fish stock density, another part by the greater severity of the East Coast monsoon season which reduces the catch from November through January to 55-65% of the April and September peaks. However, a substantial part is undoubtedly due to the limited reach and technical obsolescense of the fishing boat fleet.

4. To modernize the fishing fleet and to raise the productivity of fishermen whose income is among the lowest of any occupational group the government has installed a subsidy program for nets and boat engines. An initial outcome of these subsidies has been to increase Trengganu's catch between 1970 and 1977 from 21,500 tons to 77,800 tons, a growth of 260%, or 28% of the total peninsular growth during that period (Table 4-6.3). However, it also led to overfishing in the coastal range, in which most of the fleet operates. By 1980 the total catch had thus fallen to 60,000 tons and the government is now considering ending the subsidies.

/1 and limitations due to the closeness of Sumatra across the straits of Malacca.

5. There are no exact estimates as to the amount of fish used for own consumption or exported from the Northeast. The Trengganu Coastal Region Study estimates that Trengganu uses 35% of its catch for own consumption /1 and that it exports 80% of the remainder to Singapore and 20% to Kuala Lumpur. However, this disregards likely exports to Kelantan. Since Kelantan's own catch would allow it a per capita consumption less than one third the Peninsular average it seems reasonable to assume that it supplements its own catch with imports from Trengganu, particularly since Trengganu's most productive district borders on Kelantan./2 Assuming Kelantan's per capita fish consumption equals the Peninsular average, Trengganu's exports /3 to areas outside the Northeast would be only around 25% of the total stock, rather than the 65% implied above.

6. The Trengganu Coastal Region Study puts the long term potential for sustainable fish catch in Trengganu at roughly 200,000 tons (Table 4-6.1)./1 An FAO study projects Trengganu's total landings at 190,000 tons by 1995, a threefold rise from the 1980 total of 60,000 tons implying an annual growth rate of 8.0%. However, these estimates were made prior to the recent decrease in fish landings. Quite likely fish densities and sustainable yields in the past have been overestimated and more realistic estimates by the Federal Fisheries department now put the sustainable catch at 100,000 tons p.a. by 1990.

7. To go beyond this more modest level it is necessary to substantially alter fishing patterns and to shift from the close coastal range that have been overfished to a range beyond 100-150 km where current landings are still small relative to sustainable yields. This requires larger boats and bigger engines for trips of greater distance and duration. To permit operation of such boats, the government has embarked on a program of fishing port improvements and also encourages formation of cooperatives, to improve ownership and boat operating patterns. At present only Kuala Trengganu (Mendering) and Kuala Besut have major ports for large trawlers and seiners. Secondary ports at Dungun and Chukai are sufficient only for small artisanal

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/1 Assuming a 50% higher per capita consumption rate in Trengganu than in the Peninsula.

/2 This is the district of Besut which in 1978 produced 27,000 out of 75,000 tons of fish landed.

/3 Fish transport is in 4-6 ton trucks, in wooden boxes containing 70 kg of fish and 50 kg of ice, at transport costs per box in 1978 of M$9.00 to Kuala Lumpur and M$18.00 to Singapore (i.e. at M$0.13 and M0.26 per kg respectively. Since the price of fish in 1978 averaged M$1.07 per kg wholesale, transport charges are likely to be 5-7% of the retail price in Kuala Lumpur.

boats and trawlers of up to 30 tons./1 Traditionally, all ports have been located at river mouths, and for this reason all of them face similar siltation and river shoaling problems associated with inland logging practices.

/1 A new port for a maximum trawler size of 80 tons is already operative at Mendering substituting for the old port at Kuala Trengganu. Improvements at the port at Besut are under construction and improvements at Dungun and Chukai are proposed or on the drawing board.

FISH LANDINGS 1978 AND ESTIMATED SUSTAINABLE YIELD

	Estimated 1978 landings	Long-run sustainable yield
Demersal Fish		
0 - 0 km	10,000	11,000
20 - 100 km	3,000	29,000
100 - 300 km	1,000	30,000
Total Demersal	14,000	70,000
Trash fish	9,000	40,000/a
Prawns (0-20 km)	1,200	1,500
Pelagic Fish		
0 - 20 km	12,000	10,000
20 - 100 km	25,000	36,000
100 - 300 km	13,000	44,000
Total Pelagic	50,000	90,000
Total Landings Incl. trash	74,200	201,500
Excl. trash	66,200	161,500

/a Not all trash fish caught will be marketed. Total catch with curent types of net 70,000 tonnes.

Source: TCRS Vol. II.

FISH LANDINGS PER KILOMETER OF COASTLINE BY STATE, 1977

State	Coastline length (straightline) (km)	Total 1977 catch (tonnes)	1977 landings per km of coastline (tonnes/km)	1977 catch for human consumption	
				Total (tonnes)	Per km coastline (tonnes/km)
Perak	148	143,200	968	107,900	729
Kedah	76	71,600	942	46,500	612
Perlis	19	14,300	752	8,400	584
Selangor	167	105,800	634	49,300	295
Penang	49	28,000	571	19,000	388
Trengganu	205	77,800	380	68,400	333
Kelantan	64	6,500	102	6,200	97
Johore	380	34,800	92	27,200	72
Pahang	167	14,000	84	8,200	49
Malacca	65	1,500	22	1,400	21
Negri Sembilan	38	500	13	500	13
Total	1,378	498,000	361	343,000	249

Source: Annual fisheries Statistics, cited after TCRS vol. II page 65.

ANNEX 4-6
Table 4-6.3

LANDINGS OF MARINE FISH, CRUSTACEA AND MOLLUSCS
IN PENINSULAR MALAYSIA BY STATE, 1970-78

State	1970	1971	1972	1973	1974	1975	1976	1977	1978
Perlis	5,300	5,700	5,500	8,100	13,500	14,000	9,900	14,300	14,500
Kedah	28,900	31,700	38,200	45,900	42,600	42,900	52,000	71,600	66,500
Penang & P.W.	38,600	34,800	32,200	33,900	26,700	21,000	17,100	28,000	22,500
Perak	101,700	102,300	79,200	99,700	131,700	95,000	108,600	143,200	186,600
Selangor	46,200	64,600	59,100	79,800	88,200	82,200	91,700	105,900	104,700
Negeri Sembilan	400	400	300	500	300	400	500	500	400
Malacca	1,800	1,600	1,500	1,500	1,300	1,300	1,300	1,400	2,400
Kelantan	6,700	7,000	11,300	12,900	12,700	12,700	13,300	6,500	14,500
Trengganu	21,500	22,900	30,700	38,000	59,700	53,400	55,300	77,800	75,200
Pahang	8,400	7,400	8,300	11,800	19,000	13,500	14,200	14,000	16,300
Johore	39,500	44,700	44,700	39,200	43,900	38,800	47,100	34,800	61,000
Total	299,000	323,100	311,000	371,300	439,600	375,200	411,000	498,000	564,600

Source: Annual Fisheries Statistics.

MALAYSIA

REGIONAL DEVELOPMENT IN THE NORTHEAST

Tourism

1. A number of peninsular and East Coast studies recommend the development of the tourist sector,/1 as potentially a major employment generator. However, the FMP is relatively mute as to concrete actions for implementation. In general, the tourist section in Malaysia has yet to develop significantly compared to other Asian countries. The East Coast Tourist sector, in particular, is much less developed than that on the West Coast./2

2. Recent developments, however, give some support to hopes for the tourist section. International business and tourist traffic to Peninsular Malaysia has undergone substantial growth. There was an average annual 8.6% rise in visitor arrivals (from 725,883 to 1,529,915) between 1972 and 1980. The distribution of origin of these visitors has remained relatively stable over most of the period (see Table 5-1.1)./3 Little is known, however, about the distribution between tourist and business visitors, though the strong seasonality of visits in the Northeast suggests a substantial tourist component, with peak visiting months in July and August, and a trough in the monsoon months of November through February.

3. The East Coast share in total tourism is small. As shown in Table 5-1.2, the whole East Coast received only 11.8% of the total hotel person-nights in the Peninsula - compared to Kuala Lumpur's 38.3% and Penang's 20.2%. The discrepancy is even higher for foreign travellers who spend only 6.2 out of 100 nights in East Coast hotels as compared to 45.5 in Kuala Lumpur and 28.4 in Penang. Of this East Coast total person-nights, 42% go to Kuantan and 50% is shared by the principal northwestern cities of Kuala Trengganu and Kota Bahru.

/1 The 1975 Tourism Development Plan, the 1979 Tourism Development Study, the TCRS and the Development Strategy Report for Kelantan.

/2 With two or three exceptions, there is an almost complete lack of East Coast hotel accommodations acceptable to the international tourist traffic. Tourist attractions are also underdeveloped and inadequately promoted.

/3 In 1980, 55.2% consisted of visitors from other ASEAN countries (Indonesia, Philippines, Singapore, Thailand), 4.7% from India, 7.4% from Japan, 12.8% from Europe (including 5.9% from the UK and Ireland) and 7.2% from Australia and New Zealand. Most of the visitors came by air, 43.8% as compared to 5.2% by sea, and 51.0% by road and rail.

