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## INDUSTRIAL DEVELOPMENT REVIEW SERIES

# INDONESIA

## Changing Industrial Priorities

**Prepared by the**
**Regional and Country Studies Branch**

V.87-91285

# PREFACE

This Industrial Development Review is one of a series of country studies prepared by the Regional and Country Studies Branch of the United Nations Industrial Development Organization (UNIDO).

The Reviews present brief factual and analytical surveys of industrial development in developing countries. Such industry-specific Reviews are in demand for a variety of purposes: to provide an information service to relevant sections within UNIDO and other international organizations and aid agencies concerned with technical assistance to industry; to be used as a reference source for financial organizations, public and private industrial enterprises, and economic research institutes in developed and developing countries; and to serve as a handy, useful information source for policy-makers in developing countries. Although the Reviews do not represent in-depth industrial surveys, they focus exclusively on industry and present the information on the entire spectrum of the industrial development process in the countries concerned in a condensed and yet comprehensive form.

The Reviews draw primarily on information and material available at UNIDO headquarters from national and international sources as well as data contained in the UNIDO data base. Generally, specific field surveys are not undertaken. The presentation of up-to-date information on sub-sectoral manufacturing trends are usually constrained by incomplete national data on the industrial sector. To supplement efforts under way in UNIDO to improve the data base and to monitor industrial progress and changes on a regular basis, it is hoped that the appropriate national authorities and institutions in the respective countries and other readers will provide relevant comments and information. Such response will greatly assist in updating the Reviews.

The present Review was prepared on the basis of information available at UNIDO Headquarters at the end of September 1987. It is divided into two parts. Chapters 1 and 2 are analytical, giving first a brief overview of the country's economy and its manufacturing sector and then a more detailed review of the structure and development of its manufacturing industries, ending with a subsectoral analysis of problems and prospects. Chapters 3 and 4 contain an overview and assessment of national plans and policy measures relevant to industrial development, a review of the more important governmental and other institutions involved and a survey of the country's natural, human and financial resources, with a focus on the role of technical co-operation in industrial development.

It should be noted that the Reviews are not official statements of intention or policy by governments nor do the views and comments contained therein necessarily reflect those of the respective governments.

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## EXPLANATORY NOTES

Regional classifications, industrial classifications, trade classifications, and symbols used in the statistical tables of this report, unless otherwise indicated, follow those adopted in the United Nations Statistical Yearbook.

Dates divided by a slash (1986/87) indicate a crop year or a financial year. Dates divided by a hyphen (1986-1987) indicate the full period, including the beginning and end years.

References to dollars ($) are to United States dollars, unless otherwise stated.

In tables: Three dots (...) indicates that data are not available or not separately reported;
Two dashes (--) indicates that the amount is nil or negligible.
A hyphen (-) indicates that the item is not applicable.

Percentages may not add to 100.0 precisely due to roundings.

The following abbreviations are used in this document:

| | |
|---|---|
| ASEAN | Association of South East Asian Nations |
| BAPPENAS | National Development Planning Agency |
| BKPM | Investment Coordinating Board |
| BPPT | Agency for the Assessment and Application of Technology |
| BPS | Central Bureau of Statistics |
| CNG | Compressed natural gas |
| DSP | Priority List for Investment |
| EEZ | Exclusive Economic Zone |
| FMO | Netherland Finance Company for Developing Countries |
| GDP | Gross domestic product |
| GINS | All-Indonesian Importers Association |
| GNP | Gross national product |
| GPEI | Indonesian Association of Exporters |
| ICO | International Coffee Organization |
| IDFC | Indonesian Development Finance Company |
| IGGI | Inter-Governmental Group on Indonesia |
| IMF | International Monetary Fund |
| IPF | Indicative planning figure |
| ISIC | International Standard Industrial Classification |
| KADIN | Indonesian Chamber of Commerce and Industry |
| LNG | Liquified natural gas |
| LPG | Liquified petroleum gas |
| MFA | Multi-Fibre Agreement |
| MVA | Manufacturing value added |
| NES | Nucleus Estate and Smallholders (Scheme) |
| NICs | Newly industrializing countries |

EXPLANATORY NOTES
(Continued)

| | |
|---|---|
| OECD | Organization for Economic Co-operation and Development |
| OPEC | Organization of Petroleum-Exporting Countries |
| PDFCI | P.T. Private Development Finance Company of Indonesia |
| PMA | Foreign investment |
| PMDN | Domestic investment |
| REPELITA | Five-Year Development Plans |
| SITC | Standard International Trade Classification |
| UNDP | United Nations Development Programme |
| UNIDO | United Nations Industrial Development Organization |

Abbreviations for foreign co-operation sought:

| | |
|---|---|
| AFM | Access to foreign markets |
| EQS | Equipment supply |
| EQY | Equity participation |
| JVE | Joint venture |
| LIC | Licencing |
| LNS | Loans |
| MAX | Management expertise |
| MKX | Marketing expertise |
| SCR | Supplier's credit |
| SCT | Subcontracting |
| SOT | Sale of technology |
| TFX | Technical expertise |
| TKP | Turnkey project |
| TRX | Training expertise |

BASIC INDICATORS 1
The Economy

GDP (1985) : $86,470 million

Population (mid-1986) : 167 million
Growth rate (1980-1985) : 2.1 per cent per annum

Labour force (1986) : 65 million

GNP per capita (1985) : $530

Annual growth rate of GDP (per cent) :

| 1960-70 | 1970-80 | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986[a] | 1987[b] |
|---|---|---|---|---|---|---|---|---|---|
| 3.3 | 7.6 | 7.9 | 7.4 | -0.3 | 3.3 | 6.1 | 1.1 | 1.6 | 3.0 |

Structure of production (per cent) :

| | 1970 | 1985 |
|---|---|---|
| Agriculture | 47.2 | 23.6 |
| Industry | 17.5 | 35.0 |
| Manufacturing | 9.3 | 13.5 |
| Services | 35.3 | 41.4 |

Inflation rate (per cent per annum) :

| 1982 | 1983 | 1984 | 1985 | 1986[a] | 1987[b] |
|---|---|---|---|---|---|
| 9.7 | 11.5 | 8.8 | 4.4 | 9.2 | 9.0 |

Exchange rate (Rupiah equivalents to $1) :

| 1982 | 1983(Feb) | 1983(Mar) | 1984 | 1985 | 1986(Aug) | 1986(Sept) | 1987 (Aug.) |
|---|---|---|---|---|---|---|---|
| 692 | 701 | 970 | 1,074 | 1,125 | 1,131 | 1,633 | 1,640 |

a/ Estimate.
b/ Projection.

BASIC INDICATORS 2

Raw material resources

| | | |
|---|---|---|
| **Resources** | | |
| Crops, leading products (in tonnes, 1986)[a] | : | Rice (26,784), cassava (12,882), maize (5,931), sweet potatoes (1,967), soyabeans (1,196), groundnuts (580) |
| Livestock ('000, 1985) | : | Goats (12,117), cows (9,318), pigs (5,371) sheep (4,940), buffaloes (2,838) |
| Fish landings ('000 tonnes, 1986) | : | Saltwater (1,900), freshwater (598) |
| Cash crops ('000 tonnes, 1986)[b] | : | Cane sugar (1,986), coconut (1,864), rubber (1,034), palm oil (1,419), tea (136), coffee (346), cocoa (32)[c] tobacco (104) |
| Forests, logging potential (1984) ($m^3$) | : | Teak (758,000) other (24,277,000) |
| Mining, leading products' volume ('000 tonnes, 1985) | : | Silver (2,151.8 kg), nickel ore (955.6), bauxite (830.5), gold (0.236), tin ore concentrate (22.4), copper (233) |
| Energy production (1985) ('000 tonnes, oil equivalent) | : | Crude oil (483.8), natural gas (1,580.0), coal (1,491.6) |

a/ Estimate.

b/ Preliminary.

c/ Preliminary 1985.

BASIC INDICATORS 3

Foreign trade and balance of payments

---

Exports

| | | |
|---|---|---|
| Total value (1985) | : | $18,587 million |
| Principal exports (1985) ($ million) | : | Crude oil and products (9,083), natural gas (3,635), rubber (945), plywood (825), coffee (556) |
| Main destinations (1986) (per cent) | : | Japan (44.9), USA (19.6), Singapore (8.4), Netherlands (3.1), Rep. of Korea (2.4), Hong Kong (2.3), Fed. Rep. of Germany (2.3) |

Imports

| | | |
|---|---|---|
| Total value (1986) | : | $10,262 million |
| Principal imports (1985) ($ millions) | : | Machinery and equipment (2,699), chemicals (1,514), mineral products (1,451), base metals (1,331), transport equipment (889) |
| Main origins (1986) (per cent) | : | Japan (29.2), USA (13.8), Singapore (9.1), Fed. Rep. Germany (6.7) Saudi Arabia (6.0), Australia (3.9), U.K. (3.8) |

| | | | | | | |
|---|---|---|---|---|---|---|
| Balance of payments (current account deficit, $ million) | : | 1982 | 1983 | 1984 | 1985 | 1986 (Jan.-Sept.) |
| | | 5,458 | 6,442 | 1,979 | 1,989 | 3,368 |

| | | |
|---|---|---|
| Gross international reserves (November 1986) | : | $4.5 billion |
| Total external public debt (1986) | : | $45 billion[a/] |
| as percentage of GDP (1986) | : | 60.0 |
| Debt service (1987) as percentage of total exports | : | 41.0 |

---

a/ Estimate.

BASIC INDICATORS 4
The manufacturing sector

| | | |
|---|---|---|
| MVA (1984) | : | $13,165 million |
| MVA per capita (1984) | : | $81 |
| Employment in manufacturing (1985)[a] | : | 5.7 million |
| as percentage of total labour force | : | 9.1 per cent |
| MVA per employee[a] (1985) | : | $2,414 |

Composition of MVA (percentage share) :

| | 1975 | 1985 |
|---|---|---|
| mainly consumer goods | 59.2 | 40.2 |
| mainly intermediate goods | 28.0 | 44.6 |
| mainly capital goods | 12.8 | 15.2 |

Average annual real growth rate of MVA[b] (per cent) :

| 1960-70 | 1970-80 | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 |
|---|---|---|---|---|---|---|---|
| 3.3 | 12.8 | 19.7 | 10.1 | 0.7 | 2.7 | 6.2 | 6.2 |

| 1986 | 1987 |
|---|---|
| 6.7[c] | [7.0][d] |

| | | |
|---|---|---|
| Trade in manufactures | | |
| total value - exports (1984) | : | $2,191 million[e] |
| - exports (1986) | : | $4,419 million[f] |
| - imports (1984) | : | $8,402 million[e] |
| - imports (1983) | : | $16,600 million[f] |
| Share of manufactures | | |
| - in total exports (1984) | : | 10.01 per cent[e] |
| - in total exports (1986) | : | 29.8 per cent[f] |
| - in total imports (1984) | : | 60.60 per cent[e] |
| - in total imports (1983) | : | 81.00 per cent[f] |

a/ Estimate.
b/ 1980-1985 excluding oil refinery and natural gas.
c/ Estimate based on industrial production index.
d/ Estimate for first half of 1987 only.
e/ SITC 5-8 less (67 + 68) (Narrow definition).
f/ Manufacturing trade according to a broad definition.

BASIC INDICATORS 5
Trade in selected manufactures

In 1984

MANUFACTURED EXPORTS[a/]
total value : $2,191.0 million[b/]

| Principal manufactured exports | Total $'000 | Destination (percentage)[c/] Developing countries | Developed market economies | | | | Centrally planned economies |
|---|---|---|---|---|---|---|---|
| | | | Total | USA | EC | Japan | |
| Veneers and plywood | 792,056.4 | 50.6 | 41.9 | 23.9 | 10.9 | 6.5 | 0.2 |
| Clothing | 294,493.6 | 12.0 | 84.4 | 65.2 | 11.4 | 0.3 | 0.0 |
| Woven textile fabrics | 105,524.8 | 26.2 | 58.5 | 30.0 | 15.1 | 8.4 | 0.0 |
| Processed animal and vegetable oils and fats | 63,506.7 | 44.4 | 31.7 | 11.7 | 12.7 | 6.1 | 18.8 |
| Nitrogenous fertilizers and related materials | 29,240.5 | 96.3 | 3.7 | 0.0 | 0.0 | 3.7 | 0.0 |
| Wood manufactures | 10,858.2 | 32.2 | 67.4 | 12.3 | 13.9 | 40.3 | 0.0 |

MANUFACTURED IMPORTS[a/]
total value : $8,401.9 million[b/]

| Principal manufactured imports | Total $'000 | Origin (percentage)[c/] Developing countries | Developed market economies | | | | Centrally planned economies |
|---|---|---|---|---|---|---|---|
| | | | Total | USA | EC | Japan | |
| Organic chemicals | 548,695.9 | 10.9 | 85.0 | 30.1 | 26.8 | 21.7 | 0.7 |
| Commercial road vehicles | 512,274.5 | 1.1 | 98.5 | 4.1 | 11.2 | 82.5 | 0.0 |
| Power generating machinery | 337,170.2 | 3.6 | 94.5 | 20.8 | 33.9 | 33.0 | 0.1 |
| Electrical power machinery | 333,194.5 | 6.4 | 90.8 | 18.8 | 25.8 | 39.4 | 0.2 |

a/ SITC 5-8 less (67 + 68).
b/ In current prices.
c/ Percentages may not add to 100.0 due to the fact that countries report trade to/from "unspecified areas".

## BASIC INDICATORS 6
## Inter-country comparison of selected indicators

| | Unit | Indonesia | Malaysia | Philippines | Republic of Korea | Taiwan Province of China[a/] | Thailand |
|---|---|---|---|---|---|---|---|
| I. Demographic indicators | | | | | | | |
| Population (mid-1985) | millions | 162.2 | 15.6 | 54.7 | 41.1 | 18.9 | 51.7 |
| Population growth (1980-85) | per cent per annum | 2.1 | 2.5 | 9.5 | 1.5 | 1.8[b/] | 2.1 |
| Infant mortality[c/] | per thousand | 96 | 98 | 48 | 27 | 11[d/] | 43 |
| Area | '000 sq. km. | 1,919 | 330 | 300 | 98 | 36 | 514 |
| Density (1985) | persons/km$^2$ | 84.5 | 47.3 | 182.3 | 419.4 | 525.0 | 100.6 |
| II. Economic indicators | | | | | | | |
| GDP (1985) | US$ million | 86.5 | 31.3 | 32.6 | 86.2 | 57.3 | 38.2 |
| GNP per capita (1985) | US$ | 530 | 2,000 | 580 | 2,150 | 3,060 | 800 |
| GDP growth (1980-85) | per cent/annum | 3.5 | 5.5 | -0.5 | 7.9 | 7.6[b/] | 5.1 |
| Agriculture (1985) | per cent of GDP | 24 | 21[e/] | 27 | 14 | 6.5 | 17 |
| Industry (1985) | per cent of GDP | 36 | 35[e/] | 32 | 41 | 52 | 30 |
| Manufacturing (1985) | per cent of GDP | 14 | 19[e/] | 25 | 28 | 42 | 20 |
| Services (1985) | per cent of GDP | 41 | 44[e/] | 41 | 45 | 41 | 53 |
| Exports of goods and non-factor services (1985) | per cent of GDP | 23 | 55 | 22 | 36 | 58 | 27 |
| Gross domestic investment (1985) | per cent of GDP | 30 | 28 | 16 | 30 | 92 | 93 |
| External public debt (1985) | per cent of GDP | 32 | 47.8 | 42.7 | 35 | 11.4 | 26.8 |
| III. Industrial indicators | | | | | | | |
| MVA (1984) | million $ at constant 1980 prices | 13,165 | 6,770 | 8,644 | 96,650 | 11,875 | 8,325 |
| Share of MVA in GDP (1985) | per cent | 13.5 | 21.7 | 26.5 | 30.9 | 42 | 21.8 |
| Growth of MVA (1980-85) | average annual per cent | 6.4 | 6.1 | -1.2 | 9.0 | 8.9[b/] | 5.3 |
| MVA share in world manufacturing value added (1981) | per cent | 0.22 | 0.13 | 0.28 | 0.52 | 0.5 | 0.13 |
| Share of manufactured[f/] exports in total exports | per cent (1984) | 10.01 | 24.62[g/] | 94.27[g/] | 85.28[g/] | 91.0 | 39.78 |

a/ 1984. b/ 1973-84. c/ Aged under 1 year. d/ 1980. e/ 1983. f/ SITC 5-8 less (67 + 68). g/ 1985.

## SUMMARY

The economy of Indonesia is gradually recovering from external economic shocks inflicted by declining oil/gas revenues and weak commodity prices in recent years. GDP is expected to grow by 3 per cent and 4 per cent in 1987 and 1988 respectively, compared with sluggish growth rates of 1.6 per cent in 1986 and 1.1 per cent in 1985.

The economy's heavy dependence on oil/gas earnings has rendered the country extremely vulnerable to external shocks. A sharp fall in oil/gas prices combined with a softening of world markets for primary commodities imposed resource constraints at a time when soaring debt service payments absorb 41 per cent of export earnings compared with 13 per cent in 1980. However, the economy continues to recover as a result of a major impetus stemming from the manufacturing sector's brisker than expected growth and a slight recovery in some commodity prices during 1987. In order to maintain the economy's growth momentum, the government's short-term stabilizing measures focus on financial austerity, while long-term restructuring measures aim at deep-rooted structural adjustments in the economy to raise the internal efficiency and international competitiveness of the country's non-oil/gas sectors.

The emergence of Indonesia's modern manufacturing sector from its embryonic stage dates back to 1966 when new initiatives stimulated the country's industrialization process. Following a period of rapid growth in the 1970s with MVA recording an average annual rate of growth in excess of 12 per cent its contribution to GDP increased from 8.8 per cent in 1971 to 15.3 per cent in 1980. The pace of expansion in manufacturing activities faltered to 6.6 per cent per annum during 1980-1985, a trend closely related to the general recession of the economy. The major brunt of the recession was borne by the intermediate and capital goods (including consumer durables) branches, with few exceptions. In 1986, the manufacturing sector staged a mild recovery and the index of manufacturing output grew by 6.7 per cent. A 7 per cent increase in manufacturing output estimated for the first half of 1987 sustains industrial recovery and the outlook for 1988 is good.

The manufacturing sector in Indonesia has undergone substantial structural changes in the composition of MVA. At the initial stage of industrial development the consumer goods industry comprising mainly food, beverages, tobacco and textiles was predominent, and by 1975 it still accounted for 60 per cent of MVA. Over the ten-year period, ending in 1985, its share of MVA fell consecutively and by 1985 it accounted for 40 per cent of MVA. The intermediate and capital goods industries staged high rates of expansion from a low base and the share of intermediate goods in MVA rose from 28 per cent in 1975 to 38 per cent in 1984 and that of capital goods (including consumer durables) from 12 per cent to 17 per cent during the same period.

Domestic demand and import replacement were the main sources of growth for consumer goods during the first half of the 1970s. Under the pretext of infant industry agruement the intermediate and capital goods industries (including consumer durables) expanded rapidly during the second half of the

1970s and benefitted from import substitution as well. The manufacturing sector is the largest user of manufactured intermediates. The industries with highest forward linkages are mainly intermediate industries, such as chemicals, paper and building materials, while lowest backward linkages are found in capital goods industries. In contrast, the highest backward linkages are found in food and non-agro resource-based industries, which are yet to be fully exploited, inter alia, through "export substitution", i.e., export of processed goods hitherto exported in unprocessed form, such as wood, rattan, etc.

In the face of capacity expansion and stagnating domestic demand many industries have experienced excess capacity in recent years. Nevertheless, there is scope for substantial increases in capacity utilization, particularly in chemical products, iron and steel, non-electrical machinery and transport equipment. The motor vehicle industry, cement industry and some electrical machinery industries have been severely affected by the problem of idle capacity.

Manufactured exports grew at an average annual rate of 11 per cent during 1981-1986, with around 70 per cent being destined to developed countries. Major manufactured exports include a number of resource-based products, such as rubber, plywood and wood products, as well as a range of labour- intensive products such as textiles, clothing and some electrical products. A number of heavy industry products, e.g., fertilizers and cement, boosted their export volumes in recent years. The imports of intermediate and capital goods represent the most important group of manufactured imports, which meet about 30 per cent of the domestic demand for manufactured goods in Indonesia.

A series of industrial policy reform packages are under way to stimulate a new course of liberalization with changing industrial priorities. The new initiatives tend to encourage export-oriented, labour-intensive and resource-based industrial activities. The policy of protecting domestic industries from the dynamic stimulus of international competition seems to run out of steam and recent reforms have attempted to improve the efficiency of industrial enterprises and to sharpen the competitive edge of their products.

The May 1986 package aims at stimulating non-oil/gas exports by allowing producers to import their input requirements free of restrictions and exempt from import duties. A 31 per cent devaluation of the Indonesian Rp against the US$ in September 1986 was primarily intended to increase the competitiveness of Indonesia's non-oil exports. The October 1986 Package is aimed at reducing import duties on selected intermediates with a view to reducing production costs. The January 1987 Package further relaxed import regulations for selected items. The effectiveness of these measures depends on their implementation in pursuit of improving the investment climate.

The manufacturing sector's prospects seem to depend on the success of current reforms to break its heavy orientation towards the domestic market and on the need to orient it towards external markets. A strategy of encouraging labour-intensive, resource-based and export-oriented industrial activities combined with selective import substitition, subject to full feasibility studies, is most likely to achieve the development objectives of the government.

# 1. THE ECONOMY OF INDONESIA

## 1.1. Recent economic trends

The Indonesian economy is closely integrated into the world economy through trade, aid and investment flows. Its heavy dependence on these flows as a source of its development funds, in particular on export earnings from its oil/gas sector, has rendered it extremely susceptable to external shocks. Indeed, its recent economic trends and policy responses have been characterized by attempts to overcome the impact of a number of such shocks.

The most serious of these has been a softening of world markets for primary commodities, which still account for the bulk of the country's export revenues, and in particular the accelerated weakening of world oil markets since 1982, which culminated in the oil price slump of 1986. Growth of GDP in real terms was estimated at 1.6 per cent in 1986. Despite the depressed world market for Indonesia's major exports, GDP is estimated to grow at an accelerated rate of 3 per cent in 1987 and is expected to be sustained at 4 per cent in 1988. A major impetus to the pace of economic expansion stems from the manufacturing sector's brisker than expected growth coupled with a recovery of some commodity prices (tin, copper, rubber, palm oil, sugar) during 1987.

Severe resource constraints have been imposed both on Indonesia's external and domestic budgetary accounts in recent years. These constraints have, moreover, been greatly exacerbated by the dramatic weakening of the dollar since September 1985. This has significantly reduced the purchasing power of Indonesia's export earnings since some 90 per cent of its exports but only 20 per cent of its imports are priced in dollars. This has substantially increased the dollar value of Indonesia's external debt and debt service commitments, since some 65 per cent of the country's public and publicly guaranteed debt (and possibly an even higher proportion of its private debt) is denominated in currencies which have appreciated against the dollar.

The combined effect of the reduced export earnings and increased debt service payments caused by these events has been a dramatic rise in Indonesia's debt service burden. Thus, the country's total debt service ratio has risen from approximately 13 per cent in 1980 to an estimated 37 per cent in 1986 rising to 41 per cent in 1987, while the share of public debt service payments in the government's recurrent budgetary spending has risen from some 17 per cent to more than 45 per cent during the same period.

In dealing with these exogenous shocks, the Indonesian government has faced two principal tasks. On the one hand, it has needed to ensure the maintenance of external and fiscal balance through a combination of short-term austerity measures and increased external borrowing. On the other hand, it has faced the need to make more deep rooted structural adjustments to raise the productivity and international competitiveness of the country's non-oil/gas sectors in order to ensure that the economy's growth momentum is not unduly compromised by the twin pressures of reduced oil/gas revenues and increased external debt service payments. Already, the average annual GDP growth rate since 1982 has fallen well short of the minimum level of 4 per cent widely regarded as essential to meet the needs and rising expectations of Indonesia's rapidly expanding population, which is currently estimated to be growing at approximately 2.1 per cent per annum.

In spite of political constraints, Indonesia's economic policy-makers have responded with great vigour to these challenges, and have introduced a variety of both short-term stabilizing and longer-term restructuring measures during the past five years or so.

The former category of measures includes two hefty devaluations of the rupiah in 1983 and 1986, by 28 per cent and 31 per cent, respectively, and the imposition of tight monetary restraints to ensure that their effects would not be eroded by domestic inflation. In addition to their obvious balance of payments implications, these devaluations also served to raise the rupiah value of the government's budgetary income from the oil/gas sector and its foreign aid receipts. This category of measures also includes the cancellation or rephasing of several large-scale capital- and import-intensive development projects worth some $21 billion in 1983, and the introduction of two stringently austere budgets for the 1986/87 and 1987/88 fiscal years, which apart from sweeping cuts in real (i.e., inflation-adjusted) public expenditure are marked by a clear shift towards recurrent rather than capital spending (see Annex Table A-1).[1/]

In addition, the government has also sought increased international assistance. This has, fortunately, been readily forthcoming, with the Inter-Governmental Group on Indonesia (IGGI), a consortium comprising most official Western aid donors and multilateral development agencies,[2/] having raised its commitment for 1987/88 to more than $3.1 billion from $2.5 billion in the previous year. In particular, the government has sought to obtain greater volumes of programme-type loans which can be rapidly disbursed and used to provide balance of payments and budgetary support. Approximately $900 million of this year's IGGI commitments have been provided as "convertible" project aid, while an additional $2 billion of similar assistance has been provided separately by the IMF, World Bank, and Japanese donor agencies since the end of 1986.

