Appendix 1

Measurements of Competitiveness in the Palm Oil Refining Industry

A country's level of competitiveness in refining palm oil can be expressed in terms of a competitiveness ratio, given by the formula below. This ratio depicts the comparative ability of a country to profitably undertake refining activity compared to cost-margins in the 'world' market.

$$\text{Competitiveness Ratio} = \frac{\text{refining value-added at domestic prices}}{\text{refining value-added at world (border) prices}}$$

$$\text{(simplified to)} = \frac{\text{gross refining margin in country (domestic prices)}}{\text{gross refining margin outside country (domestic prices)}}$$

whereby:

Value-added is defined as receipts from the sale of refined products less the costs of material and service inputs used in refining, including CPO, as in the formula:

$$Va_j = \Sigma(P_j \cdot Y_j) - \Sigma(a_i \cdot P_i)$$

where:

Va_j = value-added in activity j, producing j products using I material inputs

P_j = price of product j

Y_j = yield of product j

a_i = input coefficient i

P_i = price of input I

and:

Gross refining margin is defined as the gross margin (gross profit) from refining one ton of CPO into refined, bleached and deodorized palm oil (RBDPO) and palm fatty acid distillate (PFAD), as in the formula:

Gross Refining Margin (GRM) = $Y_{rbdpo} \cdot P_{rbdpo} + Y_{pfad} \cdot P_{pfad} - P_{cpo}$

where:

Y_{rbdpo} = yield of refined, bleached and deodorized palm oil

P_{rbdpo} = price of refined, bleached and deodorized palm oil

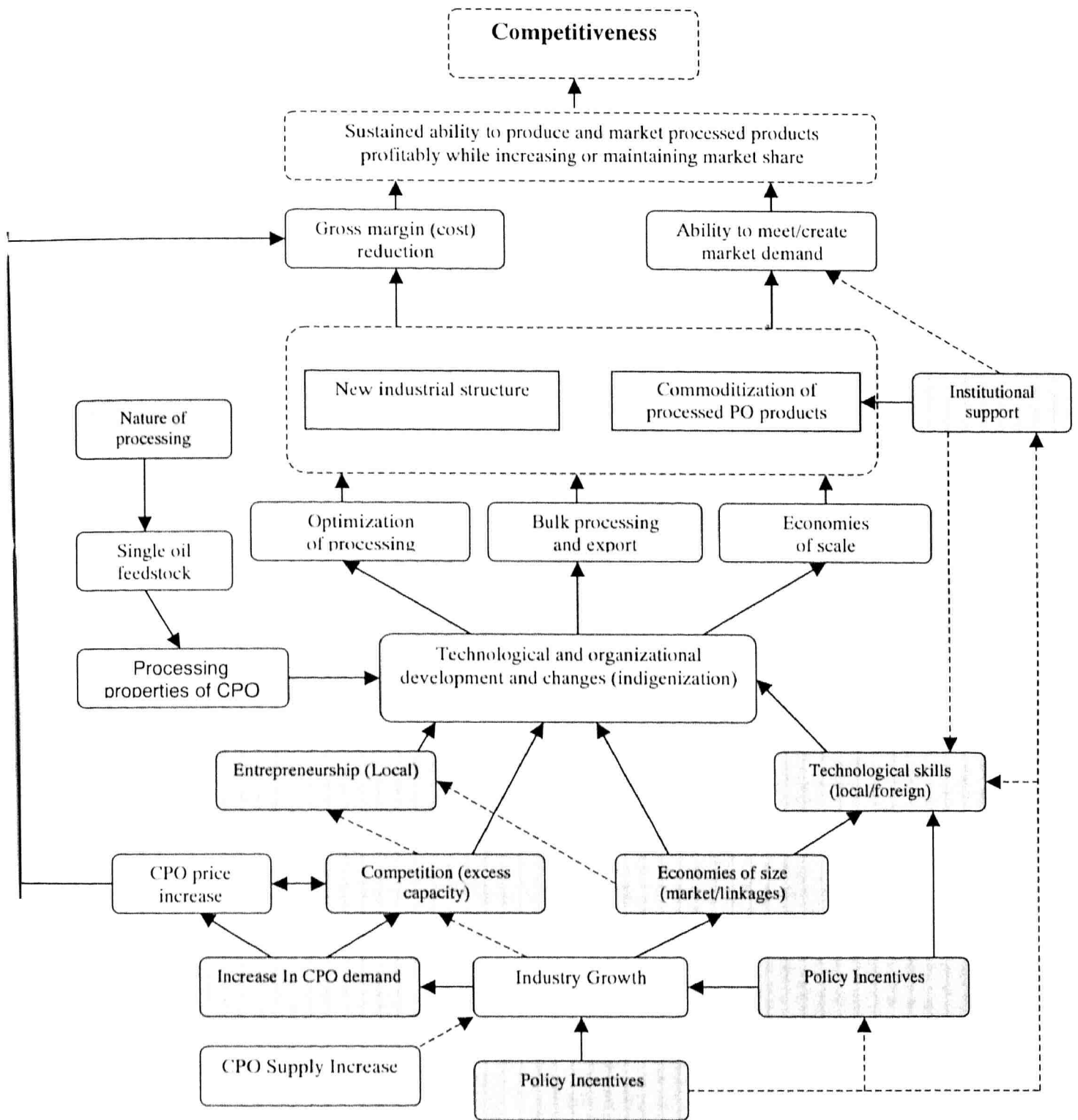Y_{pfad} = yield of palm fatty acid distillate