VISITORS TO PENINSULAR MALAYSIA BY COUNTRY
OF NATIONALITY, 1975-80
(%)

Country of nationality	1975	1976	1977	1978	1979	1980
Asian	54.7	57.4	54.8	54.8	56.4	55.2
India	3.8	3.1	3.0	3.8	4.4	4.7
Japan	5.2	6.3	8.6	8.4	7.3	7.4
Australia/New Zealand	12.2	10.4	9.7	8.9	7.5	7.2
Continental Europe	5.3	5.4	5.6	5.9	6.2	6.9
UK/Ireland	7.7	6.4	6.5	6.5	6.1	5.9
Canada	0.9	1.0	1.3	1.2	1.2	1.2
USA	5.7	5.6	5.9	5.4	5.0	4.6
Other	4.6	4.4	4.6	5.1	6.0	6.9
Total (%)	100.0	100.0	100.0	100.0	100.0	100.0
Total (Abs in 000s)	1,183.0	1,224.8	1,229.0	1,399.1	1,416.4	1,529.9
Growth rate (%)		3.5	0.3	13.8	1.2	8.0

Source: Tourist Development Corporation

DISTRIBUTION OF HOTEL PERSON-NIGHTS BY LOCALITY, AND OCCUPANCY RATES, 1980

Locality	Domestic	Foreign person nights: Singapore/ Bruneians	Foreign person nights: Others	Foreign person nights: Total foreign	Total person nights	Occupancy rate
East Coast Towns	15.9	8.0	5.7	6.2	11.8	61.5
Kuantan	6.3	3.6	2.8	3.0	5.0	50.0
Kemamanu	0.7	0.1	0.3	0.3	0.6	46.2
Dungun	0.6	0.2	0.1	0.1	0.4	54.8
Kuala Trengganu	3.9	0.9	1.3	1.2	2.8	81.9
Kota Bharu	4.3	2.7	1.0	1.5	3.1	79.9
West Coast Areas						
Kuala Lumpur and Pelaling Jaya	33.2	36.7	49.0	45.5	38.3	71.4
Penang Island	14.3	17.7	32.8	78.4	20.2	65.1
Other West Coast towns	15.9	10.8	6.1	7.4	19.1	62.3
Other Areas						
Hill resorts	6.4	24.3	3.9	9.7	7.8	52.2
Island resorts	1.1	1.3	1.8	1.6	1.3	41.9
Port Dickson	1.4	1.3	1.1	1.1	1.3	26.4
Peninsular Malaysia	100.0	100.0	100.0	100.0	100.0	63.8
Absolute (000s)	3,890.2	799.6	2,001.8	2,801.4	6,691.6	

Source: Based on information provided by The Tourist Development Corporation.

HOTEL ROOM IN 1981 AND PLANNED, BY LOCATION

	1981 rooms	Planned
Kuala Trengganu	419	na
Superior	169	190
Dungun	na	na
Superior	150	50
Kemaman	na	na
Superior	na	na
Kota Bharu	586	na
Superior	210	0
Kuantan /a	870	na
Superior	260	na

/a Excluding 300 rooms at the Club Mediteraine.

POTENTIAL TOURIST ATTRACTIONS

(a) Numerous beaches exist all along the coast, though beaches that are uninhabited and of sufficient quality to be developed as resort areas are more limited and widely scattered. A principal resort area has been identified at Dalam Rhu, at the border between Kelantan and Trengganu, 50 miles south of Kota Bharu; other minor centers are located between Merang and Kuala Besut, about 50 miles north of Kuala Trengganu; and in an area several miles north of Dungun, where the Tanjung Jara Hotel has been constructed, close to the Rantan Abang Visitor Center.

(b) Several offshore islands such as Perhentian Besar and Pedangi offer a rich marine life, coral reefs and a wide range of opportunities for fishing and skin diving in a tropical environment (provided facilities damaging to the sensitive coral ecology are not built on the islands, but located appropriately on the mainland).

(c) Inland jungles and wildlife are preserved in original condition in the Taman Negara Park that occupies part of Pahang, Trengganu, and Kelantan. This park, though currently almost inaccessible from the northeast could become a major attraction as it remains one of the last jungle areas in the peninsula in untouched condition.

(d) Trengganu beaches are one of the only two areas in the world that provide the opportunity to observe the annual beaching of the giant leathery turtle during the period May to September.

(e) Traditional Malay culture provides a potential source of tourist attraction including festivals, dances, shadow play, kite flying and bersilat (art of self defense)

(f) Traditional handicrafts produce batik and brassware. Their production can be observed in traditional village settings and markets in the towns provide an attractive environment for their purchase.

Northeastern Handicrafts

(a) Northeastern batik plays a prominent cultural role in Peninsular Malaysia where it is used by both males and females for formal dressing. The work is done almost exclusively by men on a full time basis, in covered outdoor areas with an average establishment size of 5-10 men./1

(b) The industry has given rise to forward linkages in tailoring, and backward links to the fabricated metal sector which provides the complicated metal pattern blocks. Cloth, wax, and dyes are imported as total consumption remains relatively minor and, at any rate, cotton and silk are not locally produced.

(c) Songket is a local ceremonial cloth handwoven on large wooden looms using gold or silver threads in a supplementary weft technique. The work is done by women at home, to supplement work in the fields and hence is seasonal and part time. Marketing is via the peraih system whereby middlemen supply women with raw materials and pay them upon receipt of the ready material. The same marketing system is used for mengkuang weaving which uses the dried and dyed straw-like fibers from the pandan leaves to produce such items as mats, baskets and purses. Again this work is done by women at home, on a part-time basis. Both mengkuang weaving and brassware appears to be more common in Trengganu than Kelantan.

(d) Brassware, such as plates, ashtrays or candleholders, is made by the lost wax process allowing only a single cast per form which takes a day or more to make. Used cartridges supplied by the Deparment of Defense are the principle raw material, but its many impurities add to labor requirements and lower the quality of the finished product to a point where it cannot be sold in the tourist market. The work is done by men on a more or less full time basis, in establishment ranging in size from 2-10.

/1 In making batik white cloth is first patterned with hot wax, usually using metal pattern blocks, then dyed, washed, and dried, leaving the wax areas white. The process can be repeated for additional colors.

MALAYSIA

REGIONAL DEVELOPMENT AND URBANIZATION IN THE NORTHEAST

FMP Development Allocations

1. This section examines the FMP development allocations, both for the sector priorities, they reveal and for consistency with GDP projections. Table 6-1.1 shows the development allocations by broad expenditure classes, i.e. broken down into economic, social, security and administration expenditures. A further breakdown allows a rough identification of the sectors to which the allocations are applied. Table 6-1.2 shows FMP allocations in per capita form, and Table 6-1.3 relates FMP allocations in the agricultural sector to that sector's current employment and GDP.

2. As shown in Table 6-1.2, total development allocations by both the federal and state governments (other than for multi-state projects) average M$ 2,312 per capita in the peninsula over the 1981-85 period, using the 1980 field counts for the population base. In contrast, Kelantan's and Trengganu's allocations are M$ 3,244 and M$ 3,733 respectively, or 40% and 62% above the peninsular average. This reverses past trends of average allocations and below average expenditures for Kelantan but maintains Trengganu's dominant position of the past. In light of the low development allocations in Kelantan's past this is not necessarily inconsistent with FMP projections which project a faster GDP growth in Kelantan relative to Trengganu. Two consideration's however, point to the possibility of some inconsistency: First, Trengganu's development allocation does not include expenditures on petroleum and gas related projects which are not funded directly by government and for which there are no corresponding expenditures in Kelantan. Second, a relatively large share of Kelantan's development allocation is for security, mainly defense. While this allocation has a positive impact on GDP (initially because of the necessary investments and later because of the personnel) the local multiplier effect is likely to be small, in part due the limitations of the local catering and subcontracting capabilities.

3. Disparities in the development allocation between Kelantan and Trengganu result from differences between the two state's access to state and statutory funds rather than from differences in federal funding. For Trengganu which already receives large oil revenues and which will receive additional revenues from gas these funds make up 12% of the total development allocation, as compared to 2% in Kelantan and close to 8% in the Peninsula. Federal funds alone result in almost identical per capita allocations to the two states, of M$ 3,167 to Kelantan and M$ 3,290 to Trengganu. Still, even in this case the equality in funding results largely from the noninclusion of oil and gas development expenditures in Trengganu and Kelantan's high security allocations already mentioned. These allocations amount to 19% of the total federal allocation to Kelantan, as

compared to 4% for Trengganu and 11% in the Peninsula. Without them Kelantan's per capita allocations wuold only be 35% higher than the Peninsular average but for Trengganu the difference would increase to 67% (see Table 6-1.2). Thus, implicitly the FMP allocations suggest that on economic grounds development opportunities in Kelantan are considerably below those in Trengganu, which is in fact also suggested by the sectoral assessment of growth opportunities in Annex 6-2.

4. The major source of Kelantan's and Trengganu's high development allocations are agriculture and rural development projects. In Kelantan 47.2% of all non-security allocations fall in this sector, as compared to Trengganu's 43.6% and the Pensinular's 35.1%. Within this category allocations go to numerous subareas, summmed in Tables 6-1.1 and 6-1.3 under three headings: (1) agriculture (including integrated development projects and various subsidies by the Ministry of Agriculture), (2) land and regional development projects (FELDA, FELCRA, KETENGAH, KESEDAR, TAKDIR, etc.), and (3) and "other" category (which includes such diverse items as rubber replanting; agricultural credit, marketing and processing projects; irrigation and drainage; fisheries; and research).