Such assistance is particularly valuable as it enables the Indonesian government to unlock the backlog of some $16 billion as yet undisbursed project aid for which it has so far been unable to provide the required counterpart funds. Meanwhile, the government has also taken measures to remove the technical and institutional constraints inhibiting a rapid disbursement of these funds. In order to maintain its standing in external financial markets, however, it has steadfastly rejected calls for a restructuring of its debt service commitments, although some rolling over of principal repayments during the coming years cannot be ruled out.

The longer-term structural adjustments introduced by the government during recent years include a thorough overhaul of Indonesia's antiquated and highly inefficient tax system, as well as a wide-ranging liberalization of the country's financial sector in order to promote a more effective mobilization

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1/ Hobohm, Sawar O.H., "Survey of Recent Economic Developments", Bulletin of Indonesian Economic Studies, August 1987.

2/ IGGI currently comprises Australia, Belgium, Canada, France, the Federal Republic of Germany, Italy, Japan the Netherlands, New Zealand, Switzerland, the United Kingdom, and the United States of America. The World Bank Group, the Asian Development Bank, and UNDP are also members, while UNICEF has observer status. In addition, several other countries and organizations, including Austria, the European Community and Finland, co-ordinate their assistance programmes to Indonesia with IGGI.

and more efficient allocation of domestic resources. Significant efforts have also been made to attract increased volumes of private capital from abroad through an ongoing series of reforms designed to remove, or at least reduce, the regulatory impediments to an expansion of foreign direct investment. Similarly wide-ranging measures have also been taken to stimulate the growth of non-oil/gas exports, especially of manufactured goods, by removing policy-induced constraints to their international competitiveness. In this connection the government is now beginning to tackle the important and politically sensitive issue of dismantling the large number of industrial and trade monopolies which dominate most sectors of the Indonesian economy, and which have recently been identified as one of the prime causes for the "high-cost syndrome" afflicting its manufacturing sector in particular.

1.2 Economic structure

With an estimated mid-1986 population of 167 million, Indonesia is the fifth most populous country in the world, and the world's third largest developing country. It is a major producer of petroleum, natural gas and a variety of other minerals including bauxite, coal, copper, gold, nickel and tin, and also has the capacity to produce a wide range of agricultural commodities such as cocoa, coffee, palm oil, rice, rubber, spices, sugar, tea and tobacco. With approximately two-thirds of its land area covered by forest, Indonesia also has some of the world's largest resources of tropical hardwood, while its extensive maritime exclusive economic zone gives it access to vast fisheries resources. Much of the country's immense potential remains unrealized however, and the level of per capita income remains lower than in all the other member countries of the Association of Southeast Asian Nations (ASEAN). Indonesia is classified as a lower middle-income country, with a per capita income of $530 in 1985 and did not achieve this status until 1981 when its per capita income first exceeded $500.

At independence in 1945 Indonesia inherited a classical colonial economy based almost entirely on extractive industries characterized by a high degree of dualism between the foreign-owned export-oriented sector and the subsistence-oriented domestic sector, with a tenuous linkage between these two sectors being provided by a class of ethnic Chinese traders. It was, moreover, severely disrupted by the seven years of wartime occupation and independence struggle, and was given little chance to recover during the subsequent fifteen years of political turmoil, which were marked by a succession of regional and ideological conflicts within Indonesia and several costly external conflicts.

This period of political upheaval and economic decline culminated in 1965 and resulted in a near-total collapse of the Indonesian economy marked by hyperinflation exceeding 600 per cent per annum, virtually depleted foreign exchange reserves, and by contemporary standards an enormous external debt in excess of $1.6 billion. The "New Order" government which assumed office in 1966 declared economic development in an environment of political stability as its prime policy objective.

This concentration on economic development has achieved impressive results. The economy achieved an average annual GDP growth rate (in constant 1973 prices) of 6.7 per cent during 1974-1983 (Table 1). This growth was in large measure fuelled by income generated by the oil and (since 1977) natural

Table 1: Growth of GDP by major economic sectors, 1974-1985
(percentage)

| | 1974-83[a/] | 1979 | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 |
|---|---|---|---|---|---|---|---|---|
| **Agriculture** | 2.6 | 6.7 | 6.9 | 4.8 | 1.1 | 1.9 | 5.6 | 2.7 |
| Farm food crops | 4.4 | 5.4 | 9.1 | 10.1 | 0.9 | 3.0 | 7.4 | 0.4 |
| Farm nonfood crops | 4.3 | 15.0 | 10.7 | 9.4 | 1.2 | 12.9 | 2.4 | 8.2 |
| Estate crops | 6.7 | 7.3 | 6.0 | 4.0 | 14.5 | -36.6 | 18.7 | 14.7 |
| Livestock | 3.7 | 16.4 | 10.1 | 2.2 | 4.6 | 3.4 | 5.0 | 10.6 |
| Forestry | -4.7 | -0.2 | -8.9 | -25.9 | -9.5 | -13.3 | -8.7 | -6.3 |
| Fishery | 4.9 | 6.4 | 6.7 | 2.0 | 2.4 | 4.6 | 2.7 | 4.6 |
| **Mining** | 1.7 | -1.7 | -0.1 | 1.6 | -15.1 | 0.7 | 5.9 | -5.6 |
| Oil/gas | 0.7[b/] | -2.1 | -0.4 | 1.6 | -16.0 | 0.7 | 6.4 | -5.9 |
| Other | 7.5[b/] | 14.0 | 10.1 | 3.6 | 9.6 | -0.9 | -5.9 | 3.9 |
| **Manufacturing** | 11.7 | 16.5 | 22.7 | 7.9 | 1.2 | 3.0 | 15.6 | 5.9 |
| Refinery oil | 1.7[b/] | 16.8 | 7.6 | -8.6 | -16.2 | -9.1 | 74.2 | 8.7 |
| Natural gas | 85.6[c/] | 69.6 | 35.9 | 2.4 | 4.1 | 5.0 | 42.7 | 5.0 |
| Other | 10.4[b/] | 7.4 | 19.7 | 10.1 | 0.7 | 2.7 | 6.2 | 6.2 |
| **Other Industry** | 12.3 | 12.2 | 17.9 | 13.6 | 2.1 | 6.0 | -2.0 | 2.4 |
| Utilities | 14.3 | 8.8 | 17.7 | 15.6 | 16.9 | 24.4 | 5.0 | 8.1 |
| Construction | 12.0 | 12.4 | 17.9 | 13.5 | 0.9 | 4.3 | -2.8 | 1.7 |
| **Services** | 8.6 | 8.7 | 9.0 | 12.1 | 7.1 | 5.2 | 5.4 | 1.6 |
| Trade & hotels | 7.2 | 8.5 | 13.2 | 8.3 | 7.4 | 2.2 | 2.4 | -4.3 |
| Transport | 11.5 | 6.6 | 9.0 | 13.7 | 7.0 | 12.4 | 8.9 | 6.1 |
| Banking | 13.0 | 19.8 | -8.2 | 57.3 | 4.9 | 0.2 | 18.8 | 0.3 |
| Housing | 22.1 | 7.6 | 7.0 | 8.3 | 3.1 | 4.4 | 6.6 | 5.6 |
| Administration | 12.3 | 11.1 | 9.7 | 13.0 | 12.9 | 8.5 | 6.0 | 7.4 |
| Other services | 2.4 | 3.9 | 3.2 | 4.8 | 2.1 | 6.3 | 3.9 | 5.6 |
| **GDP** | 6.7 | 6.2 | 7.9 | 7.4 | -0.3 | 3.3 | 6.1 | 1.1 |

Source: Central Bureau of Statistics, various publications.

a/ Annual average in constant 1973 market prices. There is a break in the series from 1983 onwards, when constant 1983 market prices began to be used. The new series has only been projected back to 1978.

b/ 1975-1983.

c/ 1978-1983.

gas industries, which received a considerable boost from the oil price increases of 1973 and 1979, and which during the same decade made an average annual contribution of 61 per cent and 72 per cent, respectively, to the Indonesian government's domestic fiscal revenues and to the country's foreign exchange earnings. Much of this income was invested, largely on government account, in the non-oil/gas sectors of the Indonesian economy, which achieved consistently high real growth rates throughout the latter half of the 1970s and into the early part of the present decade.

The Indonesian economy has consequently experienced a significant structural transformation during the last two decades, as is indicated by the data presented in Table 2. It is evident that the Indonesian economy's erstwhile heavy dependence on agriculture has been substantially reduced as it has acquired a much more diversified base.

In spite of these structural shifts, which manifest themselves most obviously in a dramatic expansion of the industrial and service sectors at the expense of the agricultural sector, agriculture remains one of the most important forms of economic activity. A disaggregation of the major productive sectors into their individual components reveals that even as late as 1985, the contribution made by the "farm food groups" subsector to GDP came second only to that of the "oil/gas" component of the mining sector. Beyond its importance as a source of national income, however, agriculture also plays a vital role in employment generation. Although increasing commercialization of agriculture is gradually reducing this sector's absorptive capacity for new entrants to the labour market, it continues to employ more than half of the country's labour force.

The somewhat ethereal service sector, which lumps together a vast range of very disparate activities, has retained its strong pre-eminence throughout this period of intense economic change. This is partly a reflection of the fact that it subsumes a large informal sector which, though characterized by relatively low levels of average productivity, is nevertheless able to make a substantial contribution in overall terms simply by virtue of its vast scale. Its extremely high capacity to absorb labour makes it a vital safety net in recessionary times, as is illustrated particularly clearly by the accelerated expansion it, and especially its residual "other services" subsector, has enjoyed in recent years.

As noted above, this process of economic development has been financed to a large extent from the proceeds of Indonesia's oil and gas industries, and in particular from the export of these products. The combined effect of rising oil/gas export volumes and the increases in international energy prices experienced during the 1970s was to generate a spurt of export-led growth, which is reflected clearly in the substantial expansion of the share of exports in GNP which occurred during this period (Table 3). Even in spite of sharp increases in the value of merchandise imports caused both by a rising demand for consumer goods generated by rising income levels and by the need to procure capital and intermediate goods for developmental purposes, these exports were more than adequate to ensure the achievement of consistent trade surpluses.

Table 2: Distribution of GDP by sector of origin, 1960-1985
(selected years)
(percentage)

| Year | Agri-culture | Mining & Quarrying | Manufac-turing | Utili-ties | Construc-tion | Ser-vices |
|---|---|---|---|---|---|---|
| 1960 | 53.9 | 3.7 | 8.4 | 0.3 | 2.0 | 31.7 |
| 1965 | 58.7 | 2.6 | 7.6 | 0.0 | 1.8 | 29.4 |
| 1970 | 47.2 | 6.2 | 9.3 | 0.4 | 3.0 | 34.9 |
| 1975 | 31.7 | 19.7 | 8.9 | 0.6 | 4.7 | 35.6 |
| 1976 | 31.1 | 18.9 | 9.4 | 0.6 | 5.3 | 34.7 |
| 1977 | 31.0 | 18.9 | 9.6 | 0.6 | 5.4 | 34.5 |
| 1978 | 28.1 | 17.8 | 11.7 | 0.5 | 5.7 | 36.1 |
| 1979 | 27.3 | 20.0 | 11.7 | 0.4 | 5.7 | 35.0 |
| 1980 | 24.0 | 23.0 | 13.0 | 0.5 | 5.3 | 34.3 |
| 1981 | 23.4 | 22.6 | 12.1 | 0.5 | 6.0 | 35.5 |
| 1982 | 23.9 | 19.4 | 11.9 | 0.6 | 6.0 | 38.1 |
| 1983 | 24.0 | 19.0 | 11.1 | 0.7 | 6.2 | 38.9 |
| 1984 | 23.6 | 18.3 | 12.9 | 0.7 | 5.5 | 39.0 |
| 1985 | 23.6 | 16.2 | 13.6 | 0.8 | 5.3 | 40.5 |

Source: Central Bureau of Statistics, various issues.

Table 3: Contribution of external trade to GNP, 1960-1985
(selected years)
(percentage)

| Year | Share of Exports | Share of Imports | Share of Exports plus Imports | Share of Trade Balance | Share of Current Account Balance |
|---|---|---|---|---|---|
| 1960 | 13.4 | 12.7 | 26.1 | +2.7 | +0.3 |
| 1965 | 5.3 | 5.8 | 11.1 | - | -0.1 |
| 1970 | 13.0 | 16.1 | 29.1 | +0.7 | -5.4 |
| 1975 | 24.0 | 23.3 | 47.3 | +4.9 | -4.1 |
| 1976 | 24.2 | 23.5 | 47.7 | +5.0 | -2.7 |
| 1977 | 24.4 | 19.5 | 45.7 | +6.9 | -0.1 |
| 1978 | 22.6 | 20.1 | 42.7 | +5.0 | -2.7 |
| 1979 | 30.9 | 23.6 | 54.5 | +11.2 | +1.9 |
| 1980 | 34.5 | 21.1 | 55.6 | +12.2 | +4.0 |
| 1981 | 29.0 | 24.8 | 53.8 | +7.6 | -0.6 |
| 1982 | 25.7 | 25.3 | 51.0 | +2.1 | -5.9 |
| 1983 | 29.1 | 30.2 | 59.3 | +1.2 | -0.2 |
| 1984 | 28.3 | 24.3 | 52.6 | +7.0 | -2.3 |
| 1985 | 23.6 | 21.5 | 45.1 | +7.0 | -2.2 |

Source: Central Bureau of Statistics, various publications.
Bank Indonesia, Laporan Tahun Pembukuan, 1960-1965, Table 18.
Indonesian Financial Statistics, various issues.
World Bank, Indonesia: Strategy for Economic Recovery, Report No. 6694-IND, 5 May 1987, Statistical Annex Tables 11.1 and 11.4.

1A high dependence on foreign transport services to move these increased trade flows as well as rising factor payments resulting primarily from interest payments on Indonesia's external debt and the repatriation of profits by foreign investors have, however, caused Indonesia to register a consistent deficit on invisibles account. With the exception of 1974 and 1979-1980, when sharp oil price increases led to dramatic surges in the value of oil/gas exports, this deficit has regularly exceeded the surplus recorded on visible trade. Despite the oil bonanza of the 1970s, therefore, Indonesia has recorded deficits of varying magnitude on the current account of its balance of payments of most of the past two decades. This trend was further exacerbated in recent years in the wake of falling oil prices (see Annex Table A-2).

The need to cover these current account deficits and to obtain additional funds to finance its developmental objectives has, thus, caused the Indonesian government to seek considerable volumes of external financial assistance (see Table A-3), which are classified as "development revenues" in the state budget. Despite its reliance on external capital, however, the government has been extremely concerned to avoid overextending itself, and has sought to ensure that the bulk of this borrowing is obtained on soft terms. Much of it, thus, consists of concessional aid flows disbursed in the main through IGGI. The favourable mix of commercial and concessional loans in Indonesia's debt portfolio and its relatively long maturity structure, as well as the government's cautious approach towards foreign borrowing have done much to ensure that it has enjoyed a high level of international creditworthiness.

While Indonesia enjoys close economic ties with most OECD countires, its strongest links are with Japan, which for most of the recent past has been its most important trading partner and also its largest source of external capital in the form of both loans and direct investment. Thus, Japan provided the market for some 45 per cent (by value) of Indonesia's exports, and supplied almost 30 per cent of its imports in 1986. Similarly, Japan's share in the Indonesian government's total disbursed external debt of approximately $32.1 billion at the end of 1986 amounted to more than $11.8 billion, and while no firm data are available on the composition of Indonesia's private external debt, it is also widely believed to have a heavy Japanese component. In addition, Japanese investors accounted for almost a third ($5.3 billion) of the cumulative value of private foreign investment projects ($16.2 billion) outside the oil/gas and financial sectors approved by the Indonesian government by the end of 1986.

These close economic ties between Indonesia and Japan are likely to be knitted even tighter in the near future as Japan begins to recycle the immense capital surpluses it has accumulated. Japanese spokesmen have repeatedly stressed that a significant proportion of these capital flows will be targeted towards the ASEAN region, and even though this Japanese preponderance in Indonesia's external economic relations is viewed with some concern in Indonesia, the government is making determined efforts to attract as large a share of these funds as it can. In the current environment of extremely tight resource constraints, it has very few alternatives.

## 1.3 Overview of the manufacturing sector

Manufacturing industry is a comparatively recent phenomenon in Indonesia. Barring a small petroleum refining industry and some processing industries for local agricultural products such as sugar and rubber, which

were operated largely by foreign commercial interests, and a predominantly handicraft-based indigenously-owned manufacturing industry producing essential consumer goods, which included an embryonic textile industry, a manufacturing sector was virtually non-existent at the time of independence. Thus, the earliest available data indicate that it accounted for only 8.5 per cent of domestic output in 1953.[1/] Political uncertainty and economic dislocations leading inter alia to shortages of imported raw materials and spare parts combined to inhibit investment in the sector during the following decade and limited its average annual growth rate to approximately 2 per cent in real terms,[2/] so that even in the mid-1960s its share in domestic output was no higher than in 1953.

Indonesia's modern manufacturing industry, therefore, has its origins in the establishment of the "New Order", which facilitated its emergence both indirectly through a restoration of political and economic stability, and more directly through a conscious promotion of both public and private investment in manufacturing industries. This resulted in the rapid real growth of the manufacturing sector, especially in non-oil/gas industries. By 1985, its share in GDP had thus risen to 13.5 per cent.

The process of industrialization has, however, been characterized by an extremely inward-looking orientation. Highly protectionist policies initially encouraged the establishment of large numbers of import-substituting consumer goods industries by both domestic and foreign private investors whose access to a closely regulated captive market gave few incentives to optimise productive efficiency. This phase of "easy" import substitution, which for the most part involved local assembly of imported components, came to an end in the mid-1970s.

It was followed by a more intensive phase of import substitution involving a move into the more upstream reaches of manufacturing activity, as a number of "deletion programmes" were introduced aiming to reduce ("delete") the import content of domestically assembled manufactures and the government began to direct both public and private investment into the capital and intermediate goods sectors of manufacturing industry. This resulted in the establishment of a variety of large-scale enterprises in such capital- and technology-intensive fields as petrochemicals, steel and cement, which were heavily protected and often state-owned. It also gave rise to the establishment of a number of high-technology industries such as shipbuilding, telecommunications, and aeronautical engineering, in which Indonesia enjoyed an even more dubious comparative advantage. By 1980, this had resulted in a significant structural transformation of Indonesia's manufacturing sector, with the share of consumer goods (excluding consumer durables) in total

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1/ Booth & McCawley, "The Indonesian Economy Since the Mid-Sixties", Table 1.2, p.5, in Booth & McCawley (eds.), The Indonesian Economy During the Soeharto Era, Oxford University Press, Kuala Lumpur, 1981.

2/ Ibid., Table 1.1, p.4.

manufacturing value added falling from 80.8 per cent in 1971 to 47.6 per cent in 1980, while the share of intermediate goods rose from 13.1 to 35.5 per cent and the share of capital goods (including consumer durables) rose from 6.1 to 16.9 per cent during the same period.[1/]

While these industries were able to prosper, often at the expense of substantial government subsidies, in a domestic economy buoyed by high and rising oil/gas revenues, their lack of export competitiveness rendered them extremely fragile. This was proved in the post-1982 period, when the slump in oil prices prompted a weakening of aggregate demand in Indonesia and inflicted a particularly severe recession on the intermediate and capital goods industries (including consumer durables). However, the fertilizer, cement and metal products industries stood as few exceptions to the recessionary trends by recording substantial increases in output as newly completed major projects began to yield their industrial spin-off. In the wake of faltering domestic demand few consumer goods, such as motor vehicles, household appliances, electronic goods, etc., failed to find alternative outlets and were forced to operate below their installed capacities. Closure of a Mitsubishi vehicles assembly plant at Surabaya led to the loss of 500 jobs, while the closure of a microchip industry erased microchip production from the industrial scene of Indonesia.

The severity of recession was reinforced by the obligation of the downstream industries to procure their inputs from high-cost local suppliers, which greatly impeded their own capacity to tap alternative markets outside Indonesia. These developments are now causing a growing, though in some cases still reluctant, shift in Indonesia's industrial strategy towards a more efficient and competitive export-oriented manufacturing sector.

Supply-side influences, partly resulting from a series of liberalization measures to meet the input needs of industries, are expected to buoy the current recovery phase. As the new orientation towards external markets gathers momentum, the task of expanding the manufacturing base is to be delegated to the private sector and to foreign investors in the face of the current financial austerity. It appears imperative in a period of persisting decline in domestic demand that pragmatism in industrial strategy should lead to changes in industrial priorities to invigorate growth and to enhance the manufacturing sector's export potential.

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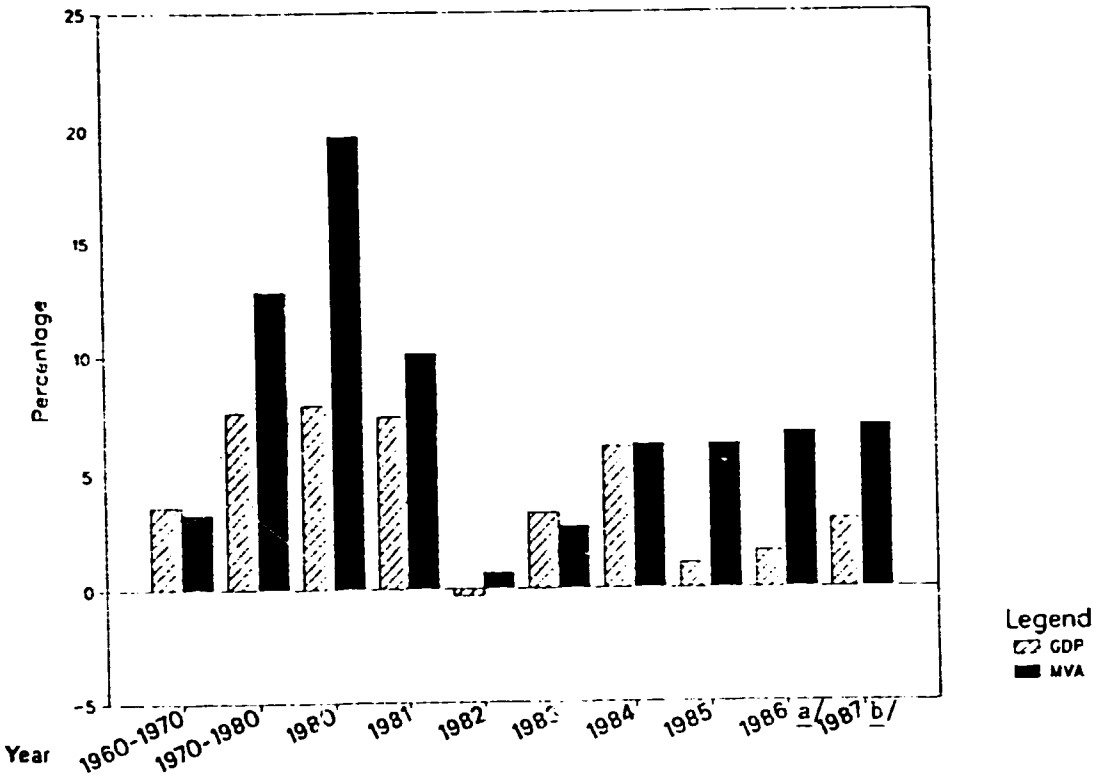
1/ Roepstorff, Torben M., "Industrial Development in Indonesia: Performance and Prospects", Bulletin of Indonesian Economic Studies, XXI, 1 April 1985.