P_{pfad} = price of palm fatty acid distillate

P_{cpo} = price of crude palm oil

Appendix 2

Structural Development of The Palm Oil Refining Industry


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                              ┌─────────────────────┐
                              │  Competitiveness    │
                              └─────────────────────┘
                                        ↑
        ┌──────────────────────────────────────────────────────────────┐
        │  Sustained ability to produce and market processed products   │
        │  profitably while increasing or maintaining market share      │
        └──────────────────────────────────────────────────────────────┘
                    ↑                                    ↑
        ┌───────────────────┐              ┌───────────────────────┐
        │ Gross margin (cost)│              │ Ability to meet/create│
        │     reduction      │              │    market demand      │
        └───────────────────┘              └───────────────────────┘
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New industrial structure

Commoditization of processed PO products

Institutional support

Nature of processing

Single oil feedstock

Processing properties of CPO

Optimization of processing

Bulk processing and export

Economies of scale

Technological and organizational development and changes (indigenization)

Entrepreneurship (Local)

Technological skills (local/foreign)

CPO price increase

Competition (excess capacity)

Economies of size (market/linkages)

Increase In CPO demand

Industry Growth

Policy Incentives

CPO Supply Increase

Policy Incentives

Source: Jaya Gopal 1999

Attachment 1

Data for **Figure 1:** Malaysian Palm Oil Refiners' Competitiveness (1980 - 1994)

Year	Malaysian domestic / Malaysian border	Malaysian / domestic European border	Malaysian / domestic European domestic	European / domestic European border /
1980	21.19	N/A	N/A	N/A
1981	-5.49	N/A	N/A	N/A
1982	2.34	N/A	N/A	N/A
1983	1.39	N/A	N/A	N/A
1984	2.52	N/A	N/A	N/A
1985	1.97	11.13	1.01	11.02
1986	0.64	0.71	0.45	1.59
1987	0.54	0.69	0.34	2.01
1988	0.58	0.95	0.31	3.07
1989	0.71	1.48	0.39	3.76
1990	0.39	0.53	0.26	2.04
1991	0.39	0.55	0.23	2.41
1992	0.44	0.74	0.29	2.53
1993	0.47	0.65	0.31	2.07
1994	0.48	0.72	0.26	2.80

* N/A – Data not available

Source: Jaya Gopal 1995

Attachment 2

Data for **Figure 2** and **Figure 3**: Petronas Financial Performance, 1998-2002

Financial Year ending 31 March (in RM '000)	1998	1999	2000	2001	2002
Revenue	35,009	42,306	60,628	67,190	81,434
Profit before tax (PBT)	15,823	11,844	21,611	14,566	15,105
Total Assets	81,690	99,498	121,555	129,540	178,007
Shareholder Funds	34,013	36,871	45,052	73,351	78,355
Profit before tax (PBT) as % of Revenue	45.20%	28.00%	35.65%	21.68%	18.55%
Profit after tax (PAT) & minority interest	9,945	6,808	12,604	N/A	N/A
Average RM/US$ exchange rate	3.17	3.80	3.80	3.80	3.80

* N/A – Data not available

Attachment 3

Data for **Figure 4**: Production of Passenger Cars in Malaysia (1980 - 2000)

Year	PROTON	PERODUA	OTHERS	TOTAL
1980	N/A	N/A	81,065	81,065
1981	N/A	N/A	87,822	87,822
1982	N/A	N/A	85,321	85,321
1983	N/A	N/A	100,223	100,223
1984	N/A	N/A	96,361	96,361
1985	8,607	N/A	61,162	69,769
1986	24,931	N/A	17,249	42,180
1987	24,180	N/A	9,505	33,685
1988	44,732	N/A	16,606	61,338
1989	65,764	N/A	16,109	81,873
1990	85,613	N/A	31,371	116,984
1991	102,041	N/A	34,143	136,184
1992	99,043	N/A	18,730	117,773
1993	118,140	N/A	5,481	123,621
1994	127,200	10,200	20,136	157,536
1995	155,000	40,500	32,134	227,634
1996	181,065	47,966	51,913	280,944
1997	222,310	63,225	49,495	335,030
1998	81,692	38,962	8,325	128,979
1999	155,587	64,924	31,933	252,444
2000	151,440	64,588	17,402	233,430

* N/A – Data not available

Source: MIDA and PROTON Corporate Profile 2001 (in Abdulsomad 2003)

Attachment 4

Data for **Figure 5**: Sapura Group Growth (1975 - 1995)

Year	Turnover	Pre-tax Profit
1975	N/A	0.0
1976	N/A	-0.3
1977	N/A	N/A
1978	9.7	0.2
1979	10.9	0.7
1980	11.1	0.8
1981	16.3	1.8
1982	30.1	1.9
1983	45.6	-1.3
1984	137.7	-27.8
1985	400.0	N/A
1986	332.0	40.9
1987	227.2	-0.9
1988	162.8	8.8
1989	204.4	13.1
1990	254.4	18.6
1991	337.1	26.8
1992	475.2	32.5
1993	526.4	53.1
1994	604.6	58.8
1995	768.7	40.6

* N/A – Data not available

Source: Alavi 1999

Attachment 5

Data for **Figure 6**: Sapura Group Pre-Tax Profits Breakdown (1992 - 1995)

Year	Grand Total Sapura Group	Telecommunications-based Companies				Metal-based Companies		Others	TOTAL
		Teledata	Uniphone	Uniphone Cable	Telco Sub	Sapura Automotive	Sapura Machining Corp.		Other Sub
1992	32.5	4.6	24.2	0.6	29.5	-1.4	-2.6	7.1	3.0
1993	53.1	4.4	26.8	12.9	44.1	-0.7	-1.4	11.1	9.0
1994	58.8	19.3	36.9	9.3	65.5	0.7	1.8	-9.3	-6.7
1995	40.6	30.4	30.1	10.4	71.0	1.5	2.4	-34.3	-30.4

Source: Alavi 1999