5. The apparent priority accorded agricultural development in the Northeast over the rest of the peninsula is apparent from its allocations. Not only does the agricultural sector and each of its three subareas receive higher per capita allocations than the peninsular average but, almost without exception, they also receive higher shares of the already above average total development allocations to the two states. Yet this is not the full story. Given that the Northeast is predominantly agricultural it is also necessary to relate allocations to the existing agricultural base, such as agricultural GDP and agricultural employment. As is seen from Table 6-1.3, allocations in all those categories are substantially higher than the Peninsular average if taken as a proportion of agricultural GDP. For every dollar earned by the agricultural sector in 1980 (in 1970 prices) the FMP proposes to allocate to the sector annual development funds of M$0.33 in the Peninsula, but M$ 0.64 in Trengganu and M$ 0.81 in Kelantan (in current prices). However, given the low productivity of agricultural workers in the Northeast, these allocations which are high relative to sector GDP are low relative to sector employment. For each worker in the agricultural sector, they amount to annual allocations of M$ 1,836 in the Peninsula, but only M$ 1,627 in Trengganu and a very low M$ 1,174 in Kelantan.

6. It is surprising to see that the allocation per worker in the major extensification schemes is also below the Peninsular average. In particular, as seen from Table 6-1.3, planned annual expenditures per agricultural worker for land and Regional Development are M$ 863 in the Peninsula, M$ 904 in Trenggànu and M$ 487 in Kelantan. While Trengganu's per worker expenditures exceed the peninsular average by 5%, Kelantan's are smaller by 44% and the two state's combined per worker allocation is only M$ 627 per year or 27% below the Peninsular average. Put differently,

it appears that in the Northeast a much smaller proportion of the rural population growth can be channelled into new land development schemes than in the Peninsula. Obviously, this assumes that the number of jobs created per dollar development allocations is not much higher in the Northeast than elsewhere.

7. Similarly for traditional intensification efforts/1 allocations per worker are significantly lower in the Northeast than in the Peninsula (see Table 6-1.3). thus, while the allocation in the "other" category is for M$ 567 annually in the Peninsula, it is only M$ 465 in Trengganu and M$ 345 in Kelantan. It is very unlikely that expenditures could be so much higher in the Peninsula than the Northeast without further raising the former's productivity and possible earnings differentials. Improvements in in the relative productivity and earning position of the Northeast could therefore come only from other sources such as greater relative extensification efforts in the Northeast (which is not apparent as noted in the previous paragraph), or from other measures that possibly could have a larger impact in the Northeast than elsewhere such as changes in cropping patterns or land consolidations mesures that shift labor out of agriculture.

8. There can be only one interpretation of these figures. First, Northeastern earnings and productivity disparities in the agricultural sector are unlikely to decline; and second, the extensification efforts in the Kesedar and Ketengah regions will do less to solve the Northeast's rural labor absorption problem compared to similar efforts in the rest of the country. There is therefore a greater need in the Northeast for rural outmigration or the provision of rural jobs outside the agricultural sector than in the rest of the Peninsula.

9. The above points should be given some attention. For if anything is taken for granted in current planning for the Northeast it is that there exists a 10-year 'breathing period' in which the regional development schemes will provide relief for the long-term labor absorption problem in the rural Northeast. While this is true enough in absolute terms, it does not appear to hold in relative terms (i.e. vis the other regions). But it would have to be true in relative terms, if the relative income position of the Northeast is to improve. This then points to the importance of generating urban-industrial employment in the Northeast.

10. Of the other 'economic' sector allocations--Mineral Resources, Commerce and Industry, Transport, Communications, and Energy and Public Utilities--most show above average per capita funding for the Northeast, with

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/1 Such as rubber replanting, irrigation and drainage, research which are mostly subsumed under the 'other category of the agricultural development allocation, though some such items also appear under the 'agriculture' label.

major variations in funding usually explained by large-scale projects (such as Trengganu's Kenyir Dam in the Energy and Public Utilities sector). Noteworthy, are the large transport allocations in the Northeast, most of which are for rural roads despite the program to improve the region's interregional accessibility. In per capita terms the transport allocations over the 5-year FMP period are M$ 240 in the Peninsula, as compared to M$ 306 for Trengganu and M$ 430 in Kelantan. Of Kelantan's allocation 83% or M$ 356 are for roads and bridges as compared to 69% or M$ 166 for the Peninsula. In turn, most of these expenditures are for rural and kampung roads rather than highways or security roads. Specifically, Kelantan's allocation for rural and kampung roads is M$ 223 per capita for the FMP period, as compared to M$ 126 in Trengganu and M$ 64 in the Peninsula. The point here is that these expenditures should make a substantial contribution towards improving the access of the rural population to urban jobs. Given that rural intensification and extensification projects are likely to be insufficient to improve the relative income position of Kelantan's rural population it becomes all the more important to provide opportunites to supplement agricultural employment with secondary urban jobs. If this is the objective behind the high priority accorded local transport (as opposed to highways, ports and airports) the allocation is to be recommended (as noted in Chapters 6 and 7).

11. The final point concerns the 'social' allocations to the Northeast which proportionately to the funds allocated to each region are much higher in the Peninsula than in the Northeast, i.e. 20.7% of all federal funds (net of security allocatioons) for the peninsula, as compared to 13.8% for Kelantan and 12.7% for Trengganu. However, this disparity is mainly due to the high northeastern allocation for non-social programs and reflects to a lesser extent neglect of social programs. As seen from Table 6-1.2. the Peninsula's allocation for social development on a per capita basis is M$ 393, as compared to M$ 402 for Trengganu and M$ 354 for Kelantan (10% below the Peninsular average). Higher allocations in Trengganu for Education and Training reflect the intended location of training institutions in that state that will also benefit Kelantanese. The higher allocations in Kelantan for Health and Population reflect the state's bottom ranking in the health field, as indicated by high infant mortality and low availability of doctors, dentists and hospital beds (see Annex 1-1). Still, it seems doubtful that the allocation premium to Kelantan's health field will go far in eliminating these disparities. There exist also low allocations in Kelantan (and to a lesser extent in Trengganu) to housing and 'other' services (which include broadcasting, culture, youth and sports, and various local community projects). These are difficult to explain, though at least for housing they may reflect the relatively lesser need for expansion in the Northeast. The Northeast, despite its limited income has at present less crowded housing conditions, and in rural areas there would be a lesser need for sewerage expansion. In summary, while social service allocations to the Northeast are roughly on par with those in the Peninsula, they are unlikely to be sufficient in magnitude to significantly reduce disparities where they do exist, such as in the health field.

FMP ALLOCATION OF DEVELOPMENT FUNDS/a BY SECTOR
AND SELECTED STATES, 1981-85

Sector	Kelantan M$ mln	Kelantan % /b	Trengganu M$ mln	Trengganu % /b	Peninsular M./a M$ mln	Peninsular % /b
Economic	1,918	69.0 (85.2)	1,484	83.2 (86.7)	16,208	68.1 (76.8)
Agriculture and rural development	1,063	38.2 (47.2)	745	41.8 (43.6)	7,413	31.2 (35.1)
Agriculture /c	309	11.1 (13.7)	118	6.6 (6.9)	1,640	6.9 (7.8)
Land and regional /d development	441	15.9 (19.6)	414	23.2 (24.2)	3,484	14.6 (16.5)
Other	313	11.3 (13.9)	213	11.9 (12.4)	2,289	9.6 (10.8)
Mineral resources development	1	- (-)	-	-	18	- (-)
Commerce and industry	284	10.2 (12.6)	265	17.9 (15.5)	2,783	11.7 (13.2)
Transport	377	13.6 (16.7)	166	9.3 (9.7)	2,672	11.2 (12.7)
Communications	35	1.3 (1.6)	34	1.9 (2.0)	1,131	4.8 (5.4)
Energy and public utilities	157	5.6 (7.0)	274	15.4 (16.0)	2,178	9.2 (10.3)
Feasibility studies	1	- (-)	1	- (-)	15	- (-)
Social	311	11.2 (13.8)	218	12.2 (12.7)	4,376	18.4 (20.7)
Education and training	148	5.3 (6.6)	111	6.2 (6.5)	1,939	8.2 (9.2)
Health and population	65	2.3 (2.9)	30	1.7 (1.8)	477	2.) (2.3)
Housing, sewerage kampung and community development	58	2.1 (2.6)	53	3.0 (3.1)	1,293	5.4 (6.1)
Other	40	1.4 (1.8)	24	1.3 (1.4)	667	2.8 (3.2)
Security	529	19.0	72	4.0	2,692	(11.3)
Defense	479	17.2	59	3.3	2,141	9.0
Internal security	50	1.8	13	0.7 (0.5)	555	2.3
Administration	24	0.9 (1.1)	9	100.0	515	2.2 (2.4)
Total Federal Funds	2,781	100.0	1,783		23,791	100.0
State plus Statutory Funds	67		240		1,953	
Grand Total	2,848		2,023		25,744	

/a Excludes mulltistate federal funds of M$ 11,177 million (of which M$ 6,540 million are for security) and allocatons for Sabah and Sarawak.

/b As % of total federal funds. The parenthesis net of security allocation.

/c FMP Appendix A, item i, first line only.

/d FMP Appendix A, item vii, first line only.

/e FMP Appendix A, all items under heading excluding first lines of (i) and (vii).

Source: FMP Appendix A.