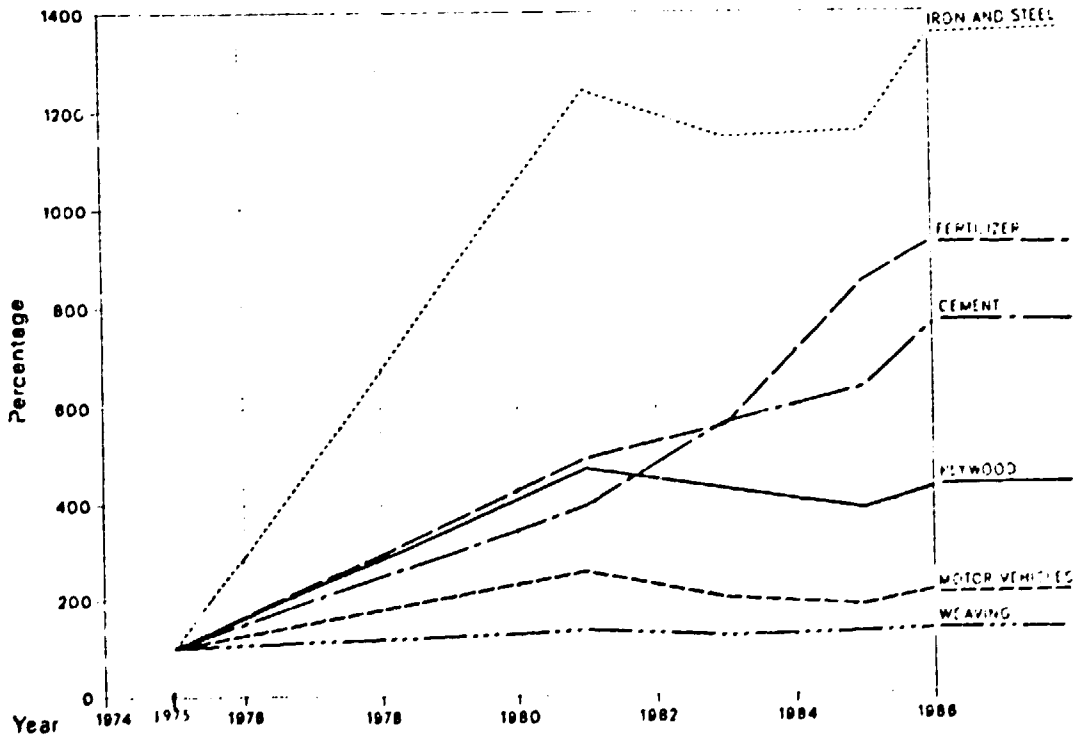
## REAL GROWTH RATES OF GDP AND MVA, 1960-1987
## (in constant 1980 prices)



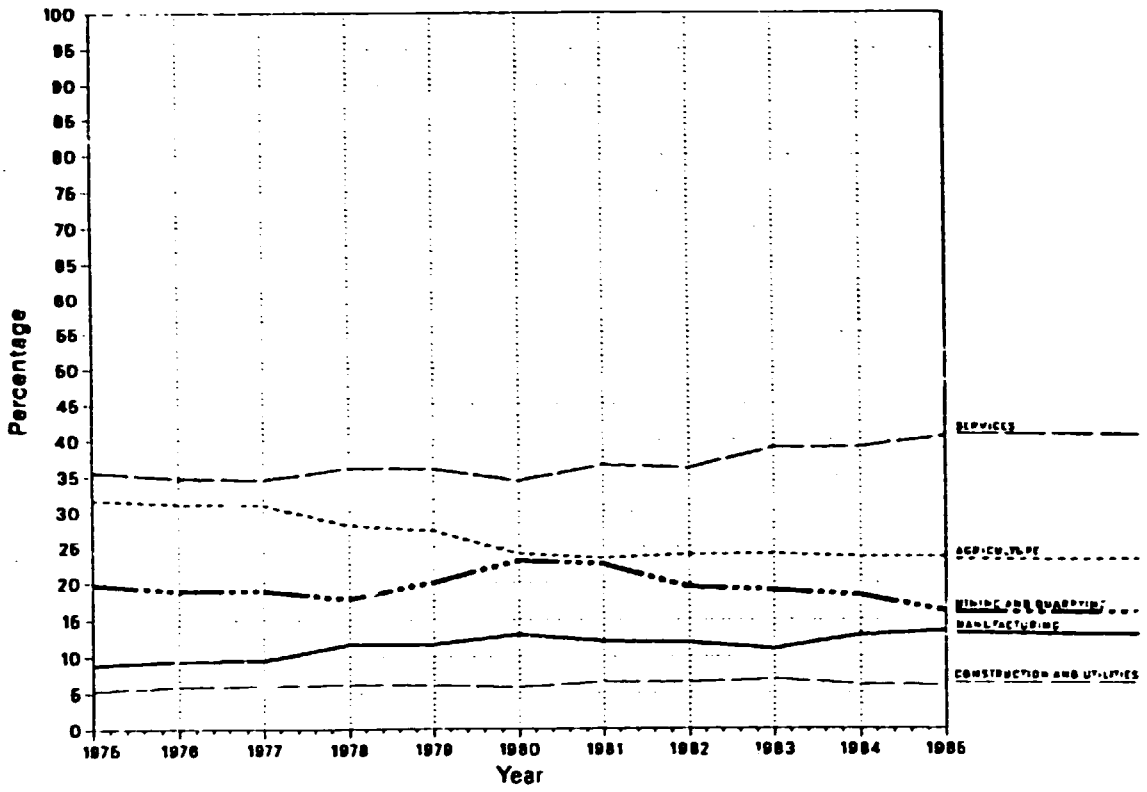

a/ GDP = estimate; MVA = estimate based on industrial production index.

b/ GDP = projection; MVA = estimate for first half of 1987 only.

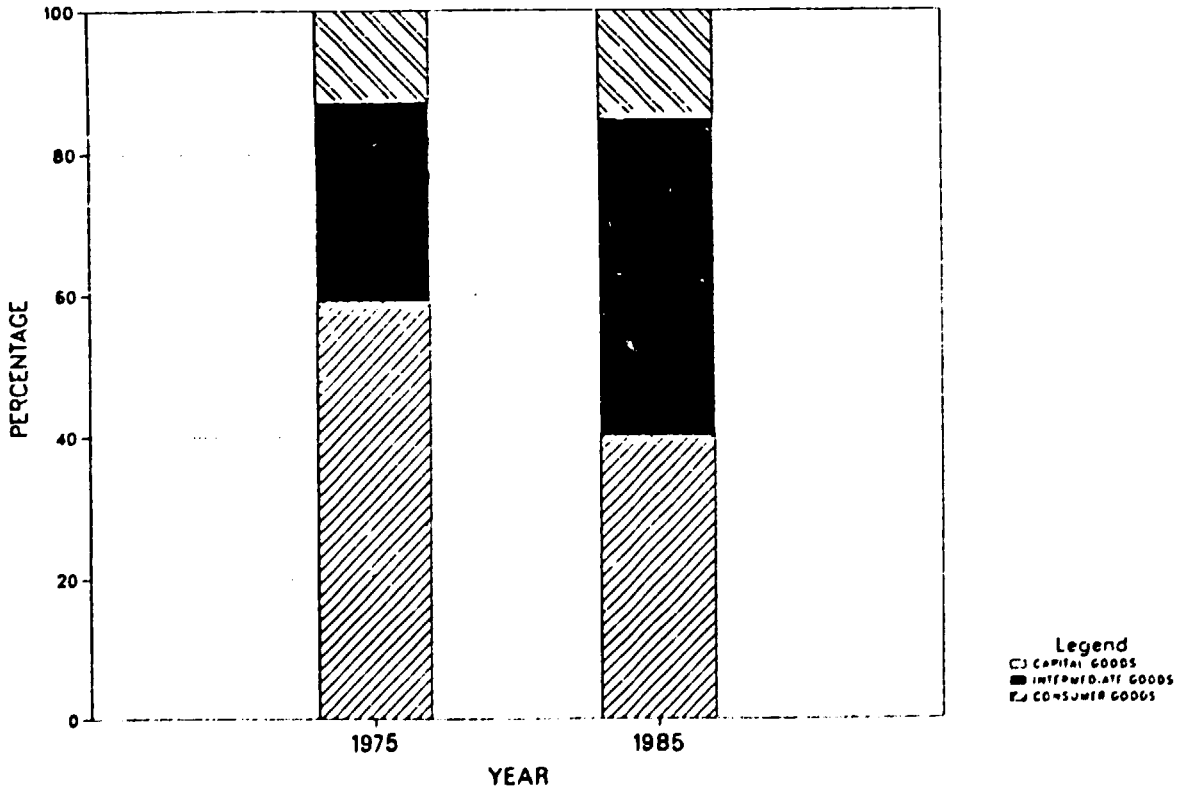
## INDEX OF INDUSTRIAL PRODUCTION,SELECTED PRODUCTS, 1975-1986
## (1975=100)



## DISTRIBUTION OF GDP BY SECTOR OF ORIGIN, 1975-1985
## (at current prices)

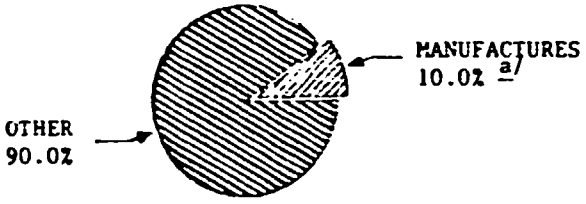



## COMPOSITION OF MANUFACTURING VALUE ADDED, 1975 AND 1985
## (PERCENTAGE)

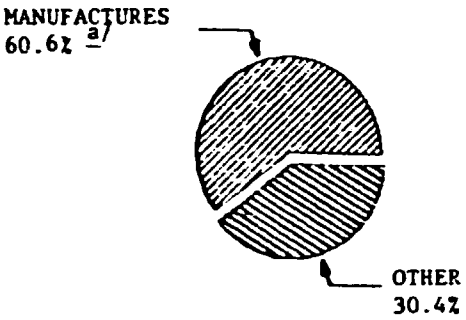


# EXPORTS AND IMPORTS

SHARE OF MANUFACTURES
IN TOTAL EXPORT (1984)

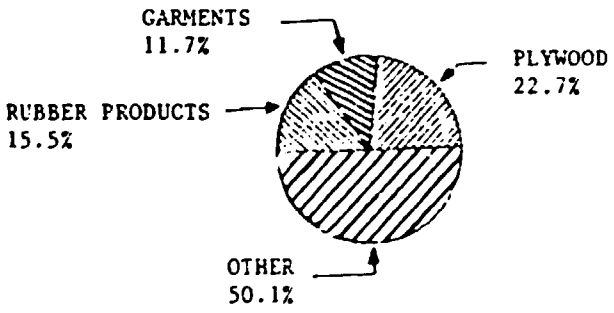



SHARE OF MANUFACTURES
IN TOTAL IMPORT (1984)

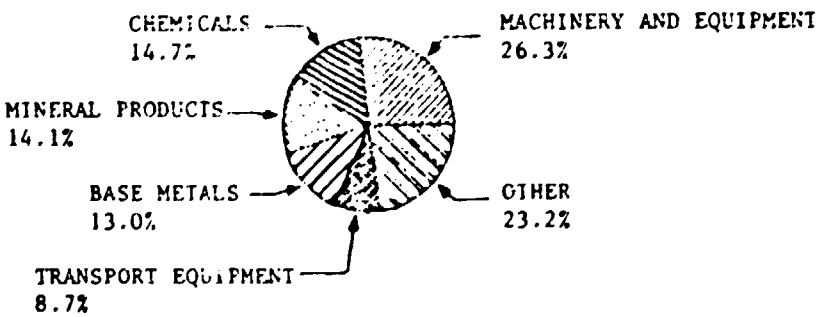



a/ Narrow definition SITC 5-8 less (67 + 68)

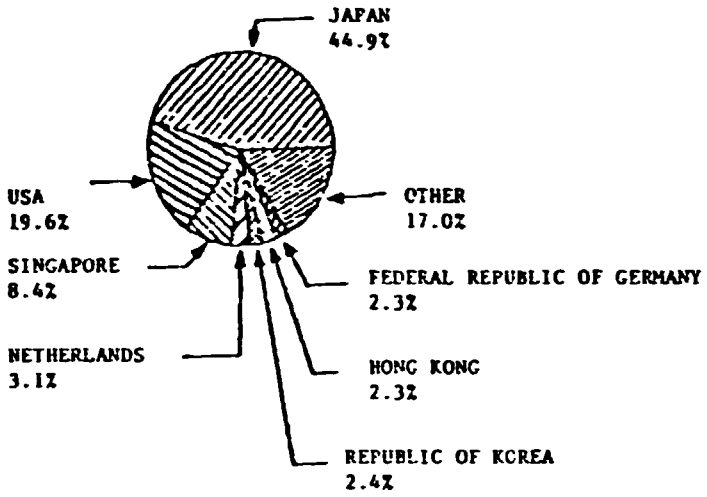
COMPOSITION OF MANUFACTURED
EXPORTS (1986)



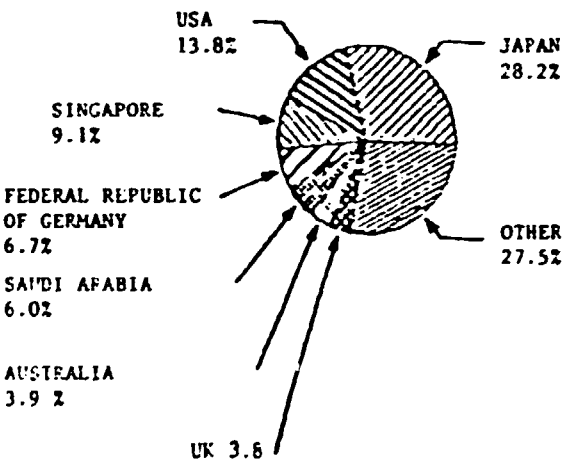

COMPOSITION OF TOTAL
IMPORTS (1985)



DESTINATION OF EXPORTS (1986)




ORIGIN OF IMPORTS (1986)



## 2. STRUCTURE AND PERFORMANCE OF THE MANUFACTURING SECTOR[1/]

### 2.1 Growth and structural change

The Indonesian manufacturing sector witnessed a decade of remarkably rapid growth and structural change in the 1970s. This was no doubt due to the liberalisation of industrial and trade policies introduced since 1966 and the favourable overall performance of the Indonesian economy, enhanced by the oil price increases of 1973 and 1979. Between 1965 and 1980 value added in the manufacturing sector (at constant 1980 prices) increased at an average annual rate of 12 per cent. As a result its contribution to GDP (measured at constant prices of 1973) increased from 8.8 per cent in 1971 to 15.3 per cent in 1980. Due to the terms of trade effects in favour of oil/gas the contribution of the manufacturing sector to GDP (measured in current prices) has increased less markedly, from 8.4 per cent in 1971 to 11.6 per cent in 1980.

The deteriorating economic situation in Indonesia in the first half of the 1980s, brought about by declining oil revenues, had an adverse impact on the development of the manufacturing sector, which bore the brunt of the recession. As shown in Table 4 the rate of growth of manufacturing value added slowed down to an average of 6.6 per cent per year from 1980 to 1985. As a consequence, the manufacturing sector's share in GDP increased from 11.6 per cent in 1980 to 13.5 per cent in 1985 (measured in current prices). Meanwhile, in constant prices the share declined from 15.3 per cent in 1980 to 12.6 per cent in 1985.

However, a significant part of the increase in the manufacturing share in GDP in the first half of the 1980s resulted from the rapid growth of the LNG sub-sector, which along with oil refining accounted for 77 per cent of MVA in 1985. Manufacturing, excluding oil- refining and LNG, accounted for just 22.9 per cent of MVA in 1985 despite a 10.9 per cent increase in MVA during 1980-1985.

The stagnation of economic growth during the first half of the 1980s substantially reduced the demand for many industrial products, while government measures to tackle the domestic recession, such as reductions in development outlays, delays in the implementation of new large projects, as well as restrictive monetary policies contributed to the decline in industrial growth. The import-substitution orientation of the manufacturing sector was also an important cause for the deteriorating performance of the manufacturing sector. While the import-substitution strategy contributed significantly to the growth of the manufacturing sector in the 1970s, it also resulted in the emergence of a number of high cost and inefficient industries which now face difficulties in adjusting to less favourable conditions. Moreover, the restrictive and regulatory environment within which the manufacturing sector operated proved a serious obstacle to the sustained expansion of the manufacturing sector.

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1/ Data pertaining to manufacturing trends contained in this Chapter refers to large and medium enterprises, unless otherwise specified.

Table 4: Growth of manufacturing in current and constant prices, 1971-1985
(selected years)
(Rp billions)

| | 1971 | | 1975 | | 1980 | | 1983 | | 1985 | | Current Growth Rates | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Value | Share | Value | Share | Value | Share | Value | Share | Value | Share | 1971-1980 | 1980-1985 |
| | | | | | | | | | | | (Percentage) | |
| CURRENT PRICES | | | | | | | | | | | | |
| Oil refining | 243 | 6.6 | 1,014 | 8.0 | 3,232 | 7.1 | 5,061 | 10.4 | 8,617 | 9.0 | | |
| L N G | 64 | 1.7 | 110 | 0.9 | 614 | 1.4 | 94 | 0.2 | 1,376 | 1.4 | | |
| Other manufacturing | ... | ... | ... | ... | 1,442 | 3.2 | 1,198 | 2.4 | 2,990 | 3.1 | | |
| Total manufacturing | 307 | 8.4 | 1,124 | 8.9 | 5,288 | 11.6 | 6,353 | 13,0 | 12,983 | 13.5 | | |
| CONSTANT PRICES | | | | | | | | | | | | |
| Oil refining | 490 | ... | 790 | 10.3 | 1,483 | 13.3 | 5,447 | 8.2 | 7,001 | 8.8 | 13.1 | 5.1 |
| L N G | ... | ... | 58 | 0.8 | 87 | 0.8 | 194 | 0.3 | 245 | 0.3 | ... | 4.3 |
| Other manufacturing | ... | ... | ... | ... | 136 | 1.2 | 1,672 | 2.5 | 2,803 | 4.1 | ... | 10.9 |
| Total manufacturing | 490 | 8.8 | 848 | 11.1 | 1,705 | 15.3 | 7,313 | 11.0 | 10,048 | 12.6 | | 6.6 |

Source: BPS, National Accounts Statistics, various issues.

a/ Old series of national accounts.
b/ New series of national accounts.
c/ Percentage share of GDP.
d/ The constant price data for the old series of national azcounts are in 1973 prices, while the new series of national accounts present constant price data in prices of 1983.

The major brunt of the recession in the early 1980s was felt by intermediate and capital goods industries. In real terms their combined growth rate fell to 2.6 per cent per year over the period 1981 to 1984. Absolute declines in production were experienced by such products as glass, radio, T.V. and communication equipment, motor vehicles, and motor cycles. However, the growth performance was not uniformly weak and some industries, such as clothing, leather, footwear, wood products, furniture and plastics many of which belong to the light export-oriented industries category, managed to achieve moderate growth rates. The heavy iron and steel industry also expanded substantially throughout the first half of the 1980s. This pattern of industrial development is broadly confirmed by information on physical output (Annex Table A-4) and by the production index of selected manufacturing goods as presented in Table 5, which also shows that industrial growth recovered to some extent in 1985 and 1986. In the latter year the fastest growth was recorded by the kretek, cement, iron and steel, metal goods, tyre, paper and batteries industries. The motor vehicle industry also staged a remarkable recovery. In 1986 overall industrial growth, as reflected by the production index, reached 6.7 per cent. On the basis of data for the first half of 1987 a growth rate of some 7 per cent is expected for the whole year which may suggest that the worst slump is over, though it is short of the target growth rate of 9.5 per cent set in the Fourth Five-Year Plan, REPELITA IV, (1984/85-1988/89).

Since the early 1970s the structure of Indonesia's manufacturing industry has broadened substantially, as can be observed on the basis of industrial survey data for medium- and large-scale industries (covering firms employing 20 or more workers) presented in Table 6. At the initial stage of industrial development the manufacturing sector was strongly dominated by consumer goods industries including mainly food, beverages and tobacco, and the textile industry. In 1975 consumer goods industries still accounted for 60 per cent of value added in medium- and large-scale industries. However, as industrial growth in Indonesia evinced the develoment of intermediate and capital goods industries, the share of consumer goods industries had declined to 40 per cent by 1985.[1/] Among the rapidly growing intermediate industries, fertilizers, cement and iron and steel benefited from heavy government investment, whereas foreign investment provided the major growth impetus for chemical industries. The wood products sector, particularly plywood, benefited substantially from the government ban on log exports. Among capital goods industries rapid expansion has taken place in electrical machinery and transport equipment. These industries greatly benefited from rapidly growing domestic demand and the erection of high tariff and non-tariff barriers against imports and regulations regarding the domestic content of the products produced in these sectors.

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1/ It should be observed that the industrial survey data for 1985 are not strictly comparable with the data for earlier years. In 1985 the industrial survey was conducted within the framework of the economic census which involved a complete updating and revision of the directory of establishments, a reclassification of industries according to size category and a wider coverage of estate processing activities. As a consequence, the number of firms covered by the survey increased to over 12,000 as compared to about 8,00 firms in previous years with commensurate increases in employment and value added.

Table 5: Index of industrial production, 1981-1986 (selected years)
(1975=100)

| Industry | 1981 | 1983 | 1985 | 1986 |
|---|---|---|---|---|
| Milk products and butter | 235 | 261 | 207 | 197 |
| Malt beverages | 147 | 143 | 119 | 125 |
| Kretek cigarettes | 179 | 196 | 246 | 266 |
| White cigarettes | 124 | 120 | 97 | 86 |
| Spinning | 126 | 114 | 110 | 115 |
| Weaving | 138 | 121 | 127 | 132 |
| Batik | 99 | 106 | 99 | 101 |
| Knitting | 89 | 82 | 84 | 90 |
| Footwear | 123 | 153 | 173 | 174 |
| Plywood | 470 | 428 | 387 | 429 |
| Paper | 152 | 129 | 182 | 206 |
| Basic chemicals | 127 | 132 | 149 | 155 |
| Fertilizer | 492 | 560 | 850 | 930 |
| Paint | 159 | 147 | 189 | 198 |
| Matches | 189 | 291 | 388 | 395 |
| Tyres and tubes | 301 | 300 | 311 | 329 |
| Glass and glass products | 257 | 227 | 249 | 245 |
| Cement | 395 | 566 | 636 | 764 |
| Iron and steel | 1,248 | 1,147 | 1,158 | 1,359 |
| Metal products | 188 | 203 | 214 | 218 |
| Dry cell batteries | 231 | 328 | 343 | 358 |
| Radio, T.V., communications, etc. | 348 | 351 | 243 | 217 |
| Motor vehicles | 255 | 198 | 183 | 211 |
| Motor cycles | 161 | 130 | 100 | 128 |
| General index | 213 | 226 | 258 | 275 |

Source: BPS, Indikator Ekonomi, various issues.

Divergent rates of growth among branches of manufacturing brought substantial changes in the composition of manufacturing value added. Many of the fast growing industries, such as oil refineries and LNG plants, were relatively capital intensive. One feature of structural change in Indonesian manufacturing - marked by a sharp decline in the relative importance of food processing and textiles in favour of chemical, wood and metal working industries - was a substantial shift from single-use consumer goods towards consumer durables, capital goods and intermediate products.[1/] As a result, an extreme form of heterogenity of manufacturing industry in Indonesia emerged, leading to a dualistic structure, which requires an examination of inter-industry linkages.

## 2.2 Inter-industry linkages

An analysis of inter-industry linkages based on an 87 sector aggregation of the 1980 Input-Output Table reveals that food industries and a number of non-agro resource-based industries have the highest domestic backward linkages in terms of generating output per unit of final demand (see Annex Table A.5). The lowest backward linkages can be found among capital goods industries. Not surprisingly, the industries with the highest forward linkages are mainly intermediate industries such as chemicals, paper and building materials. It is clear that backward linkages will be strengthened through import substitution in industries with high forward linkages as has been a major component of the industrialisation strategy adopted in Indonesia.

The largest intermediate transactions within the economy take place in the manufacturing sector, both in terms of supply and inputs (Annex Table A-6). The manufacturing sector itself is the largest user of the supply of manufactured intermediates utilising about 48 per cent. The next largest user of manufacturing intermediates is the construction sector, absorbing 24 per cent of the supply of intermediate manufactures. With regard to the input structure of the manufacturing sector it can be observed that 42 per cent of total inputs into the manufacturing sector consist of manufactures. Agricultural products are also major inputs tp the manufacturing sector, accounting for 39 per cent of its intermediate inputs. Other important inputs into the manufacturing sector come from the commerce and transportation sectors. In general, it can be concluded that the manufacturing sector generates growth impulses to a wider range of sectors through its inputs (backward linkages) than through its supply structure (forward linkages).

The Input-Output Table also shows that the manufacturing sector is the most important supplier of consumer goods accounting for 34 per cent of domestic private consumption. The manufacturing sector accounts for 7 per cent of public expenditure and for 30 per cent of capital formation. Moreover, the share of value added in manufacturing output amounts to 32.2 per cent, composed of wages and salaries 8.9 per cent, operating surplus 19.7 per cent, depreciation 3.6 per cent, indirect taxes 2.9 per cent and subsidies -2.8 per cent.

In Indonesia this type of interindustry analysis has gained considerable importance as a tool for industrial planning. It should be emphazised though that while inter-industry analysis can assist policy-makers in selecting priority industries, the promotion of industries with high inter-industry linkages could be based on an analytical appraisal of overall economic costs and benefits.

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1/ UNIDO, Prospects for Industrial Development and for a Capital Goods Industry in Indonesia, Vol.I, II, III, 1984, IS.479 and Add.1 and 2.

Table 6: Compostion of MVA, 1975-1985 (selected years)
(values in Rp million)

| ISIC | Sector | 1975 Value | 1975 Share (Percentage) | 1981 Value | 1981 Share (Percentage) | 1984 Value | 1984 Share (Percentage) | 1985 Value | 1985 Share (Percentage) |
|---|---|---|---|---|---|---|---|---|---|
| 311/2 | Food | 119,991 | 25.1 | 341,505 | 12.9 | 477,705 | 10.8 | 966,080 | 13.9 |
| 313 | Beverages | 11,812 | 2.5 | 38,983 | 1.5 | 79,486 | 1.8 | 84,780 | 1.2 |
| 314 | Tobacco | 65,731 | 13.7 | 473,518 | 17.8 | 712,036 | 16.1 | 823,167 | 11.8 |
| 321 | Textiles | 71,742 | 15.0 | 287,786 | 10.8 | 566,132 | 12.8 | 762,513 | 10.9 |
| 322 | Clothing | 884 | 0.2 | 15,553 | 0.6 | 70,833 | 1.6 | 117,372 | 1.7 |
| 323 | Leather | 1,404 | 0.3 | 4,072 | 0.2 | 17,171 | 0.4 | 14,871 | 0.2 |
| 324 | Footwear | 12,036 | 2.5 | 9,892 | 0.4 | 24,266 | 0.6 | 33,929 | 0.5 |
| | Consumer goods | 283,600 | 59.2 | 1,171,309 | 44.1 | 1,947,629 | 44.2 | 2,802,712 | 40.2 |
| 331 | Wood products | 16,615 | 3.5 | 201,049 | 7.6 | 313,404 | 7.1 | 680,027 | 9.8 |
| 333 | Furniture | 1,696 | 0.4 | 3,874 | 0.1 | 7,424 | 0.2 | 20,025 | 0.3 |
| 341 | Paper | 8,030 | 1.7 | 19,901 | 0.7 | 40,082 | 0.9 | 122,471 | 1.8 |
| 342 | Printing | 9,189 | 1.9 | 26,126 | 1.0 | 59,089 | 1.3 | 102,295 | 1.5 |
| 351 | Industrial chemicals | 33,119 | 6.9 | 189,433 | 7.1 | 249,015 | 5.6 | 474,865 | 6.8 |
| 352 | Other chemicals | 24,711 | 5.2 | 168,288 | 6.3 | 274,933 | 6.2 | 430,767 | 6.2 |
| 355 | Rubber | 8,602 | 1.8 | 36,398 | 1.4 | 66,706 | 1.5 | 131,378 | 1.9 |
| 356 | Plastics | 5,305 | 1.1 | 18,375 | 0.7 | 67,158 | 1.5 | 194,371 | 2.8 |
| 361 | Ceramics | 927 | 0.2 | 6,766 | 0.3 | 13,823 | 0.3 | 26,655 | 0.4 |
| 362 | Glass | 3,013 | 0.6 | 43,389 | 1.6 | 48,300 | 1.1 | 103,956 | 1.6 |
| 363 | Cement | 20,145 | 4.2 | 145,756 | 5.5 | 164,755 | 3.7 | 254,292 | 3.6 |
| 364/9 | Other building material | 1,642 | 0.3 | 5,762 | 0.2 | 11,998 | 0.3 | 37,187 | 0.5 |
| 371 | Iron and steel | 1,097 | 0.2 | 79,488 | 3.0 | 493,306 | 11.2 | 520,720 | 7.5 |
| 381 | Metal products | 16,899 | 3.5 | 85,702 | 3.2 | 174,503 | 4.0 | 308,625 | 4.4 |
| 382 | Machinery | 8,034 | 1.7 | 42,858 | 1.6 | 60,800 | 1.4 | 84,036 | 1.2 |
| 383 | Electrical machinery | 14,713 | 3.1 | 125,943 | 4.7 | 150,037 | 3.4 | 272,503 | 3.9 |
| 384 | Transport equipment | 20,274 | 4.2 | 277,823 | 10.5 | 248,336 | 5.6 | 367,812 | 5.3 |
| 385/90 | Other manufactures | 1,268 | 0.3 | 8,803 | 0.3 | 18,053 | 0.4 | 30,931 | 0.4 |
| | Intermediate and capital goods | 195,279 | 40.8 | 1,485,734 | 55.9 | 2,461,722 | 55.8 | 4,167,916 | 59.8 |
| | Total | 478,879 | 100,0 | 2,657,043 | 100.0 | 4,409,351 | 100.0 | 6,970,628 | 100.0 |

Source: BPS, Statistik Industri, 1975, 1981, 1984 and 1985.

A summary assessment of the contribution of different sources of growth to the expansion of output of the Indonesian manufacturing sector in the course of the 1970s, taking into account interindustry linkages, is presented in Annex Table A-6. It shows that, whereas growth in domestic final demand had the largest impact on output growth, import substitution also contributed significantly to the growth in the manufacturing sector. During the first half of the 1970s import substitution was the most important source of final demand (consumer) goods, whereas in the second half of the 1970s import substitution became a major source of growth for intermediate industries. In constant prices import substitution accounted for 19 per cent of the growth of the manufacturing sector in the period 1975 to 1980. For intermediate industries the contribution of import substitution accounted even for 40 per cent of the output growth. Export growth was limited and acounted only for 11 per cent of the output growth of the manufacturing sector during that period.

Direct and total sectoral employment effects are presented in Annex Table A-7 under the heading labour requirements. In the Table sectors are ranked according to size of the total employment effect. Because many industries, especially the resource-based activities, have strong linkages with the very labour-intensive agricultural sectors, almost all of them are characterized by a combination of very high total labour requirements and relatively low direct labour requirements. Among these activities are a number of food processing industries, such as rice and grain milling, coconut and other cooking oil processing, but also rubber and leather processing. By contrast, some high labour-intensive industries in terms of direct requirements have relatively small indirect effects on employment, such as structural clay products, wood and cork, ceramics, copra and furniture industries. Agro-processing industries move up substantially when ranked according to total employment effects. Hence, an industrialization strategy which gives priority to the promotion of natural resources (agro) processing industries, contributes most to the labour-intensive industrialization path.

## 2.3 Employment and productivity

So far, the contribution of the manufacturing sector to total employment creation has been moderate even in periods of rapid growth. Between 1970 and 1980 the number of persons working in the manufacturing sector expanded from 3.1 million (7.8 per cent of the total employed) to 4.7 million (9.1 per cent of the total employed). This increase represents an average annual growth rate of only 4.2 per cent. As a result of the relatively low rate of employment growth in manufacturing this sector could absorb just 14 per cent of the net increase in the total employed labour force between 1970 and 1980. In the period 1980 to 1985 about one million additional jobs were generated in the manufacturing sector, representing an annual growth rate of 3.9 per cent and accounting for 10 per cent of total employment creation in that period (see Annex Table A-8). Since the growth rate of total employment was slightly lower at 3.6 per cent per year during that period, the share of the manufacturing sector in total employment increased slightly from 9.1 per cent in 1980 to 9.3 per cent in 1985.

A comparison of the growth rates of employment and of GDP permits the derivation of employment elasticities which also reflect the extent of productivity changes. Annex Table A-8 shows that for the period 1971 to 1980 the employment elasticity for the manufacturing sector, as a whole, amounted to 0.30, which reflects substantial increases in productiviy during that period. Such a low elasticity also points to a highly capital-intensive

growth pattern. However, for the following years, from 1980 to 1985, the employment elasticity for the manufacturing sector is substantially higher at 0.64 which would suggest a much more labour-intensive growth pattern and relatively limited increases in labour productivity. In fact, this increase in the employment elasticity largely reflects the fact that even though production growth has declined labour absorption continues to grow at a virtually unchanged pace. In such a low growth situation a larger number of labour force entrants are forced to accept low productive jobs.

An important characteristic of the employment situation in the manufacturing sector is that a considerable proportion of the workers are female. As can be seen from Annex Table A-9, the share of female workers in total manufacturing employment amounts to about 45 per cent. This Table also shows that 66 per cent of the workers in the manufacturing sector can be found in rural areas and that, whereas wage earners have become the largest group of workers, self-employed and unpaid-family workers still account for a considerable proportion of the manufacturing workers. The latter groups of workers mainly work in very small informal type of enterprises.

An examination of the pattern of employment growth reveals that employment growth is significant in intermediate and capital goods industries, increasing their share of manufacturing employment considerably from 30.5 per cent in 1975 to 46.5 per cent in 1985 (Table 7).

Comparison of the growth rates in employment and real value added of consumer, intermediate and capital goods industries, as presented in Table 8, reveals that during the high growth period 1975 to 1981 productivity increases have been substantial in all groups of industry. In the low growth period 1981 to 1984 productivity in intermediate and capital goods industries declined. On the other hand, consumer goods industries continued to experience substantial increases in labour productivity.

The combination of low employment growth and substantial gains in productivity, which have occurred in consumer goods industries during the past decade or so, can probably be explained by the rapid introduction of new technologies and relatively low rates of ouput growth. In the early stage of industrial development these industries generally applied traditional technologies which were increasingly replaced by modern techniques of production generating more output per person employed. However, already in the second half of the 1970s, the demand for consumer goods was adversely affected by low income elasticities of demand and by the exhaustion of import-substitution possibilities. As a consequence, high rates of output growth could not be sustained in these industries. Intermediate and capital goods industries experienced a buoyant demand during the second half of the 1970s, stimulated by rapid import replacement. As these industries are highly capital-intensive high rates of ouput growth were accompanied by high rates of labour productivity growth. In the period after 1981, depressed demand reduced output growth rates in many intermediate and capital goods industries, while at the same time substantial investment programmes reached completion, which caused a continued growth in labour requirements and a decline in labour productivity.

Table 7: Growth and structure of manufacturing employment by subsectors, 1975-1985 (selected years)

| ISIC | Sector | 1975 | | 1981 | | 1984 | | 1985 | |
|---|---|---|---|---|---|---|---|---|---|
| | | Number | Per cent | Number | Per cent | Number | Per cent | Number | Per cent |
| 311/2 | Food | 145,146 | 19.0 | 155,815 | 15.7 | 165,637 | 14.1 | 303,393 | 18.0 |
| 313 | Beverages | 6,356 | 0.8 | 7,366 | 0.7 | 8,607 | 0.7 | 11,439 | 0.7 |
| 314 | Tobacco | 133,453 | 17.5 | 157,662 | 15.9 | 167,768 | 14.3 | 205,059 | 12.2 |
| 321 | Textiles | 231,980 | 30.4 | 234,799 | 23.7 | 240,393 | 20.4 | 298,652 | 17.7 |
| 322 | Clothing | 4,125 | 0.5 | 20,181 | 2.0 | 35,874 | 3.0 | 69,692 | 4.1 |
| 323 | Leather | 2,874 | 0.4 | 2,817 | 0.3 | 3,189 | 0.3 | 4,355 | 0.3 |
| 324 | Footwear | 5,871 | 0.8 | 7,524 | 0.8 | 6,818 | 0.6 | 8,910 | 0.5 |
| | Consumer goods | 529,805 | 69.5 | 586,164 | 59.2 | 628,286 | 53.4 | 901,500 | 53.5 |
| 331 | Wood products | 33,615 | 4.4 | 65,881 | 6.7 | 166,273 | 14.1 | 169,253 | 10.0 |
| 332 | Furniture | 4,923 | 0.6 | 5,325 | 0.5 | 5,651 | 0.5 | 12,630 | 0.7 |
| 341 | Paper | 8,099 | 1.1 | 13,236 | 1.3 | 13,755 | 1.2 | 21,582 | 1.3 |
| 342 | Printing | 17,942 | 2.4 | 21,213 | 2.1 | 21,899 | 1.9 | 35,098 | 2.1 |
| 351 | Industrial chemicals | 9,217 | 1.2 | 16,590 | 1.7 | 23,070 | 2.0 | 36,932 | 2.2 |
| 352 | Other chemicals | 29,267 | 3.8 | 45,654 | 4.6 | 52,698 | 4.5 | 68,130 | 4.0 |
| 355 | Rubber | 9,395 | 1.2 | 16,504 | 1.7 | 18,877 | 1.6 | 94,175 | 5.6 |
| 356 | Plastics | 14,547 | 1.9 | 20,487 | 2.1 | 31,072 | 2.6 | 49,394 | 2.9 |
| 361 | Ceramics | 2,053 | 0.3 | 7,388 | 0.7 | 10,341 | 0.9 | 12,334 | 0.7 |
| 362 | Glass | 6,534 | 0.9 | 9,498 | 1.0 | 9,769 | 0.8 | 10,530 | 0.6 |
| 363 | Cement | 14,472 | 1.9 | 21,941 | 2.2 | 23,588 | 2.0 | 34,682 | 2.1 |
| 364/9 | Other building materials | 10,411 | 1.4 | 11,475 | 1.2 | 11,963 | 1.0 | 31,449 | 1.9 |
| 371 | Iron and steel | 2,993 | 0.4 | 9,483 | 1.0 | 13,973 | 1.2 | 15,647 | 0.9 |
| 381 | Metal products | 22,434 | 2.9 | 44,037 | 4.4 | 43,083 | 3.7 | 59,141 | 3.5 |
| 382 | Machinery | 8,833 | 1.2 | 12,658 | 1.3 | 12,787 | 1.1 | 16,604 | 1.0 |
| 383 | Electrical machinery | 10,463 | 1.4 | 38,778 | 3.9 | 36,633 | 3.1 | 43,556 | 2.6 |
| 384 | Transport equipment | 22,254 | 2.9 | 35,949 | 3.6 | 42,890 | 3.6 | 57,646 | 3.4 |
| 385/90 | Other manufactures | 5,052 | 0.7 | 7,598 | 0.8 | 10,060 | 0.9 | 14,173 | 0.8 |
| | Intermediate and capital goods | 232,394 | 30.5 | 403,695 | 40.8 | 548,382 | 46.6 | 782,956 | 46.5 |
| | Total | 762,199 | 100.0 | 989,859 | 100.0 | 1,176,668 | 100.0 | 1,684,456 | 100.0 |

Source: BPS, Statistik Industri, 1975, 1981, 1984 and 1985.

Table 8: Value added, employment and productivity changes in manufacturing by end-use, 1975-1984.
(based on constant prices)

| | 1975 | 1981 | 1984 | Annual rate of growth (percentage) 1975-1981 | 1981-1984 |
|---|---|---|---|---|---|
| VALUE ADDED (Rp billion) | | | | | |
| Consumer goods | 283.7 | 515.0 | 675.7 | 10.4 | 9.5 |
| Intermediates | 134.1 | 503.0 | 579.9 | 24.6 | 4.6 |
| Capital goods | 59.9 | 276.1 | 261.8 | 29.1 | -1.8 |
| Total | 477.7 | 1,294.1 | 1,517.4 | 18.1 | 5.4 |
| EMPLOYMENT (1000) | | | | | |
| Consumer goods | 550.1 | 593.8 | 638.4 | 1.3 | 2.4 |
| Intermediates | 148.1 | 280.0 | 410.0 | 11.2 | 13.6 |
| Capital goods | 64.0 | 131.4 | 135.4 | 12.7 | 1.1 |
| Total | 762.2 | 1,002.3 | 1,183.8 | 4.6 | 5.7 |
| LABOUR PRODUCTIVITY (Rp 1000) | | | | | |
| Consumer goods | 515.7 | 867.3 | 1,058.4 | 9.1 | 6.9 |
| Intermediates | 905.5 | 1,796.4 | 1,414.4 | 12.1 | -6.6 |
| Capital goods | 935.9 | 2,101.2 | 1,933.5 | 14.4 | -2.6 |
| Total | 626.7 | 1,291.1 | 1,281.8 | 12.8 | -0.2 |

Source: Calculated from BPS, Statistik Industri, 1975, 1981 and 1984.

Note: The steel industry is excluded from the group of intermediates. Value added is at factor cost and in constant prices.

In spite of the stagnation of labour productivity during the first half of the 1980s, real wages appear to have increased considerably. Average nominal wages per worker in medium- and large-scale manufacturing enterprises doubled in the period 1980 to 1984 (Annex Table A-10). In real terms there still remains an increase of 35 per cent. This Table also reveals that there are substantial differences in average wages between sectors reflecting differences in productivity and skills.

The capital-intensity of various sectors may be assessed on the basis of data pertaining to value added per worker. Information on value added per worker (Table 9) shows that the iron and steel industry is by far the most capital-intensive industry. Another highly capital-intensive industry is the basic chemicals (fertilizers) industry, followed by glass, beverages, cement and transport equipment (1985). Industries which are relatively labour-intensive include rubber, building materials, ceramics, furniture, clothing, "other manufacturing", printing and textiles.

Another assessment of the labour-intensity of groups of industries is presented in Annex Table A-11. The data on labour requirements per unit of output presented in this Table include direct as well as indirect employment effects. It can be observed that import-substitution industries are much less labour-intensive than export industries. Moreover, non-durable consumer goods and resource-based industries tend to be more labour-intensive than the other groups of industries.

Analysis of the results of a special survey on capacity utilisation conducted in 1980 shows that the levels of capacity utilisation appeared to be in line with levels observed in other developing countries. As a consequence of capacity expansion and the stagnation in demand many industries have experienced a considerable increase in overcapacity in recent years. Nevertheless, in several sectors substantial increases in the capacity utilisation levels appeared to be feasible. This is particularly the case for other chemical products, iron and steel, non-electrical machinery and transport equipment. The increase in over-capacity in recent years has particularly affected the motor vehicle industry, the cement industry and some electrical machinery sectors.

## 2.4 Trade in manufactures

As mentioned earlier, industrial development in Indonesia during the 1970s was, to a large extent, based on import-substitution, but in recent years exports of manufactures are increasingly emphasised to compensate for reduced oil export revenues. Despite the rapid growth of manufactured exports their contribution to total exports remains modest. According to a narrow definition of manufactured export (SITC 5-8 less 67 and 68) the share of manufactures in total exports represented only 10 per cent in 1984. Major manufactured exports include a number of resource-based goods such as rubber and plywood, as well as a range of labour-intensive products including textiles, clothing and some electrical products, as is illustrated in Table 10. The Table reveals that exports of a number of heavy industry products such as fertilizers and cement have expanded in recent years. Manufactured exports in dollar terms have increased at an average rate of 11 per cent in the period 1981 to 1986, increasing their share in total exports from 10.3 to 29.8 per cent over the same period (broad difinition). The most important

Table 9: Value added per worker in subsectors of manufacturing, 1975-1985 (selected years)
(Rp '000)

| ISIC | Industry | 1975 | | 1981 | | 1984 | | 1985 | |
|---|---|---|---|---|---|---|---|---|---|
| | | Ratio | Index | Ratio | Index | Ratio | Index | Ratio | Index |
| 311/2 | Food | 827 | 132 | 2,192 | 82 | 2,884 | 77 | 3,184 | 77 |
| 313 | Beverages | 1,858 | 296 | 5,292 | 197 | 9,235 | 246 | 7,411 | 179 |
| 314 | Tobacco | 493 | 78 | 3,003 | 112 | 4,244 | 113 | 4,014 | 97 |
| 321 | Textiles | 309 | 49 | 1,226 | 46 | 2,355 | 63 | 2,553 | 62 |
| 322 | Clothing | 214 | 34 | 771 | 29 | 1,974 | 53 | 1,684 | 41 |
| 323 | Leather | 489 | 78 | 1,446 | 54 | 5,384 | 144 | 3,415 | 83 |
| 324 | Footwear | 2,050 | 326 | 1,315 | 49 | 3,559 | 95 | 3,808 | 92 |
| | Consumer goods | 535 | 85 | 1,998 | 74 | 3,100 | 83 | 3,109 | 75 |
| 331 | Wood products | 494 | 79 | 3,052 | 114 | 1,885 | 50 | 4,018 | 97 |
| 332 | Furniture | 345 | 55 | 728 | 27 | 1,314 | 35 | 1,586 | 38 |
| 341 | Paper | 991 | 158 | 1,504 | 56 | 2,914 | 78 | 5,675 | 137 |
| 342 | Printing | 512 | 82 | 1,232 | 46 | 2,698 | 72 | 2,915 | 70 |
| 351 | Industrial chemicals | 3,593 | 572 | 11,419 | 425 | 10,794 | 288 | 12,858 | 311 |
| 352 | Other chemicals | 844 | 134 | 3,686 | 137 | 5,217 | 139 | 6,323 | 153 |
| 355 | Rubber | 916 | 146 | 2,205 | 82 | 3,534 | 94 | 1,395 | 34 |
| 356 | Plastics | 365 | 58 | 897 | 33 | 2,161 | 58 | 3,935 | 95 |
| 361 | Ceramics | 452 | 72 | 916 | 34 | 1,337 | 36 | 2,161 | 52 |
| 362 | Glass | 461 | 73 | 4,568 | 170 | 4,944 | 132 | 10,347 | 250 |
| 363 | Cement | 1,392 | 222 | 6,643 | 247 | 6,985 | 186 | 7,332 | 177 |
| 364/9 | Other building materials | 158 | 25 | 502 | 19 | 1,003 | 27 | 1,182 | 29 |
| 371 | Iron and steel | 381 | 61 | 8,382 | 312 | 35,304 | 942 | 33,279 | 804 |
| 381 | Metal products | 753 | 120 | 1,946 | 73 | 4,050 | 108 | 5,218 | 126 |
| 382 | Machinery | 910 | 145 | 3,386 | 126 | 4,755 | 127 | 5,061 | 122 |
| 383 | Electrical machinery | 1,406 | 224 | 3,248 | 121 | 4,096 | 109 | 6,256 | 151 |
| 384 | Transport equipment | 911 | 145 | 7,728 | 288 | 5,790 | 155 | 6,381 | 154 |
| 385/90 | Other manufactures | 251 | 40 | 1,159 | 43 | 1,795 | 48 | 2,182 | 53 |
| | Intermediate and capital goods industries | 840 | 134 | 3,680 | 137 | 4,489 | 120 | 5,323 | 129 |

Source: Statistik Industri, 1975, 1981, 1984 and 1985.

markets for Indonesia's manufactured exports are developed countries, in particular the USA, Japan and the ECC, accounting for around 70 per cent of manufactured exports (see Annex Table A-12).

Manufactures are by far the largest item on the import bill of Indonesia, accounting for 80 per cent of total imports. As Annex Table A-14 shows, the most important groups of manufactured imports include the intermediate goods, mainly chemicals and oil products, and capital goods, chiefly metal products and machinery. Import substitution has contributed to a considerable decline in the share of consumer goods in manufactured imports from 12.6 per cent in 1975 to 5 per cent in 1983. From input-output data it can be determined that imports meet about 35 per cent of the demand for manufactured goods in Indonesia. The share of imports in domestic demand is highest for capital goods, 70 per cent, followed by intermediates, 42 per cent , whereas the share of imports in the domestic demand for consumer goods is only 10 per cent. Further data on the share of imports in the domestic demand for manufactures at three-digit ISIC industry level are presented in Annex Table A-15. Data on origin of imports are contained in Annex Table A-16.

An analysis of the export potential may be based on an assessment of Indonesia's comparative advantages. Some estimates of revealed comparative advantage are presented in Annex Table A-13. It shows that until recently Indonesia had positive revealed comparative advantage for a few manufactured products only, including mainly resource-based products and clothing. Potentially, however, Indonesia also has a comparative advantage in a wide range of relatively labour-intensive products, which has been strengthened by two successive devaluations in 1983 and 1986, of 28 per cent and 38 per cent respectively.

To make reliable projections of any country's future comparative advantage at a disaggregated level is hardly possible. But it may be helpful in assessing the likely trends in the pattern of Indonesia's future comparative advantage in manufacturing to draw on the experience of other developing countries. The first generation, after Japan, of the newly industrializing countries (NICs) of East Asia which achieved spectacular growth of exports of labour-intensive manufactures in the 1960s and early 1970s have, since around 1975, embarked on a transition from labour- to capital- and skill-intensive products. Their success in this strategy will be relevant to Indonesia because it will influence the extent to which markets for labour-intensive products will be vacated. But in seeking export markets for such products, Indonesia may encounter formidable competition from a new generation of industrializing countries, such as the People's Republic of China and the countries of South Asia.

Another possible obstacle to Indonesia's export growth to developed countries is the increasing pressure for higher protection in these countries, including both tariff and non-tarif barriers. So far, Indonesia is being faced with import quotas for several of its textile products under the MFA (Multi-fibre agreement) in the markets of the USA, the EEC and Sweden, although currently these quota are not being filled by Indonesian exporters. Indonesia's exports of plywood are affected by high import tariffs in the Japanese, Korean and Australian markets.

Table 10: Growth and composition of manufactured exports, 1981-1986, (selected years)
($ million)

| Type of product | 1981 | | 1983 | | 1985 | | 1986 | | Average annual Rate of growth |
|---|---|---|---|---|---|---|---|---|---|
| | Amount | Per cent | Amount | Per cent | Amount | Per cent | Amount | Per cent | 1981-1985 |
| Plywood | 161.4 | 6.2 | 509.4 | 16.2 | 824.7 | 19.8 | 1002.4 | 22.7 | 44.1 |
| Sawn timber | 220.1 | 8.5 | 257.1 | 8.2 | 307.2 | 7.4 | 360.1 | 8.1 | 10.3 |
| Non-ferrous metal | 603.3 | 23.3 | 426.5 | 13.6 | 603.2 | 14.5 | 344.8 | 7.8 | -7.4 |
| Garments | 95.3 | 3.7 | 155.5 | 5.0 | 339.6 | 8.2 | 518.8 | 11.7 | 40.3 |
| Other textiles | 30.5 | 1.2 | 112.2 | 3.6 | 219.7 | 5.3 | 278.7 | 6.3 | 55.6 |
| Rubber products | 811.8 | 31.2 | 804.6 | 25.6 | 683.3 | 16.4 | 682.9 | 15.5 | 3.0 |
| Palm oil | 106.9 | 4.1 | 111.5 | 3.5 | 166.2 | 4.0 | 112.9 | 2.6 | 1.1 |
| Essential oils | 15.9 | 0.6 | 35.6 | 1.1 | 50.3 | 1.2 | 46.7 | 1.1 | 24.0 |
| Chemicals | 30.4 | 1.2 | 19.2 | 0.6 | 56.7 | 1.4 | 51.9 | 1.2 | 11.3 |
| Fertilizer | 4.3 | 0.2 | 46.8 | 1.5 | 80.0 | 1.9 | 127.3 | 2.9 | 97.0 |
| Cement | 19.2 | 0.7 | 7.2 | 0.2 | 21.5 | 0.5 | 39.8 | 0.9 | 15.7 |
| Electrical appliances | 86.1 | 3.3 | 144.7 | 4.6 | 144.0 | 3.5 | 97.7 | 2.2 | 2.6 |
| Other | 411 | 15.9 | 511.1 | 16.3 | 668.4 | 16.0 | 755.3 | 17.1 | 12.9 |
| Total manufactures | 2,598.0 | 100.0 | 3,141.4 | 100.0 | 4,164.8 | 100.0 | 4,419.3 | 100.0 | 11.2 |
| Share of manufactures in total exports | | 10.3 | | 14.9 | | 22.4 | | 29.8 | |

Source: BPS, Indikator Ekonomi, April 1987.

A country's trade performance is highly influenced by its trade regime. In Indonesia a highly interventionist trade regime has been developed which is composed of such measures as import tariffs, import quotas, import bans, import licences, domestic content regulations and also export taxes and export bans. These measures have resulted in the erection of high protective barriers favouring import-substitution industries. In the course of the early years of the 1980s, many non-tariff import barriers were introduced which resulted in further raising effective rates of protection. It is estimated that effective rates of protection of 425 per cent for plastics, 290 per cent for wood pulp, 175 per cent for tires, 45-160 per cent for paper, 65-500 per cent for textiles, 425 for glass, 70-145 per cent for electrical appliances and even 4,800 per cent for motor vehicles prevailed in 1984. However, in recent years several measures have been introduced to reduce quantitative import restrictions.

## 2.5 Size, regional distribution and the role of small-scale industries

The manufacturing sector in Indonesia is still characterised by a highly dualistic size structure with, on the one hand, relatively modern enterprises represented by the group of medium- and large-scale industries and on the other hand, a sprawling informal sector with several hundreds of thousands of tiny enterprises. The medium- and large-scale enterprises dominate in terms of ouput and value added. However, in terms of employment the small-scale sector is predominant.