PER CAPITA DEVELOPMENT ALLOCATIONS DURING THE FMP, BY SECTOR AND NORTHEASTERN STATES, 1981-85

Per capita development allocation/a 1981-85	Kelantan M$	Kelantan Share of Peninsula	Trengganu M$	Trengganu Share of Peninsula	Peninsula M$
Federal plus state funds	3,244	1.40	3,733	1.62	2,312
Federal funds	3,167	1.48	3,290	1.54	2,316
Federal funds net of security	2,565	1.35	3,157	1.67	1,895
Federal funds by sector					
Economic	2,185	1.50	2,738	1.88	1,455
Social	354	.90	402	1.02	393
Education and training	169	.97	205	1.18	174
Health and population	74	1.72	55	1.28	43
Housing, sewerage, kampung and community development	66	.57	98	.84	116
Other	46	.77	44	.73	60
Security	603	3.14	109	.57	192
Administration	27	.59	17	.37	46
Population (000's)	878		542		11,136

/1 All funds net of multi-state funds.

Source: Table 6-1.1.

AVERAGE ANNUAL FMP DEVELOPMENT ALLOCATION TO AGRICULTURE, PER AGRICULTURAL WORKER, AND AS A PROPORTION OF THE 1980 AGRICULTURAL GDP

		Kelantan	Trengganu	Peninsula
(1)	1980 GDP in agriculture (in million M$ and 1970 prices) /a	264	234	4,485
(2)	1976 employment in agriculture /b (000's)	181.1	91.6	807.5
(3)	Average annual development allocation to agriculture and rural development (in million M$ and current prices) /c	212.6	149.0	1,482.6
(4)	Agriculture (incld. integrated projects and subsidies)	61.8	23.6	328.0
(5)	Land and regional development	88.2	82.8	696.8
(6)	Other	62.6	42.6	457.8
	Average annual development allocation per worker in Agriculture (M$)			
(7)	Agriculture and rural development (3)÷(2)	1,175	1,627	1,836
(8)	Agriculture (4)÷(2)	341	258	406
(9)	Land and regional development (5)÷(2)	487	904	863
(10)	Other (6)÷(2)	345	465	567
	Average annual development allocation as proportion of the 1980 GDP in agriculture			
(11)	Agriculture and rural development (3)÷(1)	.81	.64	.33
(12)	Agriculture (4)÷(1)	.23	.10	.07
(13)	Land and regional development (5)÷(1)	.33	.35	.16
(14)	Other (6)÷(1)	.23	.18	.10

/a FMP p.101
/b Agricultural census
/c FMP Appendix A; the 5-year allocations has been devided by 5; excludes multistate allocations.

MALAYSIA

REGIONAL DEVELOPMENT AND URBANIZATION IN THE NORTHEAST

Regional Growth Prospects

1. Over the past decade Kelantan's GDP growth has averaged 7.4% in aggregate, or 4.6% in per capita terms, considerably below the Peninsular averages of 8.3% and 5.3% respectively. On the other hand, Trengganu experienced the second highest growth of any state in the nation, with respective annual rates of GDP and per capita GDP growth of 12.3% and 8.8%. As was shown in Chapter 2, both states had high shares of slow-growth industries, in particular agriculture. But Trengganu was able to grow more rapidly because local factors caused the agriculture, mining, manufacturing and government sectors to grow substantially above peninsular rates. On the other hand, no such positive factors were present in Kelantan. Since each industry performed only at roughly average levels, the total state performance was significantly below that of the peninsular.

2. In the following decade the FMP expects the two states to reverse their roles in terms of performance rates, with faster growth for Kelantan than Trengganu. It also expects both states to grow considerably above the peninsular average. For Kelantan GDP is to grow at an average rate of 12.4%, and at 9.9% in per capita terms. The respective rates are 11.5% and 8.4% for Trengganu, and 8.0% and 5.6% for the Peninsula. This growth would bring Trengganu's per capita GDP by 1990 within 9.3% of the Peninsular average, and would raise Kelantan's per capita GDP from 44.6% of the Peninsular average in 1980 to 66.1% in 1990.

3. The FMP projected sources of this growth are analyzed in Table 6-2.2. It shows that if each industry in Kelantan grew at its peninsular rate, Kelantan would grow 19 points below the peninsular overall rate or at 7.0% p.a. instead of the projected 12.3%. With the same assumption of proportional growth by sector, Trengganu would grow at an even smaller rate than Kelantan, 40 points below the peninsular average or at 5.8% p.a. instead of the projected 11.4%. The slower rate of growth for Trengganu would be due mainly to its large share of mining which nationwide is one of the slowest growing sectors (since it combines the larger base of the slow growing tin subsector with the smaller base of the fast growing oil and gas subsectors). Regional factors are projected to more than make up for the limitations of sector composition in the two states. In sectors for which the regional factor - one hesitates calling it regional advantage - makes the greatest growth contribution are agriculture, manufacturing and,

Table 6-2.1: SECTOR GDP, SHARE AND GROWTH RATE, 1980-1990

Region	Agriculture		Mining		Manufacture		Construction		Utilities		Transport		Commerce		Bus. serv., finance		Gov't Service		Other services		Total	
	1980	1990	1980	1990	1980	1990	1980	1990	1980	1990	1980	1990	1980	1990	1980	1990	1980	1990	1980	1990	1980	1990
GDP ($ million) 1970 Prices																						
Kelantan	264	547	2	4	41	261	39	94	14	63	65	168	69	256	100	268	158	678	12	100	764	2,439
Trengganu	234	489	166	380	50	248	19	86	13	59	18	64	42	131	68	222	117	478	10	261	737	2,179
Peninsula	4,485	6,274	653	727	5,159	14,517	961	2,249	539	1,356	1,499	3,310	2,916	6,144	1,907	4,012	2,990	6,849	597	1,288	21,706	46,726
GDP Share (%)																						
Kelantan	34.6	22.4	0.3	0.2	5.4	10.7	5.1	3.9	1.8	2.6	8.5	6.9	9.0	10.5	13.0	11.0	20.7	27.8	1.6	4.1	100.0	100.0
Trengganu	31.8	22.4	22.5	17.4	6.8	11.4	2.6	3.9	1.8	2.7	2.4	2.4	5.7	6.0	9.2	10.2	15.9	21.9	1.4	1.0	100.0	100.0
Peninsula	20.7	13.4	3.0	1.6	23.8	31.1	4.4	4.8	2.5	2.9	6.9	7.1	13.4	13.1	8.8	8.6	13.8	14.7	2.8	2.8	100.0	100.0
GDP Growth Rate p.a. (%)																						
Kelantan	7.6		7.2		20.3		9.2		16.2		10.0		14.0		10.4		15.7		23.6		12.3	
Trengganu	7.6		8.6		17.4		16.3		16.3		13.5		12.0		12.6		15.1		8.2		11.4	
Peninsula	3.4		1.1		10.9		8.7		9.7		8.2		7.7		7.7		8.6		8.0		8.0	

Source: FMP.

Table 6-2.2. SHIFT SHARE ANALYSIS OF THE SOURCE OF GDP GROWTH
1981-1990, KELANTAN AND TRENGGANU

Region and sources of growth	Agri-culture	Mining	Manu-facture	Con-struction	Utilities	Transport	Commerce	Bus. serv., finance	Gov't service	Other service	Total
Kelantan											
Percent of 1980 GDP											
National	115	115	115	115	115	115	115	115	115	115	115
Sector composition	-75	-104	66	19	36	6	-5	-5	14	0	-19
Regional factors	67	99	356	7	199	37	161	58	200	618	123
Actual	107	110	537	141	350	158	271	168	329	733	219
1981-90 Growth in GDP (in millions M$)											
National	304	2	47	45	16	75	80	115	182	14	880
Sector composition	-199	-2	27	7	5	4	-3	-5	22	1	-143
Regional factors	178	2	146	3	28	24	110	58	316	73	938
Actual	283	2	220	55	49	103	187	168	520	88	1,675
Trengganu											
Percent of 1980 GDP											
National	115	115	115	115	115	115	115	115	115	115	115
Sector composition	-75	-104	66	19	36	6	-5	-5	14	0	-40
Regional factors	69	118	215	219	203	135	102	116	180	5	120
Actual	109	129	396	353	354	256	212	226	309	120	196
1981-90 Growth in GDP (in millions M$)											
National	270	191	58	22	15	21	48	78	135	12	850
Sector composition	-176	-172	33	4	5	1	-2	-3	16	0	-294
Regional factors	161	195	107	41	26	24	43	79	210	0	886
Actual	255	214	198	67	46	46	89	154	361	12	1,442

Source: Table 6-2.1.

government service. In addition, commerce has a strong regional growth component in Kelantan, and the oil and gas subsectors of mining in Trengganu.

4. Based on the analysis in this Chapter on the potential in the principal export sectors the FMP projections are difficult to justify, particularly in the case of Kelantan. They appear to assume a shift in relative locational advantages in favor of Kelantan that is hard to justify based on past performance and a realistic assessment of the state's resource position. This is not to say that the proposed growth could not be implemented with sufficient federal funds but rather that: (a) the currently projected growth rate is higher than can be achieved with proposed development allocations; and (b) additional allocations to implement the higher growth rates would likely have to rely on noneconomical projects and a level of transfer of funds to the Northeast detrimental to national growth goals to the extent that the marginal efficiency of investment may still be lower in the Northeast than elsewhere (see Chapter 6). The following is a brief sector-by-sector review of the growth potential as compared to FMP projections. Included in this review are the local service sectors that for their growth depend largely on the export sectors discussed initially.

5. Agriculture, Forestry, Fishing. The FMP projects that this sector will grow at 7.6% p.a. in both Kelantan and Trengganu, or at twice the national rate for this sector, which is 3.4%. Because of this more rapid growth and because the sector holds such a large share in the total GDP, it is one of the principal sources of Kelantan's and Trengganu's share of projected growth. Unfortunately GDP figures for 1980 are not broken down by subsector, though estimates for 1977 /1 provide a point of reference: In Kelantan fishing and forestry made up respectively 1.6% and 12.9% of the sector total. Since timber production more than doubled between 1977 and 1980 and prices increased, the forestry subsector may have grown to as much as 20-25% of the sector total in 1980. In Trengganu fishery and forestry made up 16.3% and 23.5% of the sector total in 1977. Since 1977 fishing production declined by about 33%, its share may have fallen below 12-14% by 1980.

6. Indications are that the FMP projections are on the high side. In the case of forestry, log production in Kelantan will peak in 1983. As Kesedar clearing operations run out, the logging rate in the second half of the 1980s, will be 30% below its 1980 level. In Trengganu, log production has already peaked and in 1990 is projected to be only 25% of its 1980 rate.

/1 Robert Turgoose, "Gross Regional Product: A Review", May 1980.

Thus, by 1990 much of the timber production in the northeast will have moved from one-time-clearance to permanent logging operations at significantly lower sustainable levels. If government estimates prove correct that the 1980s will see a real increase in the price of timber of 125% or so, then forestry GDP may still grow in Kelantan./1 But even with a real increase in the price of logs and an increasing proportion of logs milled and processed locally, forestry GDP cannot but decline in Trengganu.

7. As to forestry employment, it should follow roughly the decline in logging rates, though the decline may be mitigated by an increase in the share of local milling.

8. The agricultural development potential is difficult to assess, because of the variety of crops, the possibility of changing crop patterns, long gestation periods and productivity cycles for the crops, replanting efforts during the 1970s, uncertain development targets during the 1980s and a limited data base which requires aggregating land in productive use with land under development, approved for development, planted, or under planning. Still, the following picture emerges:

9. The large programs of land development in the Kesedar and Ketengah region will add substantially to land in agricultural use. However, the potential impact of these development schemes appears often overestimated. Land development has been a long time effort throughout Malaysia and the Northeast and in fact, as a percentage of existing agricultural land, growth during the 1980s should lag behind that of the 1970s and 1960s in Trengganu, and at best equal efforts of the 1970s in Kelantan. For example, in Kelantan total acreage growth during the 1980s should be around 25% or so /2 but the increase between 1966 and 1974 was 26% (Table A.0.1), and the percentage was probably as high during the 1970s./3

/1 Of course, to the extent that the industry requires relatively larger inputs from other sectors, forestry GDP growth may still lag behind its value of output growth.

/2 Agricultural land was 690,051 acres in 1974 with an additional 21.7% or 149,753 acres under development in 1975 in the Kesedar Region alone (Table 3.4). No accurate figure is available of the total land in use in 1980, but the land remaining to be developed in the whole state (including Kesedar) in 1980 was at most 229,159 acres (Table 3.4). In fact it appears that of this may be as much as 35,000 acres were already planted during 1980.

/3 See footnote 2.

In Trengganu, the maximum acreage growth during the 1980s appears to be 45%, but growth was reportedly 52% during the 1970s,/1 and 64% between 1966 and 1974./2

10. A second point is that much of the land developed during the 1980s will not become productive until the following decade. Land must be under development by 1983-85 and be planted by 1984-86, depending on crop to be productive by 1990. In the case of rubber it takes 9-10 years and for oil palm 6-7 years to reach the higher yields of mature plants. Hence development efforts during the 1980s will contribute more to GDP growth in other sectors such as construction and forestry, and will generate most of their growth in agricultural value added only during the 1990s.

11. By the same token, much of the agricultural growth during the 1980s will be the result of development efforts during the previous decade. Noting the consistency of acreage growth over time, since 1966 and as planned until 1990, for both Kelantan and Trengganu, one would expect GRP sector growth rates in the 1980s to roughly match those of the previous decade. Assuming growth of 2-3% p.a. attributable to productivity growth, replanting, and changes in the price of agricultural products, which is commensurate with past experience, and annualizing the 25% and 58% acreage growth for Kelantan and Trengganu during the past decade, a rough estimate is that Kelantan's agricultural sector will grow at an annual average rate of 4-4.5% during the 1980s. The rate could be as high as 7% in the case of Trengganu where most of the rubber replanting has taken place. These projections are not in line with those by the FMP, in particular in the case of Kelantan, though they do imply that Kelantan's continued agriculture/forestry/fishing sector will grow a point or so more rapidly than it grows in the peninsula. More importantly, the projection does preserve for one more decade the historical pattern of more rapid agricutural growth in Trengganu than Kelantan.

12. As to employment growth the land development programs in the Kesedar and Ketengah regions will not arrest the labor absorption problem of the agricultural sector. Growth of employment is less lagged relative to land development than GRP because planting, weeding and plant maintenance activities are required during the development phase when there is not yet a

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/1 According to SEPU estimates, the acreage was 336,290 and 511,672 acres in 1970 and 1980 respectively. The total acreage not yet planted in Ketengah was 230,370 acres in 1981.

/2 As seen from Table A.0.1, 1966 and 1974 agricultural acreage was 297,793 and 487,953 acres respectively.

harvest,/1 and because labor requirements remain roughly constant over the productive life of a tree even though initial yields are very low. At any rate, employment growth should be roughly proportional to the growth of planted land during the 1980s rather than to development efforts during the 1970s. In both the Kesedar and Ketengah regions, a maximum 230,000 ac remained to be developed as of 1980, or was in the initial stages of development. If all of this land were developed during the 1980s (which is quite uncertain) the agricultural sector may absorb as much as 25,000 households in each state. Assuming an eventual household size of 5, this would amount to 43% of Kelantan's expected population growth of 290,000 during the decade, and to 57% of Trengganu's projected growth of 219,000. In actuality, projections by Kesedar and Ketengah are much more modest, at least in part due to expected slower land development rates, though much of this remains open to question. Accepting population growth projections for the Kesedar and Ketangah regions of 66,500 and 65,530, respectively (see Chapter 4), the agricultural sector would absorb at most 23% and 30% of employment in the two states, respectively, by 1990 or less than half that sector's present employment share./2 In that case, a substantial portion of rural population growth must be absorbed in non-agricultural sectors, and spatially, very likely in urban areas. Land consolidation schemes aiming at increasing smallholder income would further add to non-agricultural absorption requirements.

13. Finally, for the fishing subsector, GRP growth is uncertain. New port facilities in Trengganu permit larger boats and fishing outside the overfished coastal waters. By extending the fishing range, an increase in catch of 60-70% can be expected by 1990, reversing a recent four-year downward trend, and the rise in GRP may be even larger, assuming expected better prices materialize. However, even if the contribution of fishing to GRP should double, implying an annual growth rate around 7%, employment is expected to drop by 5,000 or 43% as the fleet is modernized. In Kelantan fishing plays a much smaller role and help for the industry is much more limited. Without improved port facilities GRP may stagnate though port and fleet improvements similar to those in Trengganu could presumably result in a similar rate of GRP growth for the sector as in Trengganu.

/1 A correct valuation of GDP would impute a value for these activities and add them to GDP, though this is not the actual practice (see Turgoose, op. cit., for a description of GDP measures). The result of this failure is to underestimate value added during the investment phase of development.

/2 There exist numerous other projections of sector employment growth. However, without a definite schedule of land expansion nothing reliable can be said.

14. Mining. FMP projections suggest a doubling of mining sector output during the decade in both Kelantan and Trengganu. In aggregate, this may not be unreasonable over the decade, though very little, if any, of the growth will materialize during the FMP period. As noted in Chapter 4 and Annex 4-1, mining output of metallic ore is unlikely to contribute much to GDP growth during FMP as investigations and prospecting are still at a very preliminary stage. It is difficult to anticipate the subsectors' contribution to post-FMP growth due to the uncertainty surrounding the feasibility of extracting various ores. Quarrying on the other hand can be expected to grow more or less in tandem with construction activity, both during and after FMP, with the exception of cement production in Kelantan which if feasible could give a major one-time boost in subsector output sometime during the 1980s, probably after FMP.

15. The major mining sector in the Northeast is, of course, the oil and gas subsector. Oil production is likely to grow but at slower rates than the late 1970s when production first commenced. In addition, oil prices are not expected to grow in real terms during the early 1980s. Hence, VA growth in this sector is likely to be low during FMP, well below past growth rates. It could approach but not reach past growth rates in the late 1980s if oil prices recover.

16. By far the most significant contributor to this sector's growth during the decade is likely to be gas production which should commence at the end of FMP. During FMP, however, there is unlikely to be any VA from this subsector. Instead the bulk of the VA associated with the development phase of installing the gas pipeline and implementing gas utilizing projects is going to show up in the construction subsector (less in the manufacturing and service subsectors as few of the intermediate inputs or consultancy services are provided locally). The magnitude of the growth in the construction subsector VA during the development phase and of the mining subsector VA during the gas production phase will depend on how many of the projects currently proposed are actually implemented after a review of their economic and financial feasibility.