The importance of the Indonesian manufacturing sector varies significantly between provinces in Indonesia. Java is by far the most industrialised region, accounting for 75 per cent of the manufacturing workers and 68 per cent of manufacturing value added in the medium- and large-scale sector. On the other hand, there are many provinces in which the manufacturing sector is still highly underdeveloped. Other indicators on overall manufacturing by province, presented in Annex Table A-19, include value added per capita and per person engaged which vary widely between provinces, and non-resource-based manufactured exports which originate mainly from Jakarta. With regard to medium- and large-scale industries, the dominant position of Java is even more pronounced, accounting for some 85 per cent of value added and employment.

The structure of the industrial sector also varies strongly between regions. In Jakarta modern type industries, such as machinery industries, printing and plastics dominate. In the other Javanese provinces food and textile industries are most important. Plywood and sawmilling rank among the largest industries in most "outer" islands, although rubber processing is most important on Sumatra. In general, the industrial sector in most "outer" islands is still dominated by a few resource-based industries.

The fostering of a more even regional distribution of manufacturing activities is a major policy objective of the Indonesian government. Clauses restricting the choice of location have, therefore, been included in the investment priority regulations implemented by BKPM, whereas infrastructural facilities are improved to increase the attractiveness of the less developed provinces for investors. Furthermore, efforts are made to reduce transport costs between regions. Macro-economic policies favouring industrial development in regions outside Java include, especially, the recent trade liberalisation measures, which have had the effect of increasing the international competitiviness of the resource-based export industries located in these regions. Table 11 presents details pertaining to leading industrial products and new investment opportunities in the major Provinces of Indonesia.

Small-scale and household industries account for some 25 per cent of manufacturing value added. During the 1970s rates of employment and value added growth have probably been around 4-5 per cent per year for these industries. By 1980 small-scale,[1/] and household and cottage industries,[2/] comprising 1.5 million enterprises, employed some 3.7 million and 2.9 million workers, respectively.

A significant proportion of workers in small industries are female. In household industries female workers account for about 65 per cent of the total workers. Employment in the small-scale sector is subject to considerable seasonal fluctuations. Much of the work is part-time, especially in rural areas where manufacturing activities often serve to supplement other sources of family income. Few of the enterprises engage hired workers. The large majority of the household industries are rural-based employing almost 90 per cent of the workers. Productivity is very low in small firms reflecting the limited use of capital equipment and the low level of skills of most workers. The low productivity of small-scale industry workers also reflects the marginal nature of much of the employment in this segment of the manufacturing sector, especially in rural areas where the small-scale manufacturing sector is often an employer of last resort.

Small-scale and household industries are engaged in a relatively narrow range of activities, primarily in food, textiles, wood products and building materials industries. These branches account for almost 80 per cent of value added and 84 per cent of employment in small-scale industries and for as much as 90 per cent of employment and value added in household industries (see Annex Tables A-17 and A-18). Available data do not permit an accurate picture of developments on a sub-sectoral level. In the late 1970s, however, tobacco, clothing, leather, footwear, wood products, furniture, building materials and transport equipment expanded rapidly. Small-scale industries are located throughout the country, though they are more prevalent in some provinces, e.g., Aceh, Central Java, Jogyakarta, Central Kalimantan, North and South-Sulawesi.

In general, the economic performance of small-scale enterprises reveals low productivity and incomes. Employment in such activities often has a seasonal or part-time character leading to underemploymemt. These types of enterprises face problems related to limited access to credit, marketing difficulties, poor quality of products, inefficient production techniques, primitive equipment and lack of managerial and vocational skills.

In view of the important role of small-scale enterprises in Indonesia in creating employment, their prevalance in rural areas and their regional dispersion, industrial development strategies have focussed on the promotion of such establishments. While in the past programmes have been implemented for small industries, the general industrial climate, however, favoured large-scale industrial development. In such an environment these programmes had little chance of success.

1/ Employing 5 to 19 workers.
2/ Employing less than 5 workers.

It is generally recognised that there are serious obstacles to the development of small-scale industries. Nevertheless, small-scale industries have considerable growth potential in a number of branches. They include products for which technology is still labour-intensive. Further industries which rely on proximity to markets can be organized on a small-scale basis, such as some food processing industries (bakeries, tahu, tempe). Moreover, small-scale industries which are dependent on specific skills or crafts, such as batik and simple metal working and engineering industries, have significant development potential.

The government strategy to overcome these constraints and to promote small-scale industries has been based on the following main elements:

1. provision of extension services, especially through the Ministry of Industry's BIPIK programme, providing technical assistance, marketing and design assistance and entrepreneurial training (This programme is especially focussed on centres of small-scale industries);

2. provision of concessional credit, in particular through the KIK/KMKP programme;

3. technological assistance through the activities of technological research institutes;

4. promotion of linkages between small and large firms, for example, through the Ministry of Industry's Foster-Parent programme (Bapak-Anak); and

5. reservation of certain manufacturing activities to small firms through industrial licencing arrangements.

Table 11: Leading industrial products and emerging industrial investments by Province, 1986

| Province | Population | Leading industrial products | Investment under promotion |
|---|---|---|---|
| The Special Territory of Jakarta Raya | 6,467,027 | Steel, motor vehicles, electrical, electronic and household appliances, chemicals, pharmaceuticals, furniture, food and beverages | Raw materials for pharmaceuticals, canned meat, fruits and vegetables, industrial electronics |
| The Province of West Java | 27,449,840 | Steel, aircraft, pharmaceuticals, textiles, building materials, ceramics, footwear, handicrafts, plastics, rubber goods, chemical, food and beverages, leather goods | Steel, machinery, chemicals, synthetic rubber, fibreglass, electronic component, cosmetics, raw materials for pharmaceuticals |
| The Province of Central Java | 27,200,213 | Oil refinery, iron casting, galvanice iron sheet, cement, ceramics, food processing, coconut oil, cigarettes, sheetglass, bamboo/ rattan, textiles, batik products, plywood, handicrafts | Canning, cosmetics, raw materials for pharmaceuticals |
| The Special Territory of Yogyakarta | 2,948,248 | Food processing, tanning workshops, textiles, batik, silver, other handicraft products | Integrated steel plant, prepared feeds for livestock |
| The Province of East Java | 31,260,000 | Steel, agricultural equipment, chemicals pharmaceuticals, plastics, textiles, building materials, food processing, cigarettes, toys, household appliances, salt, leather wear, metal | Cast and forge products, cashew nut oil, canned fish, food processing, toys, raw materials for pharmaceuticals |

Table II (cont.)

| Province | Population | Leading industrial products | Investment under promotion |
|---|---|---|---|
| The Special Territory of Aceh | 2,992,201 | Liquified natural gas, urea fertilizer, paper, cement, rubber, coconut oil, plywood, lumber | Chip board, food processing, canned fruits, prepared fish feeds |
| The Province of North Sumatena | 9,059,353 | Steel, aluminium machinery, construction materials, pesticides, crude palm oil, coconut oil, crumb rubber, food and beverages, timber, guitars | Alloy steel, silicon steel, aluminium products (excluding ingot), wire rod and entrusion, food processing, canned food and vegetables |
| The Province of Riar | 2,427,908 | Rubber, coconut oil, plywood, garments, ship building | Alumina, animal feed pellet, medical equipment, goods for health and pharmaceutical use, food processing, aluminum, building materials, ceramics |
| Batam Island | 62,000 | Oil and gas supporting industries, boiler, wellhead, pressure vessel, storage tank, pipe threading, Christmas trees, drilling mud | Medical equipment, electrical, electronic and household appliances, food processing, chemicals, pharmaceuticals |
| The Province of West Sumatera | 3,696,004 | Cement, textiles, plywood, coconut oil, crude palm oil, woven products | Pesticides, canned fruits and vegetables, prepared poultry feeds |
| The Province of Jambi | 1,481,593 | Plywood, crumb rubber, logging, coconut oil | Canned fruits and vegetables, pesticides |

Table 11 (cont.)

| Province | Population | Leading industrial products | Investment under promotion |
|---|---|---|---|
| The Province of Bengkulu | 953,278 | Food processing, beverages, handicrafts, construction materials | Crude palm oil, pesticides, food processing, chip wood, rattan processing |
| The Province of South Sumatera | 5,357,788 | Aromatic, urea fertilizer, crumb rubber, tires, textiles, sugar, handicrafts | Pesticide, dissolving pulp and rayon food processing |
| The Province of Lampung | 5,140,095 | Coffee, sawn timber, particle board, crumb rubber, coconut oil, sugar cane, molasses, tapiocea, clove oil, pellets, bicycle parts, graphic printings, miscellaneous foods | Canned foods and vegetables, bottled fruits and vegetables, sesame oil, single cell protein, chocolate powder, prepared animal feeds, pesticides |
| The Province of West Kalimantan | 2,738,846 | Coconut oil, crumb rubber tengkawang oil, glue, plywood | Food processing (including canned fruit and vegetables), pesticides |
| The Province of Central Kalimantan | 1,161,526 | Crumb rubber processing, sawn timber, plywood, coconut oil, rattan processing, food and beverages, construction materials | Prefabricated housing, manufacturing of ready-made metal goods, ship building |
| The Province of East Kalimantan | 1,503,014 | Liquified natural gas, urea fertilizer, plywood, sawn timber, glue, weaving products, particle board, teakwood | Pulp for paper |

Table 11 (cont.)

| Province | Population | Leading industrial products | Investment under promotion |
|---|---|---|---|
| The Province of South Kalimantan | 2,270,000 | Petroleum, food and beverages, leather, paper, wood processing, weaving | Pesticide, agricultural equipment, food processing, wood processing |
| The Province of North Sulawesi | 2,250,714 | Galvanized iron sheet, coconut oil, sawn timber, canned fish, food processing | Ship building, fish canning and prepared livestock feeds, pesticides |
| The Province of Central Sulawesi | 1,363,500 | Coconut oil, plywood, sawn timber, handicrafts | Fruit canning and bottling, essential oils, furniture, rattan processing |
| The Province of Southeast Sulawesi | 1,122,264 | Coconut oil, rattan furniture, boat building, woven products, sawn teakwood | Pesticides, rattan processing, cattle feeds, tapioca flour, essential oil, canned fish |
| The Province of South Sulawesi | 6,407,720 | Canned fish, bottled marquise, syrup, beverages, tobacco, tanned leather, weaving products, cement, paper, plywood, sugar, sarong | Pesticide production, ship building, prepared livestock feeds, fish canning, fruits and vegetables canning and bottling, clove oil extraction |
| The Province of Bali | 2,586,430 | Wood and bone handicrafts, leather, garments, ceramics, paint works, traditional weaving products | Canned meat, fish, fruits |
| The Province of West Nusa Tenggara | 3,137,445 | Traditional sarong sumbawa, honey | Canned meat, prepared animal feeds, bamboo pulp, food processing |

Table 11 (cont.)

| Province | Population | Leading industrial products | Investment under promotion |
|---|---|---|---|
| The Province of East Nusa Tenggara | 2,999,300 | | Prepared livestock feeds, processed chocolate, citronella oil |
| The Province of East Timor | 555,350 | Coconut oil, sawn timber, building materials, traditional timor woven cloth | Canned fish, wood processing |
| The Province of Maluku | 1,490,215 | Nutmeg oil, coconut oil, fish meal, cajuput oil, plywood, sawn timber | Cajuput oil, canned sea food, nutmeg oil, cashew nut oils, prepared livestock feeds |
| The Province of Irian Jaya | 1,325,100 | Plywood, sawn timber, frozen fish, furniture, copra, blackboard, chipmill | Chipwood, furniture, food processing |

Source: Compiled from Indonesia: Regional Profiles, 1987, Investment Coordinating Board, 1987.

2.6 Ownership and investment patterns

In spite of an increasing reliance on the private sector to play a leading role in the development of the manufacturing sector, the government still controls a substantial proportion of this sector through its state enterprises and share ownership of mixed enterprises. In 1980, the 375 publicly-owned medium- and large-scale enterprises employed 14 per cent of the workers in this segment of the manufacturing sector and generated 16 per cent of value added. Public enterprises are important in the food processing industry, especially sugar; as well as in textiles, paper, industrial chemicals, and especially fertilizer, cement, iron and steel and transport equipment. Recently a debate and examination on the scope for privatization of some of the state-owned companies has been initiated.

Within the private sector foreign enterprises contribute 30 per cent to value added of medium- and large-scale manufacturing and 12 per cent to employment. Foreign firms are represented in most industries, especially textiles, other chemicals, glass, cement, metal products, electrical machinery and transport equipment. Most foreign firms are engaged in production for the domestic market, though increasingly efforts are made to attract foreign investment in export-oriented activities.

Recent data on investment approvals processed by BKPM, (Annex Table A-20) reveal that in recent years foreign investment has declined significantly in Indonesia as a consequence of the slump in the domestic market. Domestic investment has been much less affected by the deteriorating economic conditions. Data for 1987 suggest a recovery both in foreign and domestic investment. The approved investments in manufacturing in 1987 account for 63 per cent of total investment. It should be noted, that implementation of investment is considerably lower than the amount of investment approved. Available data for foreign investment indicate that over the period 1979 to 1984 implemented investment amounted to around 19 per cent of approved investment (Table 12).

Rapid transformation of potential economic resources into a strong base calls for utilization of technology, expansion of knowledge, improvement of skills and increases in organizational and managerial capability. The government realizes that foreign investment should be utilized to the maximum advantage in order to accelerate economic growth. To create a more favourable investment climate and to further assist foreign investors, investment procedures have been substantially simplified.1/

An examination of foreign investment by countries of origin during 1967-1985, as shown in Table 13, reveals that Japan is by far the most important foreign investor in Indonesia, accounting for almost one-third of all approved foreing investment projects. Hong Kong and the USA are also important investors accounting for 12.6 per cent and 7.5 per cent of total investments, respectively, followed by Netherlands, U.K., India, the Federal Republic of Germany, Malaysia, Australia and others in that order.

## 2.7 Selected manufacturing industries: engineering and capital goods, textiles and wood products

### Engineering and capital goods

The engineering industry includes manufacture of intermediate products, parts and components, as well as assembly operations. The engineering sector, one of the most heterogeneous branches of manufacturing, produces consumer durables (radios, TV sets, motor cars and cycles), intermediate goods (steel rods and components for assembly) and capital goods (such as machinery).

Indonesian industrial statistics do not permit an exact statistical definition of capital goods. But broad estimates, derived from the provisional 1980 input-output Table, indicate that a high proportion of the output of engineering industries (50.3 per cent) consisted of intermediate goods, followed by capital goods (28.2 per cent) and consumer durables (21.5 per cent).

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1/ See BKPM: Indonesia, A guide for Investors, 1986; Investment Law and Regulations, 1986; Principal Policies and Investment Procedures in Indonesia, 1986; Investment Procedures in Indonesia, August 1987.

Table 12: Approved and implemented foreign investments[a/] by branch of manufacturing, 1979-1984
($ million)

A. Approved by the government

| | 1979 | 1980 | 1981 | 1982 | 1983 | 1984 | Cumulative June 1967 - Dec. 1984 number of projects | Cumulative June 1967 - Dec. 1984 investment amount |
|---|---|---|---|---|---|---|---|---|
| Food | 63.4 | 14.2 | 40.4 | 6.1 | 25.9 | 80.5 | 42 | 481.1 |
| Textiles and leather | 86.3 | 76.3 | 138.6 | 34.3 | 112.4 | 32.7 | 68 | 1,489.9 |
| Wood and wood products | ... | 10.8 | 123.6 | 5.7 | 12.9 | ... | 20 | 167.9 |
| Paper and paper products | 10.5 | 2.4 | 48.5 | 0.1 | 696.8 | 27.2 | 14 | 880.4 |
| Chemicals and rubber | 377.2 | 282.0 | 234.0 | 337.0 | 199.7 | 97.2 | 136 | 1,889.9 |
| Non-metallic minerals | 76.7 | 222.1 | 20.2 | 60.5 | 44.0 | 13.1 | 27 | 778.3 |
| Basic metals | 843.5 | ... | 84.8 | 3.6 | 878.2 | 594.5 | 25 | 3,246.9 |
| Metal products | 40.0 | 153.5 | 141.4 | 748.2 | 591.0 | 151.4 | 152 | 2,210.6 |
| Others | ... | 0.7 | ... | ... | ... | ... | 5 | 12.7 |
| Total | 1,497.6 | 761.9 | 831.5 | 1,195.5 | 2,560.9 | 996.6 | 489 | 11,094.7 |

B. Implemented

| | 1979 | 1980 | 1981 | 1982 | 1983 | 1984 | Cumulative June 1967-June 1984 |
|---|---|---|---|---|---|---|---|
| Food | 7.1 | 7.4 | 15.8 | 7.1 | 4.5 | 2.1 | 207.2 |
| Textiles and leather | 41.7 | 78.7 | 102.5 | 69.7 | 25.5 | 4.8 | 1,099.1 |
| Wood and wood products | 0.1 | 3.3 | 2.2 | 29.7 | 13.7 | 10.2 | 81.7 |
| Paper and paper products | 1.4 | 6.1 | 2.5 | 1.6 | 5.8 | ... | 56.7 |
| [illegible]als and rubber | 44.8 | 32.0 | 44.5 | 164.9 | 177.5 | 20.6 | 821.9 |
| [illegible]tallic minerals | 3.2 | 30.0 | 30.9 | 53.0 | 36.7 | 12.1 | 428.6 |
| [illegible] metals | 47.5 | 23.9 | 7.9 | 28.5 | 57.4 | 10.8 | 353.4 |
| [illegible]etal products | 36.0 | 52.0 | 35.3 | 33.8 | 34.5 | 15.6 | 595.9 |
| Others | 10.2 | 2.0 | 1.9 | ... | 2.4 | 3.1 | 31.8 |
| Total | 192.0 | 235.4 | 243.5 | 388.3 | 358.0 | 79.3 | 3,676.3 |

Source: Bank Indonesia.

a/ Includes Indonesian share in joint ventures.
b/ Revised figures.
c/ January through June.

Table 13: Approved foreign investments in Indonesia by country of origin, 1982-1985
($ million)

| Country | 1982 | | 1983 | | 1984 | | 1985 | | Accumulated[a/] 1967-1985 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Total | New Investment | Total | New Investment | Total | New Investment | Total | New Investment | No. of Projects | Capital | Percentage share |
| Japan | 127.1 | 63.0 | 116.2 | 31.1 | 517.9 | 457.5 | 683.5 | 532.3 | 218 | 4,980.2 | 32.6 |
| Hong Kong | 53.4 | 53.3 | 697.4 | 682.8 | -49.2 | 118.6 | -24.2 | 190.8 | 121 | 1,930.6 | 12.6 |
| USA | 141.4 | 79.4 | 111.8 | 68.4 | 509.1 | 543.3 | 68.0 | 48.8 | 90 | 1,142.7 | 7.5 |
| Netherlands | 11.6 | 9.7 | 38.8 | 16.1 | 79.2 | 32.9 | 14.0 | ... | 49 | 685.3 | 4.5 |
| United Kingdom | 77.1 | 71.2 | -15.2 | 13.9 | 73.3 | 64.1 | 163.6 | 160.3 | 54 | 663.9 | 4.3 |
| India | 190.0 | 190.0 | ... | ... | 25.6 | 0.1 | 11.2 | 12.9 | 19 | 537.6 | 3.5 |
| Fed. Rep. Germany | 65.5 | 53.8 | 17.0 | 1.0 | 98.7 | 96.8 | 75.2 | 27.2 | 29 | 486.2 | 3.2 |
| Malaysia | ... | ... | -2.0 | ... | -0.9 | ... | -3.0 | ... | 10 | 436.2 | 2.9 |
| Australia | 36.1 | 35.9 | 2.7 | ... | -12.5 | 1.7 | 13.5 | ... | 33 | 323.7 | 2.1 |
| Singapore | ... | ... | -2.6 | 15.3 | 3.7 | 20.0 | 14.0 | 50.1 | 27 | 208.3 | 1.4 |
| Switzerland | ... | ... | 83.0 | 21.2 | -0.7 | ... | 95.8 | 89.9 | 16 | 202.4 | 1.3 |
| Korea, Rep. of | 58.7 | 48.7 | -2.2 | ... | -13.0 | 2.6 | 38.6 | 38.8 | 16 | 201.4 | 1.3 |
| France | 39.5 | 36.1 | 32.0 | 7.2 | 24.0 | ... | 17.0 | 17.0 | 16 | 164.2 | 1.1 |
| Taiwan Prov. of China | ... | ... | ... | ... | -7.1 | ... | ... | ... | 7 | 133.8 | 0.9 |
| Panama | ... | ... | -6.7 | ... | 63.0 | 63.0 | 15.8 | ... | 13 | 112.6 | 0.7 |
| Belgium/Luxemburg | 1.0 | ... | ... | ... | 803.1 | 803.1 | -0.2 | ... | 13 | 88.8 | 0.6 |
| Denmark | ... | ... | ... | ... | [illegible]8 | 38.3 | 0.9 | ... | 5 | 72.5 | 0.5 |
| Canada | ... | ... | ... | ... | ... | ... | ... | ... | 5 | 63.3 | 0.4 |
| Philippines | 2.8 | 2.7 | ... | ... | -9.8 | ... | -12.1 | ... | 6 | 15.5 | 0.1 |
| Other | ... | ... | -0.5 | ... | 18.5 | 37.6 | 1.6 | 12.2 | 17 | 852.3 | 5.6 |
| Groups of countries[2/] | 54.8 | 54.8 | 6.3 | ... | 338.8 | 240.5 | 139.0 | 110.6 | 23 | 1,966.4 | 12.9 |
| Total | 859.0 | 698.7 | 1,081.2 | 857.0 | 2,500.5 | 2,520.1 | 1,312.2 | 1,290.9 | 787 | 15,267.8 | 100.0 |

Source: BKPM.

1/ New investments and raised capital less cancellations.

2/ Group of countries comprise several countries undertaking a project, e.g., the ASEAN Fertilizer project in Aceh and the Cement Factory in Andalas/North Sumatra.

The capital goods and engineering sector was one of the fastest growing branches of Indonesian manufacturing industry during the 1970s, admittedly from a small base. Particularly high growth of value added was observed for the electrical machinery sector (chiefly electronic products). Rapid growth during the 1970s raised the share of engineering goods in total manufacturing value added from 6.1 per cent in 1970 to 16.9 per cent in 1980, but growth declined thereafter and the share fell to 14.8 per cent in 1985. Assuming, as suggested above, that capital goods accounted for 28.2 per cent of engineering sector output, the share of capital goods in total manufacturing output in 1985 can be put at about 4.2 per cent, showing the emergence of an embryonic capital goods industry in Indonesia.

Among the major branches of the engineering sector, the transport equipment sector was the largest (representing 5.3 per cent of total manufacturing value added in 1985), followed by metal products (4.4 per cent) and electrical machinery (3.9 per cent). The share of non-electrical machinery (1.2 per cent) lagged behind.

Because much of it was labour-intensive, the engineering industry made a relatively substantial contribution to employment creation within the manufacturing sector. Employment in large- and medium-scale engineering industry during 1971-1985 grew at an average annual rate of 7.3 per cent. In absolute terms, employment increased by some 93,000 from 28,000 in 1970 to 121,000 in 1980 and to 176,950 in 1985.

In the early 1980s, around 86 per cent of all large and medium engineering enterprises were located in Java and most of the rest in northern Sumatra. Average plant size has risen in recent years and is particularly large in the electrical machinery branch, with its large-scale assembly operations. But it is noteworthy that, outside the large- and medium-scale sector, there is substantial production, particularly of metal products (furniture, hand tools, cutlery, screws and bolts, etc.), by small-scale and household enterprises throughout the country. Their contribution might well be enhanced by sub-contracting arrangements. Non-pribumi private ownership predominates in all engineering industries (reaching 50 per cent in the electrical machinery branch, according to one sample survey), followed by private pribumi enterprises which are most important in the transport equipment sector. Foreign investment in the engineering sector (metal products) has been quite significant, with some $600 million of realized investment by June 1984, chiefly in assembly operations. The approved investment in metal products for 1987 is estimated at $33 million.

A large proportion of manufactured imports consists of machinery and equipment, while exports of engineering products are extremely limited. Exports are primarily confined to electrical appliances which accounted for around 4.6 per cent of exports of manufactures in 1983, but declined subsequently to 2.2 per cent in 1986. The share of imports in apparent domestic consumption of machinery and equipment is very high, estimated at 66 per cent, domestic production accounting for only 34 per cent in the early 1980s. Since much of present engineering production consists of assembly operations, import dependence is particularly high for parts and components and other inputs. In the early 1980s, imports accounted for around 79 per cent of the raw material and components requirements of the engineering sector. But there were a few products of which domestic production provided more than one-half of all raw material requirements, e.g., repairs of electrical equipment, cutlery, screws and bolts, bicycle and becak assembly, and shipbuilding and repair.

The non-electrical machinery branch, although still a relatively small one, is of greatest potential interest in relation to production of capital goods. Among its sub-groups are engines and turbines, agricultural machinery and equipment, metal and wood working machinery and office equipment. The branch has lagged behind the growth of the rest of the engineering sector since 1975, so that its share in value added and employment has declined. The reasons for this can be traced to meagre investment, presumably reflecting problems connected with shortage of skilled labour, management and marketing expertise and technical knowhow. Few enterprises have the capacity to manufacture complete products or parts.

The contours can be seen of an industry producing plant and equipment for agricultural processing, including such items as sugar cane milling, coffee milling, tea processing, corn grinding and rice press machines. Most production processes amount to assembly using imported parts. Machinery used is often old and primitive technology. In contrast to the other major branches, the average size of enterprise in this branch is relatively small, with an average (in large- and medium-size firms) of 99 employees. Ownership is shared in almost equal parts between pribumi and non-pribumi, foreign and government owners. There are virtually no exports. The effective rate of protection is relatively low (18 per cent). If the rapidly growing demand for non-electrical machinery products in Indonesia is to be met to an increasing extent from domestic production, improvements in production quality, technological capability, competitiveness, management and marketing skills are essential.