17. Manufacturing. FMP projected growth rates over the 1980s average 20.3% and 17.4% for Kelantan and Trengganu, respectively. These growth rates are exceedingly high, albeit on very small bases, even in the case of Trengganu which averaged 17.2% during the 1970s. Still there are precedents for such rates in other states: Penang's manufacturing sector during the 1970s averaged 18.9% growth p.a. and Pahang was a close second with 18.6%. What is different, however, is that both Pahang and Penang have had clear locational advantages less obvious for Kelantan.

18. Most manufacturing growth in the Northeast will be linked either to increasing the local processing of existing natural resources (including both local processing of a higher proportion of existing resources or higher level processing), or of increasing the processing of imported materials using locally available labor. The potential for both types of processing was reviewed in Chapters 4 and 5 in terms of resource availability and marketing potential. No attempt was made to quantify the potential contribution to the manufacturing sector's VA.

19. Here a number of comments are in order. Regional detail in manufacturing sector statistics is very limited. A number of manufacturing activities such as palm oil and rubber processing on estates, or near primary processing of agricultural crops (e.g. rice mills), are not recorded under manufacturing sector VA but under agricultural sector VA. Thus, even though these activities are likely to grow in the Northeast, they are unlikely to contribute to manufacturing VA (but will contribute to agricultural VA), in any case no acceleration is anticipated in these activities, hence their contribution to regional VA is likely to remain in line with that observed in the 1970s.

20. Another category of manufacturing activities not well documented in the national statistical series is small-scale enterprises. Yet this category of activity predominates in the Northeast. Its growth rate is likely to be in line with overall GDP growth rate unless there is an acceleration in urbanization when both categories of small-scale enterprises (manufacturing and commerce) are likely to grow faster than average GDP growth rates. However, current policies do not favor an acceleration in urbanization, hence this subsector is unlikely to grow at above GDP average growth rates.

21. Finally, the likelihood of implementing a dynamic industrial base through the many major "national" projects to be located in the Northeast is uncertain. Should these projects be implemented, they could contribute significantly to manufacturing sector VA, both directly and indirectly through inter-industry linkages and income multipliers, as well as by enhancing the image of the Northeast as an area able to absorb industrial investment. However, for the linkages and multipliers to materialize the industrial development program would probably have to be coupled with an urbanization policy that can support an industrial labor market, and ensure that the high FMP projections for manufacturing VA is realized during the decade, if not during FMP.

22. Thus, only with a post-FMP acceleration in manufacturing VA can the projected high average growth rates p.a. be realized in the sector in the Northeast over the decade.

23. Construction. The construction sector typically follows an accelerator model, and there are two parts to the story. First, in case of long-term stable growth the industry will grow at roughly the same rate as

the region as a whole, providing for replacement plus stationary expansion demand. States with a higher overall growth rate would be expected to have a larger share of GRP and employment in the construction sector because their expansion demand is higher as a proportion of GRP. Second, when the economy changes gear the construction sector will over- or undershoot the rate of growth. If the region switches to more rapid growth the construction sector will initially grow even more rapidly to make frontend accommodation for increased capacity demand. Instead, with a switch to less growth or decline the construction sector will slump more severely.

24. As seen from Table A.2.1 and Table 6-2.1, the construction sector, both current and projected, does not conform to any of the above points. First, while Kelantan's economy grew at below average rates, its construction sector in 1980 held an above average share in GRP. The reverse was true for Trengganu which despite its rapid growth had a 1980 construction share of only 2.65% of GRP, much below the peninsular average of 4.4%. While these results could be compatible with a sudden acceleration of growth in Kelantan (for which there is some evidence) and a deceleration of growth in Trengganu (for which there is none) a more likely explanation is faulty data. Second, during the 1980s when Kelantan's economy is to switch gear to much more rapid growth its construction sector growth rate is just about average for the peninsula and its sector share is falling and below the peninsular average. Trengganu's sector share instead is rapidly increasing despite a stationary growth projection for its economy, and its construction sector share while rising remains below the peninsular average. None of this is easily explainable. Quite likely it would be best to discard the 1980 data for both rates and hence to abandon any attempt to project consistent growth rates. Then, assuming Kelantan will only show average growth during the decade its construction share in total GRP should be around 4.5-5.0%, whereas Trengganu's share should be a point or two above the peninsular average of 4.8%, to reflect the development of southern Trengganu coastal complex, Kenyir dam and other large construction activities.

25. As to construction employment growth, it is notoriously difficult to predict because of (i) the common practice (not verified for Malaysia) of counting construction workers at their place of permanent residence, (ii) the large proportion of workers from out of state, and (iii) the difficulties with GRP growth figures in the construction sector mentioned above. However, in light of the massive infrastructure and construction program outlined for FMP, employment in the sector could double during the 1980s.

26. Commerce and Nongovernment Service. In general, one expects local services to grow roughly in proportion to overall economic activity though in practice one finds considerable variations from this rule. As local

markets grow in size it becomes possible to substitute local production for imports and hence the service sector may grow faster than other economic activities. On the other hand rapid growth in export sectors may require increasing reliance on imports, at least as a temporary measure until local supply constraints can be eliminated, and hence local service growth may lag behind. Multiplier effects on services will also vary by the sector. Thus, one would expect Trengganu's oil/gas and construction sectors to generate smaller than average multiplier effects because of leakages due to a largely out-of-state work force and dependence on out-of-state supplies.

27. FMP projections conform broadly to these expectations. Projected growth rates for Kelantan and Trengganu are 14.0% and 12.0% for commerce, 10.4% and 12.6% for the business services/finance sector and 23.6% and 8.2% for other services - as compared to 12.3% and 11.4% for the total GRP of the two states. Kelantan's high growth of other services is difficult to explain given the residual character of this sector, and Kelantan's relatively slow growth in the business sector may reflect the fact that this sector already has a GRP share considerably above the peninsular average and hence may be ready for a downward adjustment. While the growth estimates of the service sectors are roughly consistent with local GRP projections they must be scaled downward if GRP growth falls behind expectations as is likely to be the case.

28. Government Sector./1 As is the case for the private service sector, one would expect the public service sector to grow at rates roughly similar to or slightly above GRP rates. One justification for above average growth could be the often below average living conditions in the Northeast, particularly where these conditions are linked to below average levels of service provision, as in the area of health care and hospital services (see Chapter 1). The per capita GRP in the government sector can be used as a proxy measure of the level of public service provision. According to this measure Kelantan in 1980 still had an 11% service deficit, though Trengganu may have done better than average, using peninsular service levels outside Selangor and the Federal Territories as a standard. Unfortunately, the government service sector appears to include defense spending, and to the extent that the Northeast (and in particular Kelantan as a border state with a large interior) has an above average share of defense spending, this measure could seriously understate the need of the government sector to catch up with the rest of the peninsula.

/1 Administration, security and selected public services.

Table 6-2.3: PER CAPITA GDP IN THE GOVERNMENT SERVICE SECTOR (M$)

State	1971	1980	1990
Kelantan	71	169	579
Trengganu	87	703	628
Selangor (incl. Federal Territories)	286	662	833
Peninsula (total)	137	252	462
Peninsula (without Selangor or Federal Territories)	102	190	394

29. FMP targets set the growth of the government service sector at 15.7% and 15.1%, respectively, for Kelantan and Trengganu, roughly 3.5 points above each state's GRP growth, and 6.5-7.1 points above peninsular sector growth. As seen from the above table, this would bring the per capita expenditures of the government service sector to M$579 and M$628, respectively, for the two states, close to the expenditure rate in Selangor and the Federal Territories and about 50% higher than the average peninsular rate outside Selangor and the Territories.

30. It should be obvious from Table 6-2.1 that the magnitude of growth attributable to the government service sector is quite overwhelming. In Kelantan this sector accounts for fully 31% of total growth during the 1980s, almost twice the growth expected from agriculture and more than twice that of manufacturing. In Trengganu the proportion of total growth attributable to the sector is still a formidable 25%, not much smaller than the growth of the mining and manufacturing sector combined. One wonders whether this growth is actually needed (to overcome service deficits) or whether it is intended as an employment policy to absorb surplus labor or as an income transfer mechanism to raise per capita GRP to target levels.

31. While it is possible that the high growth rate in government services in Trengganu may reflect military expenditures, this is unlikely to be the only or even the major explanation since these rates are not much higher than those for the private service sector and since at any rate Trengganu is not a state requiring military expenditure. Other explanations would be the attempt to increase interstate equity in the provision of services (this is perhaps more apparent in the case of Kelantan). It is also possible that government planners are reacting to frequent advice to raise administrative capacity as the infrastructure and government-led development policy for the

Northeast requires above average design, planning, and implementation capacity. However, the danger apparent in raising the government sector to such levels is that it seriously depletes manpower availability for the private sector, particular at the higher skill levels. By the late 1980s the government development strategy should be well enough in place for the private sector to assume a much larger role and it would then be important to reduce government manpower claims.

32. In conclusion, this brief sector-by-sector review suggests that there are not enough sectors of significant size growing at a significantly above peninsula average rate to pull up and sustain a decade long above average growth rate for both northeastern states, or to justify assuming Kelantan will grow at a faster rate than Trengganu based on current development allocations and growth potential.