The most important sub-sectors of the electrical machinery branch are communications equipment, electrical cables and transformers, lamps, refrigerators and electronic products, such as radios, TV sets. cassette tapes, etc. Most of these products are consumer durables, but there is also s large number of potential capital goods products. The electrical machinery branch has shown the highest rates of growth of value added and employment, with moderate growth in labour productivity. Production processes, however, are generally quite up to date, consisting mostly of assembly operations which use unskilled or semi-skilled labour. The majority of enterprises are located in and around Jakarta. They are typically large-scale, with an average of 337 employees. Ownership is predominantly non-pribumi, followed by foreign ownership. Electrical machinery is the only engineering branch that has penetrated export markets. The main export product is integrated circuits bond-processed by US companies. Inevitably, in view of its predominantly assembly character, the industry's inputs come almost entirely from abroad.

The fabricated metal products branch produces a wide range of goods, ranging from agricultural hand tools and equipment, kitchen utensils and furniture, metal containers, screws and bolts, to galvanized products. The branch accounted for about 3.5 per cent of manufacturing employment (59,000 persons) in 1985. Labour productivity during the 1970s grew almost as rapidly as employment, but its level was still very low in all sub-sections. A significant proportion of employment and output of metal products in Indonesia is still in small-scale and household enterprises spread throughout the major islands. There are virtually no exports and a large proportion of inputs of intermediate products is imported, but there are exceptions, such as cutlery, screws and bolts production where domestic raw materials predominate, and inputs of chemicals (chiefly paints) - about half of which are of domestic origin.

Repelita IV accords the engineering industry high priority, with a planned growth rate of 17.0 per cent for metal and machinery which is substantially higher than the 9.5 per cent envisaged for manufacturing as a whole. Special attention will be directed at industries producing industrial machinery, in the hope that Indonesia will increasingly be able to meet its own needs. High priority is accorded to agricultural and processing machinery industries. Repelita IV also includes specific development programmes for promotion of machinery and basic metal industries: machinery and factory equipment, mechanized equipment, agricultural machinery and equipment, heavy construction equipment, electronics equipment, electronics, motor vehicles, railways, aviation, shipping, iron and steel, and metal industry (non-iron and steel).

The development of a capital goods industry in Indonesia is needed to diversify the industrial structure and to provide a stronger base for long-term development and technological progress with resultant benefits for employment, skills, exports, etc. In developing a larger capital goods manufacturing sector, there is an obvious case for focusing first on equipment for Indonesia's agricultural and forestry processing industries. The great advantage in selecting such processing equipment, in preference to other engineering industries, is that a substantial domestic market exists. Moreover, the production of most such equipment (though not all) is relatively uncomplicated, and does not demand high requirements in terms of skills, capital and technology. Here, as in all areas of import substitution, efforts are required to ensure that domestic production will be an economic proposition. If a new domestic equipment-producing industry (e.g., producing rice mills or crumb rubber plants) is seriously uncompetitive with imports in terms of price and/or quality, the effects on the raw material (rice or rubber) producing industries may be negative. Conversely, if the new industry is able to adapt equipment knowledgeably to the special requirements of the domestic raw materials and the tastes and needs of (foreign and domestic) markets, it may largely benefit the agricultural sector.

Estimates by UNIDO[1] of technically feasible local production of equipment for selected industries yield a list of "most promising candidates" and some very tentative broad aggregates of investment, production and employment. Among the former are selected items of processing equipment in palm and coconut oil extraction plants, coffee and tea processing, wood processing, textile and cement industries. In many cases, the approach already adopted in the sugar industry of appointing a general engineering contractor, preferably a joint venture between an international equipment producer and a domestic company, which sub-contracts production of equipment with gradually increasing local content, has been recommended for several other industries. The tentative aggregate investment requirements during Repelita IV for equipment for processing industries (coconut oil, palm oil, rubber, sugar, cocoa, coffee, tea, wood and cement, but excluding textiles) are put at $1,086 million a year; technically feasible local production of processing equipment at $510-600 million a year; investment required in additional capacity for processing equipment production at $ 380-410 million; and direct employment generation in equipment production at 21,000-24,000 jobs.

1/ UNIDO, Prospect for Industrial Development for a Capital Goods Industry in Indonesia, Vo. I, II, and III, UNIDO/IS.479 and Add.1 and 2, 20 July 1984.

The machine tools industry forms another important part of the capital and engineering goods industries.1/ In December 1984, the government promulgated a policy to stimulate the local manufacture of basic machine tools. In formulating the policy, the government initially identified five general types of metal-working related machine tools and their specifications. Demand projections were estimated in volume terms as outlined in Table 14.

The policy for developing a domestic machine tools industry aims at maximizing the use of local materials and producing standard or universal machine tools tailored to the acceptable precision requirements. The policy envisages participating enterprises to produce (in-house) as much of the primary components as possible and otherwise to sub-contract. It represents a phased and selective import substitution scheme.

Table 14: Projected demand for basic machine tools in 1984-1989
(Number of units)

| Type | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 |
|---|---|---|---|---|---|---|
| Lathes | 3,360 | 3,780 | 4,200 | 4,690 | 5,350 | 5,950 |
| Milling machines | 600 | 650 | 700 | 800 | 880 | 1,000 |
| Scraping machines | 135 | 140 | 145 | 145 | 150 | 155 |
| Grinding machines | 5,750 | 5,875 | 6,000 | 6,125 | 6,250 | 6,250 |
| Hack saws | 8,800 | 8,960 | 9,120 | 9,280 | 9,440 | 9,600 |

Source: Department of Industry.

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1/ UNIDO, The Machine Tool Industry - The ASEAN Region: Options and Strategies, Analysis by Country, Sectoral Working Paper Series, No.49, Vol. II; UNIDO/IS.634/Add.1, 27 May 1986.

The Ministry of Industry, on 4 January 1985, issued a letter decree (No. 1/m/SK/1/1985) listing eleven initial participating enterprises in a simple machine tool manufacturing scheme (see Table 15). Then on 11 January 1985, the same Ministry issued two further decrees. One (No. 12/M/SK/1/1985) specified the parts and components (of lathes, knee type milling machines, vertical drilling machines and grinding machines), as well as other machine tools (CKD) which could be imported. The other (No. 18/M/SK/1/1985) detailed the indigenization programme for the manufacture of lathes, milling cum drilling machines, knee type milling machines, grinding machines, hack saws, bench drills, vertical drills, press machines, pipe benders, press brakes and shearing machines. The Ministry of Finance also issued an update of the existing tariff and taxation policies.

The policy is expected to affect the following twelve industries:

- Processing industries, i.e., coconut, sugar, rubber, tea, food processing, textiles, chemicals, etc.;
- Industrial machine tools;
- Industrial and agricultural machine and equipment;
- Construction equipment, tools and implements;
- Electrical utilities;
- Electronic equipment and instruments;
- Motor vehicles manufacturing;
- Railway equipment, tools and component services;
- Shipbuilding and repair;
- Shipping industry;
- Ferrous metal processing; and
- Non-ferrous metal processing

Textiles

Textiles accounted for around 11.8 per cent of MVA in 1985. A UNIDO study estimated that 97 per cent of textile was consumed in the Indonesian domestic market in 1983.[1/] This implies that textile production has a heavy orientation towards the domestic market and that the development of this industry largely depends on the domestic market conditions.

While the textile industry in developed countries and Asian NICs has become a capital-intensive industry to raise its competitiveness in the world market, the Indonesian textile industry remains labour-intensive, using traditional spinning and weaving technology. Being a labour-intensive sector[2/] the Indonesian textile industry employs the highest number of employees (20 per cent in 1984) among all the manufacturing industries.

The textile industry in Indonesia is characterized by the predominance of small-scale enterprises which are characterized by low productivity and lack of modernization. In the absence of rehabilitation in terms of equipment and facilities, high quality products can hardly be fabricated.

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1/ UNIDO, Scope and Outline for ASEAN Regional Co-operation in the Textiles and Textile Products Industry, IS/R.17, 24 June 1985, p.30.

2/ It should be noted that a sizeable number of employees are registered in cottage textile industries, which consist of home weaving, tailoring and garment making, and output is consumed for domestic use.

Table 15: Tentative list of simple machine tool manufactures approved by the Ministry of Industry, 1985

| Enterprise | Product | Estimated annual production (units) |
|---|---|---|
| 1. PT (Persero) IMPI | Lathes | 400 |
| 2. PT PIMSF | Milling cum drilling machines | 500 |
| | Bench drills | 2,100 |
| | Rolling machines | 500 |
| | Plate press | 400 |
| | Shearing | 500 |
| | Press brake | 100 |
| | Vertical drills | 200 |
| 3. PT SARANA IDEA UTAMA | Lathes | 300 |
| | Shearing | 400 |
| | Rolling machine | 400 |
| | Plate press | 400 |
| | Pipe bender | 300 |
| 4. PT SUMBER BAHAGIA | Lathes | 600 |
| | Bench drills | 400 |
| 5. PT CIPTA KARYA | Bench drills | 150 |
| 6. PT MEDAN GERAK JAYA | Shearing | 500 |
| | Bench drills | 150 |
| | Press brake | 150 |
| | Knee type milling machine | 300 |
| 7. PT BINTANG MAS INDUSTRI | Lathes | 750 |
| 8. PT OYAMA | Hack saws | 50 |
| | Grinders | 75 |
| | Vertical drills | 300 |
| 9. PT TOOLS INDONESIA | Lathes | 300 |
| | Shearing | 1,200 |
| | Bench drills | 200 |
| | Plate press | 200 |
| | Rolling machine | 200 |
| | Knee type milling machine | 200 |
| | Grinders | 100 |
| 10. PT KARYA PRIMA | Hack saws | 100 |
| | Bench drills | 200 |
| 11. PT (Persero) PINDAD | Knee type milling machine | 250 |
| | Vertical drills | 100 |

Source: Department of Industry.

The Indonesian textile industry remains import-dependent as more than 95 per cent of raw cotton and 30 per cent of the weaving yarn are imported from foreign sources. The government has been making efforts to raise the self-sufficiency rate, however, given the present weak domestic demand, the complexities of local cotton production and the embryonic capital goods industry, the high import dependency ratio of textile materials and equipment unlikely to change in the foreseeable future.

In recent years, especially since 1983, the Indonesian textile and clothing industry has, however, been gradually shifting to an export-oriented path. Since the early 1980s exports of textiles and clothing have grown rapidly, earning $277 million and $460 million in 1983 and 1984 respectively. As a result, the sector has emerged as one of the largest foreign exchange earning manu- facturing sectors. Exports are mainly directed to the United States and EEC followed by other members of ASEAN countries. Of the total textile exports (SITC 65) amounting to $168.5 million in 1984, $44.3 million (26 per cent) and $35.8 million (21 per cent) went to the United States and EEC respectively. Clothing exports (SITC 841) amounted to $291.5 million in 1984, $190.1 million (65 per cent) and $33.2 million (11 per cent) were destined for the United States and EEC, respectively.

In the light of growing exports of textiles and clothing, the government anticipates a higher rate of foreign capital investment in this industry. In the last decade, foreign capital has been an important component in the development of the textile industry. In order to enhance output, efficiency and product diversification foreign capital investment is promoted for the rehabilitation and modernization of exisiting facilities. Between 1967 and 1985 there were 78 foreign investment applications with 62 approvals which add up to a total investment value of approximately $984 million.[1]

The government endeavours to promote regional industrialization, and anticipates that new projects will be launched widely in other regions or provinces of the country. The textile industry is concentrated in densely populated areas such as Java and Sumatra, while Indonesian traditional garments, woven and weaving products are produced widely in other provinces.

Non-tariff barriers in the major markets loom as a major obstacle to textile exports. In particular, the United States regulates textile imports from Asian countries through bilateral agreements signed in July 1986 with its three main suppliers, i.e. Hong Kong, the Republic of Korea and Taiwan Province of China, covering imports of textiles and clothing up to 1991.

Indonesia is a new-comer in the world textile market. Due to a low share of Indonesian exports of textiles and clothing by Asian standards, Indonesia benefited from rather generous treatment with respect to protectionist measures prior to 1985. However, the rapid growth of textile and clothing exports in the early 1980s raised concern in the United States textile market, leading to the imposition of quotas on Indonesian exports. Indonesia signed a bilateral agreement with the United States for the period 1 July 1985 to 30 June 1988 agreeing to limit the growth of its exports to about 6 per cent annually for the period of its duration. These highly restrictive protectionist measures have been affecting the present performance of Indonesian textile and clothing industry development.

1/ The Investment Co-ordinating Board, Indonesia: A Guide for Investors, Jakarta, Indonesia, 1986 p 27.

Wood products

Wood products accounted for 9.8 per cent of MVA in 1985. The Indonesian wood industry is passing through a period of industrial restructuring under the stimulus stemming from a phased ban on log exports adopted in 1980 with a view to developing the country's plywood industry. The number of plywood factories increased from 2 in 1973 with a production capacity of 28,000 cubic metres to 29 in 1980 with a capacity of 2 million cubic metres. By 1985 the number of mills had increased rapidly to 108 with a capacity of almost 6 million cubic metres.[1/] During 1980-1985 output of plywood also dramatically increased from 1 million to 4 million cubic metres, implying an average annual growth rate of 14.8 per cent. Twenty-six units with a projected production capacity of 1.22 million cubic metres were under consturction in 1986. Indonesia's plywood capacity is expected to exceed 7.4 million cubic metres per annum in the rest of the decade. Table 16 indicates installed capacity, production and trade trends of the plywood industry.

Table 16: Installed capacity, production and trade trends of the plywood industry, 1973-1985
('000 $m^3$)

| Year | Installed Capacity | Production | Domestic sale | Export | Import |
|---|---|---|---|---|---|
| 1973 | 28 | 9 | 7.5 | 1.5 | 14 |
| 1974 | 103 | 24 | 24 | ... | 10 |
| 1975 | 305 | 107 | 105 | 2 | 7 |
| 1976 | 405 | 214 | 204 | 10 | 5 |
| 1977 | 535 | 279 | 261 | 17 | 4 |
| 1978 | 799 | 424 | 341 | 83 | 3 |
| 1979 | 1,809 | 624 | 498 | 126 | 0.8 |
| 1980 | 1,949 | 1,011 | 728 | 283 | ... |
| 1981 | 2,602 | 1,552 | 778 | 774 | ... |
| 1982 | 3,292 | 2,140 | 890 | 1,250 | ... |
| 1983 | 4,477 | 2,943 | 943 | 2,000 | ... |
| 1984 | 5,328 | 3,820 | 810 | 3,010 | ... |
| 1985 | 5,800 | 4,081 | 756 | 3,325 | ... |

Source: APKINDO (Indonesian Wood Panel Association).

1/ World Bank, Indonesia: Policies and Prospects for Non-Oil Exports, Annex 1, 31 December 1986, p.5.

Indonesian plywood exports also increased substantially since 1980. Recent data reveal that plywood export earnings would reach their peak with an estimated $300 million in 1987, which represents a 116 per cent increase over the previous year. As a result, Indonesia has grown to become a major plywood exporter in the world market. The share of Indonesian plywood trade in the world total increased from 4 per cent in 1980 to 24 per cent in 1983 . The output growth of plywood has been mainly absorbed by exports, while domestic sales have made a slow but steady rate of growth. As a result of this rapid increase in the Indonesian plywood exports, the world plywood industry has been severely affected, particularly in Japan, the Republic of Korea and Taiwan Province of China which formerly imported logs from Indonesia. Many plywood mills in these countries were compelled to close down.

Since the log export ban is now fully effective, output of logs in Indonesia is entirely consumed by domestic wood-processing mills. It should be noted, however, that prior to the log export ban the export of logs was the major source of foreign exchange-earnings which was much higher than the earnings of the present plywood exports. It is estimated that for every dollar which was gained in plywood exports, four were lost in log exports.[1/]

The rationale of the log export ban is debated extensively. The restructuring process of the Indonesian plywood industry appears to be complex during the transition period. However, with the vast domestic market which is expected to expand and the world market in which Indonesia's share of plywood exports is also expected to increase, in the long term the restructuring would be beneficial for the Indonesian economy, satisfying the criteria for promoting resource-based, labour-intensive and export-oriented industries. In order to achieve this, it is essential for the Indonesian plywood industry to endeavour to raise the quality of products which can better penetrate export markets.

In the period 1980-1984 production, consumption and exports of sawn timber grew at an average annual rate of 7.9 per cent, 5.7 per cent and 13.6 per cent, respectively. As in the case of plywood, exports of sawn timber have been a dynamic source of output growth, while domestic consumption has been growing at a lower rate. Sawn timber is exported widely in the world, but the major part is exported to Asian countries (approximately 60 per cent) and the EEC (25 per cent). While the exports of sawn timber continue to grow, a large potential growth can be anticipated in the domestic market as per capita consumption in Indonesia is still lower than in its neighbouring countries, such as Malaysia and Thailand. The production capacity of the sawmill industry steadily increased and reached 15.3 million cubic metres in 1985.[2/]

Exports of wood products, including teakwood, timber, parquet flooring, copal, turpentine, etc., recorded a volume of 6,139 tonnes worth $3.5 million in the first quarter of 1987. The government endeavours to invigorate the process of "export substitution" through higher degree of industrial processing of several wood products. The future prospects appear bright for wood products in view of their particularly competitive prices on the world market.

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1/ World Bank, Indonesia - Policies and Prospects for Non-Oil Exports, Main Report, 31 December 1986, p.54.

2/ In the period 1980-1984, total production sawmilling capacity in Indonesia grew at an average rate of 10.5 per cent, which is higher than a 7.9 per cent increase in output in the same period.

## 3. STRATEGIES, PLANS, POLICIES AND INSTITUTIONS FOR INDUSTRIAL DEVELOPMENT

### 3.1 Changing industrial strategies

The evolution of industrial policy in Indonesia is characterized by substantial shifts in emphasis from a strategy of encouraging domestic industries by protection from competing imports to a programme of trade and industrial policy reforms aiming at the creation of a more dynamic and competitive manufacturing sector. However, until recently a striking feature of Indonesian industrialization strategy has been its almost complete orientation towards the domestic market. A major source of industrial growth has been domestic demand and import replacement, though efforts to encourage exports of labour-intensive manufactures have shown positive results.

The options open to Indonesian policy-makers concerned with industrial development can usefully be examined in an analytical framework of two alternative broad strategies.[1/] The first aims at reducing the country's dependence on world markets and imports. It emphasizes the development of manufacturing industries producing for the domestic market for consumer goods, capital goods and intermediate products. In so far as it relies heavily on import substitution, it may be called inward-looking strategy attuned to self-reliance. The second strategy focusses on the development of industries in which Indonesia can be expected to have a comparative advantage in international trade. It tends to emphasize labour-intensive industries, export promotion and small-scale enterprises. It can be called export-oriented labour-intensive industrialization path.

Since, given Indonesia's comparative advantage, export industries tend to be labour-intensive, emphasis on the export-oriented strategy is preferable for employment reasons. An econometric exercise, contrasting the effects of an import-substitution and an export-oriented industrial strategy, shows not only, as might be expected, that the latter generates more employment with much smaller capital requirements, but also, surprisingly, lower import requirements and, therefore, a more favourable balance of payments outcome. To some extent, it should be possible to mix elements of both strategies. A larger employment effect and contribution to net foreign exchange earnings can be expected from emphasis on labour-intensive and export industries. But certain capital-intensive industries may provide a more balanced industrial structure, a stronger base for long-term development and a broader technological base. The large size of the country may justify the establishment of some large-scale industries dependent on economies of scale that would not be viable in a small country. As Kuyvenhoven and Poot[2/] argue, a labour-intensive, resource-based and export-oriented strategy combined with selective import substitution, subject to full feasibility studies, is most likely to achieve the stated development goals of the Indonesian Government.

Judging by all past development experience, the strategy of encouraging domestic industries by protecting them against competing imports has fostered a number of high cost and inefficient industries that are proving to be a burden to the economy. The slowdown in the pace of industrial expansion in

1/ UNIDO, Prospects for Industrial Development and for a Capital Goods Industry, Vol.1, 2 and 3, IS.479 and Add.1 and 2, 1984.

2/ Kuyvenhoven, A. and Poot, H., "The Structure of Indonesian Manufacturing Industry: An Input-Output Approach", Bulletin of Indonesian Economic Studies, Vol. XXII, No.2, August 1986.

recent years has highlighted the extent and depth of these problems. The growth that occurred under the pretext of "infant industry" argument in the 1970s was confined to the production of consumer goods and intermediate products with little impact on export; it has not been required to become internationally competitive. It has increasingly come to be recognized that such a strategy is liable to run out of steam as the phase of easy import substitution, with dependence on protection by insulating manufactures from the dynamic stimulus of international competition, draws to a close.

It is widely recognized that Indonesian manufacturing industry has suffered from excessive government regulation. Traditional attitudes and reaction against laissez faire liberalism have imposed a straight-jacket of bureaucratic regulations that has made the manufacturing enterprises inefficient. The belief that infant enterprises cannot compete with non-pribumi enterprises is no longer justified. Taking risks in deregulation may be the single most effective contribution that the government can make to industrial development. The government of Indonesia has already taken decisive steps in this direction and endeavours to improve its investment incentives, simplifying and streamlining existing regulations and improving the manufacturing sector's internal efficiency and international competitiveness.

## 3.2 Industrial objectives and plan targets

The Indonesian Government specifies objectives of industrial development in its Five-Year Plans, REPELITAs. In various REPELITAs there have been several modifications in the emphasis of the industrial strategy pursued by the government.

Since 1969, the Government of Indonesia has included in its Five-Year Plans objectives of industrial development. These objectives have undergone substantial shifts in emphasis. In REPELITA I (1969/70-1973/74) priority was assigned to industries ancillary to food production and agriculture generally, such as fertilizers, as well as rehabilitation and development of the older import-substitution industries, such as textiles. In REPELITA II (1984/75-1978/79) priorities shifted, with a greater emphasis on social objectives, especially employment creation and protection of pribumi enterpreneurs. REPELITA III, (1979/80-1983/84) with the financial resources provided by the oil boom at hand, widened objectives to include broad-based industrial development on the basis of domestic oil, mineral, timber and other natural resources and the promotion of labour-intensive manufactured exports.

In REPELITA IV (1984/85-1988/89) manufacturing is expected to take the place of the oil sector as the main engine of growth. Oil and agriculture will, of course, remain important, but manufacturing is expected to contribute an increasing proportion of value added, net foreign exchange earnings and employment.

During REPELITA IV, the overall economy (GDP) and manufacturing are expected to grow at 5 and 9.5 per cent annually, respectively. Growth of domestic demand for industrial products is estimated at 8.5 per cent. To achieve the planned expansion of the manufacturing sector of 9.5 per cent annually, an acceleration of growth of manufacturing exports is required. In this regard, the Plan envisages a real growth rate of manufactured exports of 13-14 per cent annually. In terms of employment, the Plan estimates that the manufacturing sector will provide new employment opportunities for 1.2 million persons. REPELITA IV attaches high priority to the development of the basic chemical industry, as well as metal and machinery industries, which both are expected to grow at around 17 per cent per year. Miscellaneous industry is planned to expand at 16.5 per cent, while small-scale industry is slated at 3 per cent.

Industrial development, under REPELITA IV, aims at creating a balanced and strong economic structure. The Plan envisages that industrialization will involve a significant structural change in the Indonesian economy, expansion of employment opportunities, reduction of import dependency, acceleration of manufactured exports, development of industrial growth centres in the regions, and maximum utilization of natural resources. energy and manpower. Emphasis is being given to strengthening the industrial structure through acceleration of interlinkages among various branches of industry, between industry and other sectors, in particular agriculture, as well as between small, medium and large industry. Emphasis will also be placed on development of small industry and other labour-intensive industries.

As regards the composition of manufacturing output, promotion of export industries is to receive high priority in order to help fill the gap left by declining oil earnings. Current plans, however, also include further import substitution, especially in the processing of raw materials into intermediate products needed by downstream manufacturers. The development of such industries could also help correct the regional imbalance of manufacturing industries, since most of the raw materials are located on the outer islands.

The formulation of targets for industrialisation under REPELITA V (1989/90-1993/94) is not yet finalized, though the broad outlines have already been announced in various official statements. In general, during the REPELITA V period the progress made during the previous Five-Year Plan will be consolidated and strenghtened. As a consequence, the objectives of industrial development during REPELITA V appear to be similar to those of REPELITA IV. Because of the worsening of the country's economic situation, a change in the emphasis of the objectives of industrial development can, however, be expected, whereby more priority is likely to be given to the development of industries generating foreign exchange earnings, and to industries generating employment. Whereas the current Plan still places strong emphasis on the development of relatively capital-intensive import-substitution industries, an increasing tendency can be noted towards the promotion of export-oriented industrial development.

As a result of trade policy measures, including tariff barriers, as well as non-tariff barriers, many industries have become highly protected. The restriction of imports through non-tariff barriers increasingly gained importance during the first half of the 1980s, in particular, through the introduction of the import licencing and the approved importers system. Currently, the government influences industrial development through a variety of policy instruments, including the trade regime, investment incentives, licencing arrangements and other regulatory controls, fiscal and monetary policies, and direct regulation of investment.

### 3.3 Recent policy reform packages and instruments

In the face of changing economic conditions a number of important policy measures affecting industrial development have been taken in recent years. In March 1983, the Rupiah was devalued by 28 per cent from Rp 700 to Rp 970 against the dollar. As of that date the exchange rate was also allowed to float against a basket of foreign currencies. In June 1983, measures were introduced to deregulate the banking system in order to mobilise more funds for investment. Furthermore, many large-scale investment projects were rescheduled. In 1984 followed the establishment of a new tax law introducing value added taxation. In 1985, across the board reductions in import tariffs

were implemented. In the same year the government also reorganised customs, ports and shipping operations. The job of certifying imports was allocated to a Swiss surveyor company reducing substantially the time needed to complete customs procedures. These measures are fairly impressive early steps undertaken for improving the conditions of the Indonesian economy which had sorely been affected by the fall in oil prices and the general world economic recession which had begun in 1982.

After a brief improvement of economic conditions in 1984 and 1985, the sharp fall in oil prices in 1986 caused renewed economic hardship, in particular, reduced foreign exchange earnings and government revenue and increased the foreign debt burden. In order to address these problems a wide range of measures were introduced during 1986 and early 1987 including the May 6th Package, the devaluation of September 1986, the October 25 Package and the January 15 Package in 1987.

The goal of the May 6th Package was to stimulate growth in non-oil/gas exports and capital investment. In particular, producer-exporters were allowed the option of importing their imports free of restrictions and exempt from import duties. Producers exporting more than 85 per cent of their production are allowed to import their inputs directly bypassing the approved traders, while for indirect exporters a duty drawback system was created. Companies exporting less than 85 per cent of their production are required to buy their inputs from approved traders, but for that share of the production which is being exported the company may import directly if the approved trader cannot supply the goods at the international import prices. The implementation of these measures is handled by the Investment Co-ordinating Board, (BKPM). The major beneficiaries of the scheme are textiles and garment producers, but also include processed foods, chemical and wood-processing industries.

The May 6th Package also offers a number of incentives to foreign investors. In particular, the discrimination against them relative to the treatment of domestic investors has been reduced. With regard to the foreign-domestic ownership distribution of the company's share capital, investors can now, under certain conditions, obtain credit from state banks and market their own production. Another facility now available to foreign investors is the opportunity to invest their profits in both new and existing domestic companies.

The devaluation of the Rupiah by 31 per cent in September 1986 from Rp. 1,134 per US dollar to Rp.1,644 substantially increased the competitiviness of Indonesia's non-oil export commodities. This measure was accompanied by the introduction of a new exchange rate system in which the Rupiah is floated against the Special Drawing Rights(SDR).

The devaluation was followed by the October 25th Package measures aimed at four main areas:

a) to reduce duties on certain raw materials and intermediates in order to reduce production costs;[1/]

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1/ This measure affected 153 commodities representing close to 7.5 per cent of total imports (in 1985).

b) to eliminate part of the protection given to certain products (in total some 165 items representing 3 to 4 per cent of total imports) through non-tariff barriers, in particular the import licencing system and changing it to a tariff system;

c) to adjust and eliminate ceilings on capital flows, with a view to promoting the flow of capital back into the country; and

d) to extend foreign investment incentives introduced with the May 6th Package, whereby foreign investors (PMA) were allowed to invest in existing domestic investments (PMDNs) or non-facilities companies.[1]

Another policy package meant to address Indonesia's trade regime is the 15 January 1987 package. The effect of this package was to change some of Indonesia's non-tariff barriers into tariff barriers for certain imported commodities. The measures included in this package concern the textile industry and the iron and steel industry. In the case of textiles, import procedures were relaxed for some 200 items and for the iron and steel industry protection on 18 items was reduced. At the same time, however, protection for items in the batik category were formalised. Furthermore, a number of items imported by the machinery, electrical machinery and motor vehicle sector had their tariffs removed or reduced (in total 55 items).

The October 1986 and January 1987 reforms resulted in substantially reducing the license restrictions as they involved the removal or relaxation of some 550 import commodities. The combined impact of the two packages has been to remove 90 per cent of the import restrictions in the non-batik textile sector and about 30 per cent in the iron and steel sector. In terms of imports it has been estimated that the October 25 package affected $1.2 billion worth of imports and the January 15 package a further $295 million worth. Probably about 40 per cent of the import restrictions facing the manufacturing sector have been removed. It has been estimated that the share of manufacturing value added protected by restrictive licencing was reduced from 60 per cent before 25 October 1986 to 40 per cent after January 15 1987. Besides textiles and steel, sectors which benefited from deregulation include chemical products, paints, tyres and tubes, glass and paper. However, a number of important import licence restrictions remain for items such as basic iron and steel, pharmaceuticals, hides and leather, plastics, batik fabric, and food and beverages.

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1/ PMA investment in these companies is now permitted if the field in which the company is operating is open for foreign investment according to the priority scale list (DSP) and the company is truly in need of additional capital. PMA investment in these companies may amount to a maximum of 25 per cent if the company produces for the domestic market. For companies exporting part of their production the PMA share may add up to 49 per cent of the total. In case the company exports all of its production the PMA share may amount to 80 per cent.

Currently, import licences are still classified according to the following licence categories:

1. general importers, being importers holding general trade licenses for the import of commodities and having the duty of importing goods whose trade is controlled by the government;

2. producer-importers, being producers holding limited trade licences for the import of goods needed in the production process;

3. importer-producers, being producers holding import licences for the import of goods similar to the ones produced in Indonesia;

4. sole agents who are appointed to import certain brands by the overseas supplier, to ensure specialisation and limit the number of brands to be imported; and

5. approved importers who have been licenced by the Minister of Trade to import certain goods, for example Krakatau Steel for the import of steel products.

The categories of the approved traders and the importer producer represent the strictest level of control over the import trade. However, for all these categories of importers special licences are still required and in general, the fulfillment of time-consuming administrative regulations increasing the cost of production. Nevertheless, the policy measures and adjustments that were made in 1986 and early 1987 resulted at least in a partial restructuring of the Indonesion economy contributing significantly to the drive towards deregulation.

In conjuction with the import liberalisation measures of the January 1987 Package the government has also announced changes in industrial regulations whereby manufacturers of certain industrial products will be granted greater flexibility in determining the volume and composition of their output. They are now permitted to expand production levels beyond the limits specified in their licences and to utilize excess capacity to diversify their product range without having to seek prior government approval and submit themselves to the cumbersome licencing procedure.

Investment incentives currently available to investors in Indonesia are specified in the 1987 Priorities List (DSP), prepared by the Investment Co-ordinating Board (BKPM),1/ which is responsible for the issuing of investment licences. In this Priorities List investors are classified into four categories. Category I for PMA (foreign) investors, Category II for domestic investors qualifying for incentives (PMDN), Category III for Non-Facilities investors and Category IV for fields closed to all investors. Furthermore, this list specifies fields of investment and indicates to what extent they are open or closed for each category of investors. The 1987 Priorities List is intended to be simpler than the previous ones by grouping together a number of fields which had previously been listed seperately. Furthermore, a number of fields were opened up to more categories of investors

1/ BKPM, Priority List for Investment, 1987, Jakarta, 1987.

i.e., some fields previously open for Non-facilities investors have been opened to PMDN investors, whereas in some fields PMA investments are now allowed which were previously only open to PMDN and Non-facilities investors. On the other hand, a substantial number of new fields of investment are specified in the List which were not previously mentioned. As a consequence, the Priorities List still specifies about 1000 fields of activities for which licences are needed.

The most important incentives which can be obtained by PMA and PMDN investors include: exemption or reduction in import duties on machinery, equipment and raw materials, deferral of payment of value added tax on imported capital goods, exemption from income tax on imported capital goods and raw materials, refund of import duties on inputs into domestically produced capital goods. Annex Table C outlines the principal policies for Capital Investment based on the Decree of May 6, 1986. Besides providing investment incentives BKPM also undertakes other efforts to promote private investment. One of these efforts is the carrying out of pre-feasibility studies for potentially attractive projects. Recently, pre-feasibility studies for 163 projects have been completed to be offered to domestic and foreign investors, most of these are manufacturing projects in the fields of engineering, agro-processing and chemical industries.

From the discussion above it can be concluded that in recent years much has been done to deregulate the highly restrictive trading system prevailing in Indonesia, as well as to improve the investment climate.[1/] The effectiveness of these measures strongly depends on their implementation. After the reforms there still remain considerable licencing requirements to be fulfilled, both with respect to the trading system and in the area of investment licencing. Priority could be given to the development of a rapid administrative processing machinery for these licencing requirements and a further reduction in licencing needs. There also remains scope for further reduction in bans and quotas. In order to facilitate investment procedures simplification of investment and capacity licencing procedures could be considered. Other factors which need to be addressed in order to improve the competitiveness of the Indonesian manufacturing sector include the high cost of national and international transportation, improvement in the quality of the labour force and the introduction of more efficient management.

### 3.4 Institutions for industrial development

The National Development Planning Agency (BAPPENAS) is responsible for the preparation of Indonesia's Five-Year Development Plan - REPELITA - which incorporates the industrial sector Plan. BAPPENAS plays the central planning and co-ordinating role vis-à-vis the individual ministerial departments, including the Department of Industry.

The Department of Industry is headed by a Minister of Industry, assisted by four Directorate Generals in the fields of Basic Metal Industry, Basic Chemical Industry, Multifarious Industry and Small Industry, as well as an Agency for Industrial Research and Development and a Centre for Industrial Education and Training. The Department of Industry has regional representation in 27 Provinces to provide information and guidance to public and private enterprises and for supervision of their activities.

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1/ For details pertaining to regulations governing foreign investment, see Government of Indonesia, Doing Business in Indonesia, April 1987.

The Department of Industry controls and finances nine major Industrial Research Institutes in the fields of batik and handicraft, ceramics, chemicals, leather, rubber and plastics, metal and machinery industries, cellulose, wood industries, agriculture, and textiles. The Department of Industry also controls and finances nine small Regional Industrial Research Institutes, primarily concerned with testing, quality control and advisory services. In addition, the Minister of State for Research is assisted by Deputy Assistants in the fields of industry and technology; standardization; instrumentation and metrology; research and scientific information and cross-sectoral research.

The increased importance attached to technology for national economic growth led to the establishment of the Agency for the Assessment and Application of Technology (BPPT) in 1982. The BPPT is a non-departmental government agency directly under and responsible to the President of Indonesia. The organizational structure of BPPT consists of a Chairman, a Vice Chairman, six Deputy Chairmen for Basic and Applied Sciences, Technology Development, Industrial Analyses, Natural Resources, System Analyses and Administration, as well as a Technical Operations Unit. The basic responsibilities of BPPT are:

a. to formulate general policies for consideration by the President regarding programmes for the assessment and application of technology for national development;

b. to provide overall and integrated co-ordination of the execution of programmes for the assessment and application of technology;

c. to assist both government and private organizations in the assessment and application of technology for national development;

d. to conduct activities in technology assessment and application which support government policy on the application of technology for development.

The Investment Co-ordinating Board (BKPM) prepares and publishes an investment priority list for foreign and domestic investment. The investment priority list is reviewed annually by BKPM in consultation with various Ministries and Departments responsible for overall economic and sectoral development. The list is based upon the general policy framework established under the Five-Year Plan and comprises both domestic and foreign investment. The investment priority list, sets out certain conditions for investment, such as location of projects, production targets, exports and requirements for local participation. For the purpose of streamlining approval procedures for incentives, the government introduced a "one-stop" investment service for investment applications in 1977. According to this procedure, all formalities are channelled through the Investment Co-ordinating Board (BKPM). Regional Agencies for investment co-ordination play an informative role, make investment proposals and assist in processing applications for joint ventures.

The major trade association in Indonesia is the Indonesian Chamber of Commerce and Industry (KADIN) whose membership includes representatives from private industry, co-operatives, utilities, public corporations and state-owned enterprises. Indonesian consulting firms have formed the Association of Indonesian Cunsultants, whose members perform a wide range of research and consulting services. Associations of importers and exporters are organized within the All-Indonesia Importers Association (GINS) and the Indonesian Association of Exporters (GPEI).

The Indonesian financial system has expanded rapidly over the last decade, both in sophistication and complexity. It now consists of the following banks and institutions: Bank Indonesia (The Central Bank); 5 State Commercial Banks; 70 Private National Banks; 11 Foreign Commercial Banks and I Joint Venture Bank; 27 Regional Development Banks; 1 State-owned Development Bank, BAPINDO; 3 Development Finance Institutions; 9 Investment Finance Companies; 2 other Finance Companies; 1 State Savings Bank; 2 Private Savings Banks; 83 Insurance Companies; 207 Pension Funds; A Capital Market; A Credit Insurance Agency, ASKRINDO; Secondary Financing Institutions, such as rural, village and paddy banks; and the informal financial system.

The following development banks specialize in extending term financing to industry:

i) Bank Negara Indonesia, BNI, 1946, is a state commercial bank which specializes in providing credit to industry;

ii) BAPINDO is the principal domestic source of medium- and long-term capital for the private industry sector. BAPINDO finances large-, medium- and small-scale industrial projects in the public and private sectors.

iii) The Indonesian Development Finance Company (IDFC) is a joint venture between the Bank of Indonesia and the Netherlands Finance Company for Developing Countries (FMO), which concentrates on the financing of relatively small industrial projects. IDFC participates in equity financing, and provides some technical assistance to industrial enterprises.

iv) The P.T. Private Development Finance Company of Indonesia (PDFCI), a privately owned development finance company established in 1973, provides medium- and long-term loans and equity investment, and also plays a role in the identification of new projects and in the promotion of new enterprises.

v) The P.T. BAHANA, a development bank established by the Government in 1973, provides equity financing and managerial assistance to financially weak enterprises and also engages in lending operations on a limited scale, mainly for the small-scale industry sector.

vi) Some of the regional development banks have, in the past few years, taken an active interest in long-term lending, both for small- and medium-scale industry.

The government has introduced various additional institutional facilities for the financing of small-scale industry and for assisting small-scale entrepreneurs. Loan opportunities are available to small- and medium-scale enterprises under the short- and medium-term lending schemes of Bank Rakyat Indoensia (BRI), Bank Negara Indonesia 1946 (BNI 1946) and BPD, comprising schemes for lending funds for plant and equipment investment (KIK) and for working capital (KMKP). In addition, there is also a small-scale credit scheme handled by the State Banks and selected Rural Development Banks on the basis of re-financing by the Central Bank, which has provided a large number of small entrepreneurs with much needed long-term funds. In 1971, the government established the P.T. Asuransi Kredit Indonesia (ASKRINDO) to insure bank loans made available to small entrepreneurs covering up to 75 per cent of the total risks. This insurance scheme was established with a view to inducing banks to pursue more vigorously their term lending to small- and medium-scale enterprises. Further, a non-bank financial institution, UPPINDO founded in 1972, provides funds and assistance to small-scale enterprises.

Presidential Decree No. 62 of 1976 was issued to enable the development of the securities market. The decree provided for:

- establishment of the Capital Market Policy Council to present guidelines and policy alternatives to the Minister of Finance;

- establishment of the Capital Market Executive Agency (BAPEPAM) to control and operate the capital market in accordance with government policy. The agency is responsible to the Minister of Finance and has the following specific duties:

  - to evaluate companies applying for listing on the stock exchange;

  - to ensure the effective and efficient operation of the market;

  - to monitor shares traded on the market and on-going performance of companies listed on the exchange.

- establishment of the National Investment Trust, P.T. (Persero) Danareksa, to promote more equitable distribution of income by broadening the ownership of shares. This limited-liability company is charged with the task of purchasing shares through the capital market for subsequent sale to the public in the form of buy-back certificates and mutual fund shares. The establishment of P.T. (Persero) Danareksa provides an opportunity for companies to tap the capital market in order to comply with the terms of their agreement regarding Indonesian shareholding, to raise funds for expansion, or to reduce reliance on debt funding.

Assistance in production, technology and management to small- and medium-scale industries is carried out mainly by the Department of Industry of the Central Government and by the Offices of Industry of the provisional governments. Measures for development and promotion of small-scale industries are consolidated under a scheme entitled Industrial Extension Services for Small Industries, BIPIK. This scheme provides assistance to small- and medium-scale industries in the following fields: i) extension services and guidance activities; ii) training in management and technology; iii) marketing assistance; iv) materials procurement support; v) mechanization assistance; vi) quality control and standardization; and vii) surveys and research.

The National Agency for Export Development (NAFED), was created in 1971 under the Ministry of Trade to: i) provide information and guidance to the business community about the possibilities of marketing Indonesian products abroad; ii) supply importers and consumers abroad with information about Indonesian export commodities; iii) assist the government in promoting and achieving export trade targets; and iv) upgrade the practical abilities of businessmen and exporters with emphasis on international trade.

With regard to regional co-operation, Indonesia is a member of the Association of Southeast Asian Nations (ASEAN), comprising also Brunei, Malaysia, the Philippines, Singapore and Thailand, which co-operate in the fields of trade, industry and finance. A tangible result of this co-operation is the ASEAN Large-scale Industrial Project (AIP), the urea plant for Indonesia in Aceh, which is already in operation. Other means of industrial co-operation are the ASEAN Industrial Complementation Scheme (AIC) and the new ASEAN Industrial Joint Venture Scheme (AIJV). These schemes are supported by the ASEAN Preferential Trading Agreement (PTA) under which preferential access to the market of member countries can be granted.

The government has supported the development of industrial estates which facilitate foreign investors obtaining land, building permits, and other infrastructural facilities, such as water, electricity, sewage systems, telephones, etc. Six industrial estates and zones are in operation, including Pulangadung, Rungkut, Cilacap, Medan and Ugung Pandang, and Batam Island while six more industrial estates are in various stages of development or planning. Each industrial zone/estate is developed to become an industrial complex, with interlinkages, particularly with chemical and metal industries. Estate facilities also include an infrastructural base for industrial activities.

## 4. RESOURCES FOR INDUSTRIAL DEVELOPMENT

### 4.1 Human resources

Indonesia's labour force was estimated at 65 million in mid-1986, growing at an average annual rate of 2.4 per cent. The government's development plans envisaged that most of the increase in labour force would be absorbed into the manufacturing sector. According to projections contained in the current Five-Year Plan, REPELITA IV, the labour force is set to grow by 9.3 per cent during the Plan period, 1984/85-1988/89. Data presented by the Department of Manpower in mid-1985, well before the most recent slump associated with the 1986 oil price collapse, suggested that approximately 90,000 workers had been made redundant since 1982.

Data from the same source indicate a steady rise in the number of registered job seekers from approximately 502,500 in 1982 to almost 845,800 in 1985. Concurrently, the number of vacancies declined from 137,000 to less than 104,000 and the number of vacancies actually filled dropped from 96,000 to approximately 72,900 during the same period.

Despite the rapid expansion of manufacturing employment, the manufacturing sector has failed to fulfill expectations. Less than 20 per cent of the labour force increase in the 1970s, has been able to find jobs in this sector. This has been due largely to the increasingly capital-intensive form of industrialization strategy adopted during the latter half of the 1970s.

The largest sources of employment for the new entrants into the labour market have been the informal trade sector and public service. The state sector, which is comprised of central, provincial and local government institutions, as well as state agencies and public corporations, has in fact been one of the fastest growing employers. It is unclear whether this increase in employment levels has been matched by corresponding increases in productivity. The need to generate more productive employment opportunities elsewhere in the economy clearly remains urgent. Employment creation is the central focus of the development endeavour in manufacturing. Employing the younger potential members of the labour force in manufacturing activities calls for strong commitment towards manpower development.

The provision of universal free primary education is a major policy priority of the government, with vast numbers of elementary schools having been set up throughout the country by presidential decree. Official statistics suggest that approximately 97 per cent of all children of primary school age were, attending schools by the end of the last Five-Year Development Plan (REPELITA III). Indonesia, consequently, has a relatively low illiteracy rate of 28 per cent and a male illiteracy rate of only 19.5 per cent being recorded by the 1980 census. Serious efforts have also been made to expand secondary and tertiary education facilities. The total number of students attending such institutions was reported to have increased by more than 60 per cent during REPELITA III from 4.98 million in 1979/80 to 8.01 million in 1983/84. It has been officially estimated that enrollments in junior high schools, senior high schools and universities amounted to 44.0 per cent, 25.1 per cent and 5.1 per cent respectively of the total population in the relevant age groups in 1983/84.

Enhancing organizational skills and abilities is an important aspect of manpower planning. The application of science and technology could be usefully based on employment considerations and it could aim at providing employment opportunities and increasing labour productivity. Although the agricultural sector is an important sector in terms of employment, it plays a declining role in labour absorption, while the capital-intensive mining sector could play no more than a limited role in generating employment opportunities. The labour-intensive service sector in Indonesia is already characterized by overmanning. In the face of these trends, the government is pinning great hopes on the manufacturing sector as the potential source of employment generation. The changing industrial priorities and recent industrial policy reform packages attempt to stimulate employment initiatives on the labour-intensive industrialization path.

Human resources development is the cornerstone for accelerated national progress. In the past decade significant gains have been made in expanding access to education and improving the skills of the labour force. With the exception of some remote areas, the government's objective of universal enrolment in primary education has almost been attained. In order to balance quality and quantity of education as a key target, the financial allocation for the sector in REPELITA IV, as compared with REPELITA III, has been growing faster than any other sector. A number of crucial issues concerning policy and investment strategy in education and training needs to be addressed in the coming years and will require a substantial amount of technical assistance. The choice of an appropriate rate of expansion of secondary, vocational and tertiary teaching capacities and school enrolment, the quality of education in both public and private schools, the apparent contradiction between the observed high unemployment among school-leavers in urban areas, the drop-out rate and the overall shortage of skilled manpower in the economy, are all pressing issues which are being faced by decision-makers at present. Formal linkages with prospective employers and career councelling at schools will increase the chances of placement of graduates in employment.

Training of adequate numbers of skilled manpower to meet the development requirements of the economy is being carried out through a number of projects. The Model Skills Development Centre in Surabaya is planned to introduce and develop appropriate industrial and craft courses based on training needs, supply analysis and occupational standards, which will then be transformed into relevant curricula and suitable training aids, and will serve as a model for testing all training programmes in the country. A similar project exists for vocational training. Other training institutions receive technical assistance under such projects which focus on upgrading and expanding the operational capabilities.

An integrated approach involving the simultaneous implementation of three projects for employment generation, manpower planning and more equitable distribution of income is being pursued. This approach relates to the government's broad employment strategy and specific policy actions and projects included in the Third Country Programme (1985-1989). UNDP has been providing support for development of an employment and income distribution strategy and has attempted to enhance the capacity of the Ministry of Manpower, both at the national and regional levels. It will continue to assist in this area under a project entitled "Implementation of an Employment Creation Strategy", as well as projects for wage policy administration and productivity measurement. Further development of national and regional institutional capacities in planning is dependent upon effective information on manpower. This is supported through a project aiming at establishing an Indonesian Manpower Management Information System.

## 4.2 Agricultural resources

Despite the structural transformation which has taken place in the Indonesian economy during the past two decades, agriculture (including forestry and fishing) remains the most important source of non-oil/gas export earnings, and provides the raw materials for some of Indonesia's most promising manufactured exports such as plywood, sawn timber, and a variety of processed food products.

Increased local processing of these agricultural resources has, in fact, become one of the main objectives of Indonesia's industrialization strategy, and a variety of measures have been introduced in pursuit of this objective. These include the imposition of controls on a number of raw material exports such as timber and, most recently, rattan, and the provision of numerous incentives for entrepreneurs wishing to invest in these processing industries. Considerable scope nevertheless remains for a further expansion of these industries.

### Food crops

Of the five major subsectors comprising the agricultural sector, the food crop subsector is by far the most important, averaging almost 61 per cent of agricultural GDP during the 1978-1985 period. This subsector is almost entirely in the hands of smallholders who produce a range of staple foods such as cereals, roots and tubers, and pulses, as well as higher value vegetables and fruits. The government has made significant efforts to raise the productivity of this subsector since the mid-1960s by encouraging the adoption of "green revolution" technologies through the provision of chemical inputs, irrigation and credit together with a variety of price incentives to ensure their use.

These efforts have been particularly intensive in the case of rice, which is by far the most important food crop in terms of both production and consumption. It is the preferred staple food of the vast majority of the Indonesian population, and successive Indonesian governments have, therefore, regarded the maintenance of "adequate" supplies of rice at "reasonable" prices in consumer markets as a political imperative. This has resulted in the need for substantial volumes of rice imports throughout Indonesia's post-independence history, with these imports peaking at more than 2 million tons in 1980. Partly as a consequence of the balance of payments pressures imposed by these imports, and partly out of a strategically determined desire to meet Indonesia's needs for its basic food staple domestically, the achievement of rice self-sufficiency has long been one of Indonesia's most cherished goals. This objective was finally achieved in 1984/85 after four successive bumper harvests. Since then, however, production growth has slown down considerably, with both natural causes (such as pest attack and unfavourable weather conditions) and sharp changes in the incentive price structure (provoked by the government's need to cut agricultural subsidies in the face of its tightening resource constraints) contributing to this slowdown.

Other important food staples produced and consumed in Indonesia (Table 17) are maize, cassava, sweet potatoes, soyabeans and groundnuts, of which the first three are potential rice substitutes although, with the possible exception of maize, they have a much lower nutritional value than rice. Production of these crops stagnated for most of the 1970s and early 1980s, however, as the government's preoccupation with rice caused less emphasis to

be given to their development. More recently, however, the benign neglect suffered by these crops has been replaced by increased government interest, and their output levels are beginning to rise. This is particularly true of soyabeans, which have been most forcefully promoted by the government.