MALAYSIA

REGIONAL DEVELOPMENT AND URBANIZATION IN THE NORTHEAST

Administrative and Financial Arrangements for Urban Infrastructure and Services in Kota Bharu and Kuala Trengganu

A. Urban Transport

1. Although municipalities are empowered to construct roads, new road construction in both Kota Bharu and Kuala Trengganu is done by the state JKRs (the state branches of the federal Public Works Department). The JKRs also maintain roads built to federal standards. The municipalities' role is limited to the maintenance of backlanes in the urbanized areas and kampong roads in peri-urban areas, although the Trengganu JKR also maintains backlanes which meet its standards (paved surface of at least 20 ft). Section 8 of the Street, Drainage and Building Act, 1974, enables a local authority to recover the costs of road construction or improvement from the beneficiaries, but this provision has not been employed in Kota Bharu or Kuala Trengganu.

2. Urban roads are eligible for federal maintenance grants. Under this system, annual grants of M$6,400 per mi for state roads and M$4,800 per mi for urban roads are made to state governments. These levels were set in 1976. The funds are incorporated in the overall budgets of the state JKRs and are not earmarked for specific roads. The level of road maintenance grants is currently being reviewed by a federal committee, and new grant levels are expected to be introduced in 1982. The new grants are likely to vary among states to reflect cost differences. The grants will continue to be regarded as an aid to the states rather than a reimbursement of total maintenance costs. The introduction of variability to reflect actual costs will eliminate one common criticism of the system. However, the new grant levels are likely to be stagnant while costs rise until another review is undertaken. Since JKR maintains extensive cost data, consideration should also be given to indexing the grants to maintain them at an approximately constant portion of actual costs.

3. Street lighting is normally included in the construction of major new urban roads. LLN installs the poles, and the municipalities pay the recurrent costs from general revenues. Both municipalities have small programs to provide street lighting for existing roads, especially in

peri-urban areas. The municipalities finance both the capital and recurrent costs, and LLN installs the poles. Since the state LLN branches must forward the municipalities' requests to Kuala Lumpur for approval, the process can be time-consuming.

4. Traffic management is primarily a municipal responsibility. In both Kota Bharu and Kuala Trengganu, the state JKR and Town and Country Planning Department as well as the police are represented on the municipal committees responsible for traffic. Although the municipalities have Parking Sections, there are no traffic engineers in any of the organizations. The state JKRs normally install signs, although the municipalities occasionally provide some signs. The licensing and regulation of motorized public transport vehicles are federal responsibilities performed by the Licensing Board under the Ministry of Public Enterprise and the Road Transport Department, respectively. The municipalities license trishaws.

B. Water Supply and Distribution

5. Constitutionally, water is a state matter in Malaysia, and the piped water systems in Kota Bharu and Kuala Trengganu are operated by the state JKRs (this is the common pattern in peninsular Malaysia except for Penang and Melaka, which have Water Boards, and Selangor and Kuala Lumpur, which are served by a semi-autonomous Water Department in the Selangor JKR) In both cities, different flat rates are charged to domestic and other consumers. In Kota Bharu, the rates are M$1.00 and M$1.50, and in Kuala Trengganu, M$1.20 and M$2.00 per 1,000 gallons for domestic and other customers, respectively. These rates are considered to be adequate to meet recurrent costs, but not to cover depreciation and capital debt servicing. Urban consumers are required to pay for connections and meters at installation, although rural consumers are able to pay under a two-year installment plan.

6. The accounting systems for water supply in Kota Bharu and Kuala Trengganu are cash systems in which revenues are segregated, but expenditures are part of the overall JKR budgets. However, the State Water Supply Fund (Financial and Accounting Procedure) Act of 1980 mandates the introduction of commercial accounting for all water systems in Malaysia. Commercial accounts will be introduced in Kelantan and Trengganu through projects financed by the Asian Development Bank /1 which are also funding new supply and distribution works.

/1 Asian Development Bank, Appraisal of the Johore and Kelantan Water Supply Project in Malaysia (Report MAL:Ap-26, November 1976) and Appraisal of the Johore, Perak and Trengganu Water Supply Project in Malaysia (Report MAL: Ap-31, October 1978).

C. Flood Protection and Drainage

7. Drainage is another area in which the municipalities are empowered to undertake capital projects, but in practice works are done by the state branches of federal departments. In Kota Bharu, the state DID branch has been implementing a federally funded storm-water drainage project since 1977. This is a relatively unusual activity for DID, although it now has an Urban Drainage Section in Kuala Lumpur which has designed drainage works for Kuala Lumpur as well as Kota Bharu. The DID branch in Kota Bharu also designs and installs feeder drains identified and financed by the municipality. In Kuala Trengganu, the state JKR initiated work on monsoon drains in 1970, but the project was not completed. A federally funded sewerage study currently being conducted in Kuala Trengganu includes storm water drainage, although the organizational and financial arrangements for constructing and maintaining drainage works have not been specified. The municipalities in both cities are currently responsible for cleansing drains, but the Kota Bharu Municipality would require additional funds and staff to assume recurrent responsibility for the main drainage system being constructed by DID.

D. Sanitation

8. Both municipalities provide solid waste collection and disposal services, although the services are provided only intermittently in outlying areas. In Kota Bharu commercial premises are charged M$60 per floor (considered to be about 1,600 sq ft, the equivalent of one storey of a shophouse) per year; this charge was set in 1972. There are currently no charges for garbage collection services in Kuala Trengganu. The municipality plans to introduce house-to-house collection service and monthly charges of M$3 for residences, M$6 for commercial premises and M$10 for industries. These charges are based on charges in other Malaysian cities. The proposed charges bear little relationship to either the quantity and type of waste to be collected or the costs to be incurred in providing the service.

9. Both municipalities provide sewage disposal services on request. The Kota Bharu Municipality charges M$35 per load in Kota Bharu and higher rates for trips outside the municipal area. The charge was set in 1980 and is not intended to cover costs. The Kuala Trengganu Municipality charges M$15 per load. A federally funded sewerage master plan and feasibility study is being conducted for Kuala Trengganu, and terms of reference are being prepared for a similar study in Kota Bharu. These studies are conducted under the guidance of the federal EPU and the Ministries of Public Health and of Housing and Local Government as well as state and municipal

officials. These studies, as well as similar studies for several other cities, have been initiated without a national policy framework for the organization and financing of the construction and operation of sewerage systems.

E. Other Utilities

10. The National Electricity Board (LLN) is responsible for the generation and distribution of power. The Telecommunications Department of the Ministry of Communications provides telephone and telex services.

F. Markets and Commercial Facilities

11. The municipalities in both Kota Bharu and Kuala Trengganu operate several food and dry goods markets. Federal grant funds are available through the Local Government Department for the construction of markets costing less than M$400,000; markets costing more than M$400,000 are financed through low interest federal loans. In Kota Bharu, municipal income from markets and a slaughterhouse exceeded recurrent expenditures by about M$250,000 in 1979 and M$140,000 in 1980, although the council expected to break even on these services in 1981 (see para 9.32 in Volume 2). The Kuala Trengganu Municipality does not segregate expenditures on these services in its accounts.

12. The SEDCs have been the principal public sector commercial developers in both Kota Bharu and Kuala Trengganu. They have developed shophouses, middle and upper-income housing and industrial estates in both cities.

G. Low-Cost Housing

13. Although housing is a state responsibility, the Ministry of Housing and Local Government establishes national housing policy guidelines applicable to state low-cost housing projects financed with federal loans. The state governments plan their own housing programs, acquire land for housing, undertake projects and manage the completed estates. In Kuala Trengganu, the SEDC implements federally funded low-cost housing projects on behalf of the state. In Kota Bharu there is a regional office of the federal Housing Department (JPN) which is the lead agency for Kelantan's low-cost housing program, providing free technical services to the state. The Town and Country Planning Department prepares the layout, JKR, DID and LLN provide infrastructure and JPN designs and constructs the housing using local contractors. The State Housing Department manages completed estates.

14. Several organizational changes are being introduced under the FMP housing program. First, State Liaison Committees with both federal and local representatives have been set up to plan and coordinate the housing programs in each state. In Kelantan, the Housing Division of the State Secretariat acts as the liaison committee's secretariat. The SEPU performs this function in Trengganu, where there is no state housing division. The other major organizational change concerns finance and estate management. Under the TMP, the federal government loaned funds for low-cost housing to the states, which on-lent the funds to purchasers and managed the estates. Under the FMP, federal low-cost housing loan funds will be passed through the Malaysian Building Society Berhad (MBSB), which will collect rents and loan repayments as well as charge a monthly maintenance fee of M$30-40.

MALAYSIA

REGIONAL DEVELOPMENT AND URBANIZATION IN THE NORTHEAST

The Legislative Framework for Local Government and Planning in Malaysia

A. "Restructuring" Local Government: The Framework

1. Several laws enacted during the 1970s - especially the Local Government (Temporary Provisions) Act of 1973 and the Local Government Act of 1976 /1 - established a legislative framework intended to rationalize the organization of local government in Malaysia and to restructure areal jurisdictions. When Malaysia became independent in 1957, there were five major types of local authorities operating under the aegis of the state governments in accord with numerous federal and state laws:/2

(a) a fully elected City Council in Georgetown, Penang;

(b) financially autonomous municipalities in Kuala Lumpur and Melaka;

(c) town councils with elected and nominated representatives in 32 of the large towns, 12 of which were financially autonomous;

(d) town and rural boards with nominated members in the smaller towns; and

(e) 302 elected, financially autonomous local councils, over 200 of which were in New Villages created by resettlement during the Emergency.

/1 The Street, Drainage and Building Act of 1974 and the Town and Country Planning Act of 1976 also contributed to the creation of a new legislative framework for local government. The latter act and its application are discussed in Section D of this Annex.

/2 Modernization of the Local Government System in Malaysia, pp. 4-5 (Local Government Department, Ministry of Housing and Local Government, n.d.). M.W. Norris, Local Government in Peninsular Malaysia (Westmead: Gower, 1980), also provides an extensive review of the development of local government in Malaysia.

2. Many Malaysian local authorities experienced administrative and political problems during the 1960s. Furthermore, the local governments, especially in Chinese-dominated urban areas, provided a power base from which opposition politicians criticized the Alliance government. Consequently, the federal government intervened in the Kuala Lumpur Municipality in 1961, the states assumed control of the local authorities in almost all of the state capitals during the mid-1960s, and local government elections were suspended nationwide in 1965. A Royal Commission of Enquiry appointed in 1965 to examine the entire structure of local government published its findings in 1969. Although the political disturbances later that year delayed action on local government reform and led to a more cautious approach to local democracy and decentralization than recommended by the Commission, its report influenced the legislation enacted during the 1970s. The report of the Royal Commission on the Remuneration and Conditions of Service in Local Authorities and Statutory Authorities in 1972 also contributed to the new framework for local government.

3. The new legislation created a uniform framework for local government throughout peninsular Malaysia. The laws provide for only two classes of local authorities - municipalities and district councils. In the process of "restructuring," the boundaries of existing local authorities in cities have been considerably expanded to create municipalities which encompass large peri-urban and even rural areas as well as urbanized lands. Council members, including a President or Mayor and 8 to 24 councilors, are appointed by the state government. Each council hires its own staff.

4. The acts broaden the functions allowed to local authorities and empower them to undertake a wider range of development activities than in the past. Particularly important are the powers to acquire land in the public interest, develop industrial estates, undertake commercial and residential projects and enter joint ventures with other public authorities and even private parties. However, although the laws enable local authorities to borrow up to five times the total annual value of properties on their valuation lists, no important new revenue sources were introduced with the legislation. It will be argued below that staffing and financial constraints inhibit the municipalities in Kota Bharu and Kuala Trengganu from providing services in the expansion areas outside their old boundaries and from undertaking new development activities.

5. The states retain control over all aspects of local government under the new legislation. Since local government is constitutionally a state responsibility, the new laws are only applicable if a state adopts them. The provision of federal Launching and Annual Grants has been an incentive for restructuring, although the grants are relatively small (see paras. 9.37-9.38 in Volume 2). Although the restructuring process started

slowly, by mid-1981 it was complete in every state except Pahang, where six district councils were still to be created. When the process is complete, 15 municipal councils, 77 district councils and the Kuala Lumpur Municipality will have replaced 374 local authorities.

B. The New Legislative Framework for Urban Planning and Development Control

Organizational Framework

6. The Town and Country Planning Act of 1976 introduces a uniform legal and policy framework for town and country planning in Malaysia. Because land is a state matter, the law is only applicable if a state adopts all or part of it./1 The organizational framework in Part II mandates the creation of a State Planning Committee and designates local authorities, which would include the municipal governments in Kota Bharu and Kuala Trengganu, as local planning authorities.

7. The act specifies that the State Planning Committee is to be chaired by the Chief Minister and include one State Executive Council member as Deputy Chairman, the State Town and Country Planning Director as secretary, the State Secretary, the State Director of Lands and Mines, the Director of the SEPU, the State JKR Director, the State Legal Adviser and up to four other members appointed by the state. The committee is responsible for promoting the "conservation, use and development of all lands in the State," advising the state government on these matters and fostering or conducting planning studies and generally promoting town planning activities (Section 4(4)). The committee may also direct local planning authorities to take actions consistent with the act. As secretary to the committee, the State Town and Country Planning Director is "responsible for carrying ot the decisions and implementing the policies of the Committee" (Section 4(8)). Two features of the committee's organization and functions are noteworthy. First, representation of local planning authorities on the committee is not required, although the state may choose to include them. Second, the committee does not have explicit executive responsibilities, and the act does not prescribe very specifically how the committee is to perform its functions.

/1 No state has adopted the act in its entirety. Johore, Melaka, Negri Sembilan, Perak and Trengganu have adopted Parts I, II and III for some urban areas, including the state capitals. Selangor has adopted Parts I and II, but not the parts concerned with development planning and control. Kelantan will consider adopting parts of the act when the structure plan for Kota Bharu is reviewed.

8. The most important function of a local planning authority is "to regulate, control and plan the development and use of all lands and buildings within its area" (Section 6(1)(a)). The principal means to accomplish this function are the preparation of development plans and the exercise of planning control. Local planning authorities are also to perform any other functions assigned to them by the committee or the state.

Development Plans

9. The approach to development planning in Part III of the act incorporates the "strategy" aspects of structure planning compared to the older, more rigid concept of "master planning" and resembles the approach of the British Town and Country Planning Act of 1972. The act requires the local planning authority to prepare a draft structure plan based on a comprehensive survey. It may also prepare draft local plans for specific parts of its area. The most important requirement for a draft structure plan is that it be a written statement "formulating the policy and general proposals of the local planning authority in respect of the development and use of land in that area, including measures for the improvement of the physical environment, the improvement of communications, and the management of traffic" (Section 8(3)). The promotion of economic development is not explicitly cited as an objective of the structure plan. A potentially important provision is that the plan "shall have regard to the resources likely to be available for the carrying out of the proposals of the structure plan" (Section 8(4)(b)).

10. Draft local plans, which are essentially detailed development plans, are to be prepared for three general purposes:

(a) for "action areas" designated in a structure plan;

(b) for specific areas before formal review of a draft structure plan but in conformity with it; and

(c) for specific areas after a structure plan has been approved.

Both the draft structure plan and the draft local plans must be publicized to provide opportunities for public comment and are subject to approval by the State Planning Committee. Provision is also made for review and alteration of both types of plans at the initiative of the local authority or the committee.

Development Control

11. The Street, Drainage and Bulding Act of 1974 and Part IV of the Town and Country Planning Act of 1976 give local authorities extensive powers to control and regulate development. The use and development of

land and the construction of buildings must conform to the provisions of the former act, plans prepared in accord with the latter act and any pertinent by-laws. The planning act prohibits any development without planning permission. The local authority may grant permission absolutely or conditionally or refuse permission. Rejected applicants may petition an Appeals Board to be established under Part IV of the Act. Violators are subject to penalty. Part V of the act empowers local authorities to levy a development charge when planning permission is granted for development in an area where a change in the use, density or floor area permitted in a local plan has enhanced the value of the land.

12. The administration, control and acquisition of land are subject to several other laws in addition to the enactments governing development control. Records of land ownership and property description are maintained by the State Lands and Mines Department and the District Offices in accord with the National Land Code, Act 56 of 1965, which specifies that land within a municipal area, together with land of 10 ac or more, is to be administered by the Lands and Mines Department. Titles to land not falling into either of these categories, plus the records of all state and federal government land, are registered by the District Offices. Land administered by the Lands and Mines Department is described as having a registry title, while land controlled by District Offices has a Land Office title.

13. The National Land Code of 1965 sets out the broad land policy for the whole country. The states have their own enactments to safeguard the interest of Bumiputras. In Kelantan, legislation to protect Bumiputra land interests has taken two forms. First, under the Malay Reservation Act of 1930, land within a Malay Reserve cannot be disposed of to a non-Malay. The extent of Malay reservation area within the Kota Bharu municipal area limits participation by non-Malays in the land market. Second, in accord with the Kelantan Land Enactment of 1938, only 'natives' of Kelantan can own land in Kelantan. This stipulation permits local non-Malay Kelantanese (at least two generation Kelantanese) to own land in Kelantan, but restricts the participation of non-Kelantanese (including Malays) in the land market, except through approved leasehold agreements. In Trengganu, the Malay Reservations Enactment of 1941 governs Bumiputra land interests, although the concept of 'native ownership' has not been introduced.

14. Under the National Land Code, the states have sole rights over state land, including powers to alienate state land, reserve state land and grant leases for the occupation of state land and for the extraction of rock other than for mining purposes (except in reserved forests). The code also provides for the control of land use by means of categorization for three types of uses - agriculture, building and industry. A proprietor who

who wishes to change or vary the conditions from one land use category to another must apply to the state under Section 124 of the code. The proprietor is expected to develop the land within a specific time after a change of use is granted. In Trengganu, however, this is not binding. Consequently, land speculation takes place, leading to an increase in the value of land categorized for more intensive use but left undeveloped.

15. The Land Acquisition Act of 1960 enables the states to acquire land needed for any public purpose by any person or corporation undertaking a work which, in the opinion of the state concerned, is of public utility; or for the purpose of mining, or for residental, agricultural, commercial or industrial purposes. The District Officers are responsible for administration of the act. Land required by the federal government in a state has also to be acquired through this process. For payment of compensation, a valuation is made by the Valuation Department, but the compensation is finally determined by the Collector of Land Revenue in a public hearing.

16. Although the legislation governing land acquisition is adequate, it is virtually universal experience in Malaysia that land acquisition delays project implementation. Past experience shows that in both Kelantan and Trengganu the process of land acquisition has been time-consuming, taking an average of six months to one year, but sometimes much longer when conflicts arise. Traditional attitudes toward land in these states and consequent disputes over valuation can cause considerable difficulties for the acquiring authority. In Kelantan, there have been several instances of political representation being decided in favor of land owners. Rapidly increasing land values in Kota Bharu and Kuala Trengganu have also been a constraint in acquiring land.