Table 17: Production of food crops, 1974-1986
('000 tonnes)

| | 1974 | 1979 | 1980 | 1981 | 1982 | 1983 | 1984 | 1985a/ | 1986a/ |
|---|---|---|---|---|---|---|---|---|---|
| Rice b/ | 15,276 | 17,872 | 20,163 | 22,286 | 22,837 | 24,006 | 25,932 | 26,542 | 26,784 |
| Maize | 3,011 | 3,606 | 3,991 | 4,509 | 3,235 | 5,087 | 5,288 | 4,556 | 5,931 |
| Cassava | 13,031 | 13,751 | 13,726 | 13,301 | 12,988 | 12,103 | 14,167 | 14,073 | 12,882 |
| Sweet Potatoes | 2,469 | 2,194 | 2,079 | 2,094 | 1,676 | 2,213 | 2,156 | 2,228 | 1,967 |
| Soybeans c/ | 589 | 680 | 653 | 704 | 521 | 536 | 769 | 865 | 1,195 |
| Groundnuts c/ | 307 | 424 | 470 | 475 | 437 | 460 | 535 | 542 | 580 |

Source: Central Bureau of Statistics, various publications.

a/ Preliminary.
b/ Milled Rice equivalent.
c/ Shelled.

Cash Crops

The cash crop subsector received relatively little priority as the petroleum and forestry subsectors expanded and their proceeds were used to finance industrial development and the politically more important food crop subsector. It was towards the late 1970s, when the oil bonanza showed its first signs of petering out, that the drive to promote non-oil/gas sources of export earnings caused greater emphasis to be placed on agricultrual commodities. In addition to widespread replanting of existing stands with newer high-yielding varieties, this also resulted in intensified efforts to expand cultivated acreage. Table 18 shows physical output of cash crops in Indonesia during 1974-1986.

One of the main ways in which the government has sought to achieve this area expansion was via the "nucleus estate and smallholders" (NES) scheme, which is also known by its Indonesian initials PIR. This calls for both state owned and private plantation companies to develop large tracts of land which are subsequently partitioned into a "nucleus" estate comprising 20 per cent of the total acreage over which the developers retain exploitation rights, and surrounding "plasma" plantations comprising 80 per cent of the total acreage which are to be relinquished to smallholders. The performance of this scheme has suffered considerably from the many conditions imposed on private investors, who are required to develop various infrastructural facilities for the "plasma" smallholders and provide them with a variety of support services. In order to boost investment interest in this scheme, therefore, the government has introduced a succession of measures in recent years to simplify and relax these conditions. Increasingly, moreover, this programme is being carried out in conjunction with the "transmigration" policy of population resettlement in a hybrid scheme known as Trans-PIR.

The most important of Indonesia's cash crops is rubber, and Indonesia was the world's largest producer of this commodity until 1957 when it was overtaken by Malaysia. After many years of neglect, the rubber industry began to be rehabilitated in the early 1970s, and the pace of these efforts has accelerated in recent years. For the most part, they involve replanting existing stands of senile or low yielding varieties with modern high yielding hybrids rather than an expansion of planted area, although some new area has been brought under cultivation via the NES scheme. As a result of these efforts, and given the much lower labour costs prevailing in Indonesia, the government hopes that Indonesia will regain its position as the world's leading producer of rubber by the end of the present century. Output growth is, however, extremely sensitive to international prices, as was shown in 1981 and 1982 when slumping world prices caused smallholder producers to cut back on rubber tapping.

Manufacturing implications of rubber stem from a derived demand for all natural and synthetic rubber, with roughly 50-60 per cent going into tyres, 15 per cent into non-tire automotive products and the remainder is used for household and industrial goods, such as rubber gloves, footwear and conveyor belts. Rubber is predominantly an export commodity, and 90 per cent of the production is exported. Indonesia's relatively low export unit values highlight the country's pattern of production; two-thirds that are exported as standard rubber are produced by smallholders and the rest, exported in the form of latex, is produced by the estate sector.

Table 18: Production of cash crops, 1974-1985
('000 tonnes)

| | 1974 | 1979 | 1980 | 1981 | 1982 | 1983 | 1984 | 1985a/ | 1986a/ |
|---|---|---|---|---|---|---|---|---|---|
| Rubber | 817 | 898 | 1,020 | 963 | 900 | 1,007 | 1,033 | 1,060 | 1,034 |
| Palm oil | 348 | 642 | 701 | 748 | 884 | 979 | 1,147 | 1,208 | 1,419 |
| Coconut/copra | 1,341 | 1,582 | 1,759 | 1,812 | 1,718 | 1,604 | 1,750 | 1,800 | 1,864 |
| Coffee | 149 | 228 | 285 | 295 | 281 | 305 | 315 | 335 | 346 |
| Tea | 64 | 125 | 106 | 110 | 94 | 110 | 126 | 128 | 136 |
| Cloves | 15 | 35 | 39 | 40 | 32 | 41 | 49 | 58 | 59 |
| Pepper | 27 | 47 | 37 | 39 | 34 | 46 | 46 | 46 | 48 |
| Tobacco | 79 | 87 | 116 | 118 | 106 | 109 | 108 | 106 | 104 |
| Cane sugar | 1,237 | 1,601 | 1,831 | 1,700 | 1,627 | 1,628 | 1,810 | 1,865 | 1,986 |
| Cotton | 3 | 1 | 6 | 10 | 13 | 14 | 12 | 43 | 43 |
| Cocoa | ... | ... | 10 | 13 | 17 | 19 | 23 | 32 | ... |

Source: Department of Agriculture, except cocoa from Center for Policy Studies, Kajian Perekonomian Indonesia, VI, 4 April 1987, p.22.

a/ Preliminary.

Indonesia is also the world's second largest producer of palm oil after Malaysia. This commodity is produced almost entirely by the estate sector, and has been the object of considerable government attention in recent years with most of the proposed projects so far licenced being devoted to an expansion of this crop. Both acreage and output have recorded a rapid growth during the 1970s, although this expansion in Indonesian production has also contributed significantly to the weakening of international prices which are already under pressure from dramatic output increases in other parts of the vegetable oil complex. These softening prices have aggravated the other disincentives perceived by potential investors in relation to the NES scheme, and have caused even the licenced projects to be implemented only very slowly. This is threatening to result in a substantial underachievement of the government's target of raising planted area to 1.3 million ha by the end of the current Five-Year Plan in March 1989 from less than 300,000 ha in 1980.

The palm oil processing industry in Indonesia has in recent years experienced tremendous increases in the area of fractionation and refining. The government attempted to make investment in palm oil processing attractive by ensuring the supply of new materials at controlled prices. Since palm oil prices experience limited fall relative to other commoditiy prices on the world market, the prospects remain good.

After the Philippines, Indonesia is also the world's second largest producer of coconut products, and specifically coconut oil and copra cakes. The former is used almost entirely as a cooking oil in the domestic market, while some of the latter is exported. Unlike palm oils, however, coconut palms are cultivated primarily by smallholders. The industry had been permitted to decline until the late 1970s, since when a large-scale replanting programme has been under way. Production was also affected by drought in 1982, the effects of which lingered into 1983 and 1984. Since then, output has begun to expand rapidly, allowing Indonesia to resume exports on a small scale in 1986. There exists greater scope for higher processing of coconut products in Indonesia.

Coffee is another major cash crop produced by Indonesia, and the country has just overtaken the Cote d'Ivoire in the 1986/87 coffee year ending September 30 to become the world's third largest producer after Brazil and Colombia. Almost the entire crop consists of robusta varieties, and some 90 per cent of it is cultivated by smallholders. The coffee industry has, however, suffered seriously from constraints imposed upon it by Indonesia's membership of the International Coffee Organization (ICO), which in the past has granted Indonesia only a very small share (4.5 per cent during the current coffee year) of its global export quota whilst at the same time imposing increasingly tight conditions on Indonesian coffee sales in non-quota markets. Soaring prices resulting from the Brazilian harvest failure in 1985/86 and the subsequent suspension of quotas have mitigated the effects of these strictures during the past two years, but the more recent slump in coffee prices to a 25-year low in real terms has caused the outlook to become considerably bleaker. It is clouded further by the ICO's inability to agree on a new quota allocation formula, which most consumers and several producers, including Indonesia, regard as a prerequisite for the reimposition of quotas.

The processing of coffee is largely decentralized in Indonesia. The methods of processing depend on the commercial type of coffee produced. The warehousing facilities can store an output equivalent to one year's production.

Apart from these leading cash crops, Indonesia also produces cocoa, cotton, numerous spices, sugar, tea and tobacco in commercial quantities. Cocoa and cotton, while not entirely new to Indonesia, have only recently been emphasized, and while Indonesia has a considerable potential as a cocoa producer the stress being given to cotton is in many ways analogous to the backward integration being pursued in the manufacturing sector. There is considerable doubt whether Indonesia is climatically suited to cotton production, and the imposition of any serious obligations on the domestic textile industry to procure its supplies of raw cotton locally could substantially undermine its future prospects.

Sugar, which is promoted by the government in the interests of self-reliance, is widely regarded as the bête noire of the Indonesian cash crops subsector. Of all the major crops grown on irrigated land in Indonesia in 1987, sugar is one of the least competitive at economic prices, and that a shift from sugar to rice production in Java would raise direct farm income by more than Rp150 billion per year at present price levels. It also estimated the opportunity cost of domestic sugar production at nearly $.2> per ton.

Fisheries

International recognition in 1982 of this concept of the archipelagic state permitted Indonesia to declare the waters separating its many islands as exclusive economic zone (EEZ), thus giving it undisputed control over the vast marine fisheries resources of this sea area. Their development has been hampered to a considerable degree by the Indonesian fishing industry's continued dependence on traditional methods and equipment, so that the fisheries subsector still only accounted for 1.7 per cent of GDP in 1985. A wide range of programmes to motorize the Indonesian fishing fleet and the granting of fishing licences to foreign vessels, as well as the promotion of foreign investments in the industry have, however, resulted in steadily rising catches. Special emphasis is being given to shrimp and tuna fisheries, which in the main serve the Japanese export market. Table 19 shows the volume of saltwater and freshwater fish landings during 1974-1986.

The government is also seeking to enhance the potential of Indonesia's freshwater fisheries, which provide the bulk of animal protein consumed in the country. To this end, freshwater shrimp hatcheries are being promoted and a "nucleus fishpond" scheme similar to the NES programme for cash crops has been introduced, in which private (including foreign) investment is being encouraged.

Table 19: Fish landings, 1974-1986
('000 tonnes)

| | 1974 | 1979 | 1980 | 1981 | 1982 | 1983 | 1984 | 1985a/ | 1986a/ |
|---|---|---|---|---|---|---|---|---|---|
| Saltwater | 949 | 1,318 | 1,395 | 1,408 | 1,490 | 1,682 | 1,713 | 1,810 | 1,900 |
| Freshwater | 388 | 430 | 455 | 506 | 524 | 533 | 548 | 565 | 598 |

Source: Department of Agriculture and Supplement to the President's Report to Parliament, various issues.

a/ Preliminary.

Livestock products

Despite an impressive growth in Indonesia's population of farm animals and in the output of animal products during the past decade or so (Table 20), the animal husbandry subsector remains relatively less developed and contributes only about 3.5 per cent to overall GDP. The growth achieved by the animal husbandry industry has been largely due to a number of government sponsored programmes involving the provision of extension services to livestock farmers and the expansion of ranching areas on the "outer" islands. These efforts have been intensified in the past year or so with imports of large heards of dairy cattle from the USA, Australia and New Zealand for distribution among smallholders throughout the country, as well as imports of breeding stock for beef cattle with financial assistance from the World Bank and the Asian Development Bank.

The announcement in 1985 that Singapore would phase out all forms of animal husbandry by 1988 has also provided considerable opportunities for Indonesia, and has resulted in the launching of several Singaporean-Indonesian joint ventures for the production of a variety of livestock and animal products for export to Singapore, including eggs, ducks, beef cattle, and especially pigs. In consequence, some 2,000 US hogs are being imported as breeding stock to supply between 10,000 and 30,000 live pigs per year for slaughter in Singapore.

Forestry resources

With an estimated 120 million ha covered by forests, Indonesia has some of the most extensive concentrations of tropical hardwood in the world. These began to be explotied at a rapid rate in the late 1960s, and with heavy foreign investment being attracted into the industry during the 1970s, Indonesia's annual output of industrial logs rose from only 4 million cubic metres in 1963 to an average of 22 million cubic metres between 1974 and 1980. As the bulk of this production was destined for export, timber became the single most important export commodity after oil and natural gas during this period.

Following a government decision in 1980 to increase the content of domestic value added in its forestry exports, the export of raw logs has gradually been phased out and in 1985 was banned altogether. This promotion of local processing has resulted in a rapid increase in plywood manufacturing, which more than quadrupled between 1975 and 1986 to some 4.7 million cubic metres, and in the production of sawn timber.

In addition to its tropical rain forests, Indonesia also has sizeable teak plantations, which the government plans to expand considerably during the coming years. Other significant products of the forestry subsector are rattan, resins and copal. In order to promote the domestic rattan processing industry, the government banned all exports of raw rattan in 1986 and announced that exports of semi-processed rattan products would be banned from 1989 onwards. Manufacturing implications of Indonesia's forestry resources are outlined in chapter 2.7. Table 21 depicts the production of timber 1974-1984.

Table 20: Production of livestock and animal products, 1974-1986

| | 1974 | 1979 | 1980 | 1981 | 1982 | 1983 | 1984 | 1985a/ | 1986a/ |
|---|---|---|---|---|---|---|---|---|---|
| **Livestock Numbers ('000)** | | | | | | | | | |
| Cows | 6,466 | 6,362 | 6,440 | 6,516 | 6,594 | 8,895 | 9,236 | 9,318 | ... |
| Buffaloes | 2,415 | 2,432 | 2,457 | 2,488 | 2,513 | 2,398 | 2,743 | 2,838 | ... |
| Goats | 6,517 | 7,659 | 7,691 | 7,790 | 7,891 | 10,970 | 11,947 | 12,117 | ... |
| Sheep | 3,403 | 4,071 | 4,124 | 4,177 | 4,231 | 4,789 | 4,698 | 4,940 | ... |
| Horses | 600 | 596 | 616 | 637 | 658 | 527 | 659 | 696 | ... |
| Pigs | 2,906 | 3,183 | 3,155 | 3,364 | 3,587 | 4,211 | 5,112 | 5,371 | ... |
| Chickensb/ | 93.1 | 121.4 | 149.3 | 157.4 | 166.1 | 187.6 | 196.4 | 205.6 | ... |
| Ducksb/ | 13.6 | 18.1 | 21.1 | 22.4 | 23.9 | 23.8 | 24.7 | 25.6 | ... |
| **Livestock Products ('000 tons)** | | | | | | | | | |
| Meat | 403 | 486 | 571 | 596 | 629 | 650 | 742 | 808 | 889 |
| Eggs | 98 | 164 | 259 | 275 | 297 | 319 | 355 | 373 | 396 |
| Milkc/ | 57 | 72 | 78 | 86 | 117 | 145 | 179 | 192 | 220 |

Source: Department of Agriculture and Supplement of President's Report to Parliament, various issues.

a/ Preliminary. b/ Millions. c/ Million litres.

Table 21: Production of timber, 1974-1984
('000 cu m)

| | 1974 | 1979 | 1980 | 1981 | 1982 | 1983 | 1984 |
|---|---|---|---|---|---|---|---|
| Teak | 620 | 495 | 613 | 578 | 692 | 718 | 758 |
| Other timber | 22,660 | 25,520 | 21,702 | 14,024 | 13,236 | 27,716 | 24,277 |

Source: Supplement to the President's Report to Parliament, various issues.

## 4.3 Mining and energy resources

A relatively small proportion of Indonesia's area has so far been surveyed for its mineral content, so that the country's potential mineral reserves probably far exceed known deposits. Even the known deposits, which in many cases are still unquantified, are impressive, and include both hydrocarbons, such as oil, natural gas and coal, and hard minerals, such as tin, bauxite, copper, nickel, iron sands, gold and silver. Smaller concentrations of manganese, phosphate rock and sulphur are also found in Indonesia. Most of these deposits are highly localized, however, and are frequently located in remote areas, so that their exploitation involves high costs. Consequently, both investment and output levels in the mining industry are extremely sensitive to changes in international market conditions.

Considerable efforts have nevertheless been made by the government to exploit these mineral resources during the past two decades, usually in co-operation with foreign investors, and the mining sector's share in GDP has risen markedly during this period, from less than 4 per cent in 1960 to 23 per cent in 1980 when this share reached its peak. Much of this growth has, however, been due to the rapid expansion of the oil/gas industry during this period, which accounts for some 95 per cent of the value of the mining sector's output. As a result of its heavy dependence on just one industry, therefore, the performance of the mining sector as a whole is closely linked to, and critically determined by, the fortunes of its main industry. The post-1982 slump in international energy markets and the consequent cutbacks in oil production have, thus, caused a significant contraction of the mining sector's contribution to GDP.

As in the case of its agricultural raw materials, the Indonesian government has strenuously promoted local processing of its mineral resources as a means of fostering industrial development. Consequently, only a relatively small proportion of Indonesia's metallic minerals are now exported in unprocessed form, and the last decade has witnessed a considerable expansion of Indonesia's petrochemical industry. Financial constraints imposed by declining oil revenues have, however, caused a slowdown in the rate of this expansion in recent years.

Hard minerals

Indonesia is the world's second largest producer of tin after Malaysia. This is mined primarily on the islands of Bangka, Belitung and Singkep in the Riau archipelago off the southeastern coast of Sumatra. Owing to weakening world markets and export restrictions imposed by the now defunct International Tin Council, production has been falling steadily since the early 1980s. Following the tin crisis of 1985, however, the state owned company responsible for mining some 90 per cent of Indonesia's tin, PT Tambang Timah, has begun to raise output again, partly in order to benefit from its status as one of the world's most low-cost tin producers, but mainly to minimize the inevitable dislocations to the economy of the tin belt islands where the company is by far the largest employer.

Other important mining ventures involve the recovery of bauxite, of which the Riau islands, together with West Kalimantan, are also a major source; copper, which is mined solely in the Ertsbert mountains of Irian Jaya, although deposits have also been found in Sumatra, Kalimantan, Java and Sulawesi; and nickel, which is mined at several locations in Sulawesi, but principally at Soroako in South Sulawesi. The preformance of these industries has been patchy in recent years, with depressed market conditions causing nickel and bauxite production to contract and copper production to fluctuate wildly between 1980 and 1985 (Table 22).

Following the recent slump in oil prices, Indonesia has embarked on a major programme to expand its output of precious metals, and especially of gold. Nine contracts were awarded to private companies to explore for gold in 1985, and 34 in 1986, with a further 60 expected to be signed in the current year and some 600 other companies reportedly waiting for their contract applications to be processed. This gold rush is already yielding results, with the 3.9 tons produced in the first four months alone for 1987 which already exceeds the 3.2 tons produces during the whole of 1986. According to official projections, output may rise to 150 tons within the next five years.

Table 22: Production of hard minerals, 1974-1985
('000 tonnes)

| | 1974 | 1979 | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 |
|---|---|---|---|---|---|---|---|---|
| Tin concentrate | 25.7 | 29.4 | 32.5 | 35.2 | 33.8 | 26.6 | 23.2 | 22.4 |
| Copper ore concentrate | 212.6 | 188.8 | 186.9 | 188.5 | 223.7 | 205.0 | 190.3 | 233.4 |
| Nickel ore | 878.9 | 1,551.9 | 1,537.4 | 1,553.2 | 1,640.9 | 1,298.0 | 1,066.8 | 955.6 |
| Bauxite | 1,290.1 | 1,051.9 | 1,249.1 | 1,203.2 | 700.2 | 777.9 | 1003.2 | 830.5 |
| Iron sand concentrate | 365.2 | 79.9 | 62.9 | 86.6 | 144.5 | 124.9 | 83.0 | 130.9 |
| Gold a/ | 265.3 | 170.0 | 247.9 | 183.1 | 222.7 | 259.5 | 239.1 | 235.4 |
| Silver a/ | 6,464.6 | 1,644.6 | 2,196.0 | 2,000.2 | 3,057.9 | 1,793.7 | 1,999.7 | 2,151.8 |

Source: Central Bureau of Statistics, various publications.

a/ Kilo.

The bulk of Indonesia's mining output is exported. In line with the Indonesian government's policy to add as much domestic value as possible to its raw material exports, and also reduce its dependence of imports of processed forms of these raw materials, heavy emphasis has been placed on the establishment of local processing industries during the past decade or so. Thus, by 1985 the value of processed tin, aluminium, and nickel matte exports far exceeded the export value of tin concentrates, bauxite, and nickel ore respectively. This determination to expand Indonesia's domestic mineral processing capacity has most recently found expression in a proposal to revive a project for the construction of an alumina plant which had fallen prey to the project rescheduling exercise of 1983.

Energy

Indonesia is an extremely energy-rich country with access to a diversity of energy resources (Table 23). Even abstracting from the rich potential for such alternative forms of energy such as solar power, tidal power and wind power for which its geographical location and structure make it an eminet candidate, it is richly endowed with more conventional energy soruces. These include both hydrocarbons, of which Indonesia has a large and as yet largely unexploited potential. Consequently, Indonesia needs to import only a relatively small proportion of its total energy requirements, while its own energy production yields substantial surpluses for export.

The bulk of Indonesia's commercial energy needs have traditionally been met by oil. As the accelerated pace of economic development in the late 1970s caused these needs to increase rapidly, domestic oil consumption also began to rise sharply, at a rate exceeding output growth. This gave rise to mounting fears about the looming decline in Indonesia's exportable surplus,[1] and in 1980 prompted the Indonesian government to take firm measures to diversify the sources of its domestic energy consumption. A national energy co-ordinating board, Bakoren, was established in November of that year to monitor and plan

1/ Arndt, H.W., "Survey of Recent Developments", Bulletin of Indonesian Economic Studies, XVII, 3 November 1981, pp.10-14.

the utilization of Indonesia's energy resources, and the intervening years have witnessed a considerable transformation in the patterns of Indonesia's domestic energy usage as other sources of energy have been developed. Although the recent oil price collapse has significantly altered the economics of this process, the current low oil price levels are regarded as being sufficiently temporary in nature for them not to warrant a significant reversal of this essentially longer term policy. According to most recent proposals, the share of oil as a source of domestic energy is, therefore, still targeted to be reduced from its current level of approximagely 80 per cent of 60 per cent by 1990.

Latest available estimates suggest that Indonesia has proven recoverable reserves of crude oil amounting to 8.3 billion barrels, which at current rates of extraction will be exhausted in less than 20 years. This figure is certain to represent a considerable underestimate of the country's total crude oil resources, since only 34 of its 60 known oilfields have been explored so far, and only 14 have been developed. As most of Indonesia's oilfields are relatively small and hence rapidly depleted, however, maintenance of the oil industry's productive capacity requires constant exploration and development of new fields.

To this end, and in view of the unavailability of adequate technical and financial resources within Indonesia, foreign investment in the industry has been actively encouraged since 1966. Although the terms governing such investments vary slightly from case to case, the standard procedure is for foreign oil companies to enter into a production sharing contract with the state owned Indonesian oil company Pertamina, under which the foreign contractor makes after tax profits equivalent to 15 per cent of the oil produced. By the end of 1986, more than 120 such production sharing contracts had been signed.

Table 23: Energy supply/demand balance, 1985
(million tonnes of oil equivalent)

| | Oil | Gas | Coal | Electricity | Other | Total |
|---|---|---|---|---|---|---|
| Primary supply | | | | | | |
| Production | 63,8 | 30,4 | 0,9 | 0,8[a]/ | 28,0 | 123,9 |
| Imports | 2,8 | - | 0,5 | - | - | 3,3 |
| Exports | 46,3 | 18,4 | 0,6 | - | - | 65,3 |
| Changes in stocks | 2,4 | - | - | - | - | 2,4 |
| Total[b]/ | 22,7 | 12,0 | 0,8 | 0,8 | 28,0 | 64,3 |
| Total[b]/ | 22,7 | 12,0 | 0,8 | 0,3 | 28,0 | 63,8 |
| Processing and transformation | | | | | | |
| Losses and transfers | 4,3 | 8,1 | 0,4 | 0,3 | - | 13,1 |
| Transformation output | - | - | - | 1,3[a]/ | - | 1,3 |
| Final consumption | | | | | | |
| Transport fuels | 7,2 | - | 0,1 | - | - | 7,3 |
| Industrial fuels | 4,8 | 0,8 | 0,3 | 0,6[a]/ | 0,7 | 7,2 |
| Residential etc. | 5,8 | 0,1 | - | 0,7[a]/ | 27,3 | 33,9 |
| Non-energy uses | 0,6 | 3,0 | - | - | - | 3,6 |
| Total | 18,4 | 3,9 | 0,4 | 1,3[a]/ | 28,0 | 52,0 |

Source: The Economist Intelligence Unit, Country Profile Indonesia, 1986-1987, p. 35.

The gradual exhaustion of the more readily accessible oilfields is increasingly forcing exploration activity to shift to frontier areas. The consequent increase in exploration and development costs, combined with softening oil prices and uncertainties associated with the introduction of Indonesia's new tax laws in 1984, caused a sharp decline in the rate at which Indonesia was able to attract new investments into the oil industry, with the number of production sharing contracts signed falling from an average to ten per year during the late 1970s to an annual average of only two per year between 1983 and 1986. More recently, there appears to have been a revival of investment interest, and five such contracts were signed in the first six months of 1987 alone.

The Indonesian oil industry's production capacity is currently estimated at some 1.5 million barrels per day, down from a peak of almost 1.7 million barrels per day in 1977. As a result of production curbs imposed by OPEC in support of international oil prices, however, annual production levels have fallen well short of capacity since 1983, with Indonesia's current quota requiring it to hold output to a daily average of approximately 1.16 million barrels during 1987 (Table 24).

In addition to oil, Indonesia has proven recoverable reserves of natural gas estimated at more than 14.5 billion barrels of curde oil equivalent. Commercial exploitation of these reserves began in 1977/78, when two major natural gas fields at Arun in northern Sumatra and Badak in East Kalimantan were brought on stream and liquification facilities were established to permit the production of liquified natural gas (LNG). Since then, Indonesia's production capacity for LNG has increased to approximately 18.5 million tons per year, of which 14.7 million tons and 2 million tons are exported to Japan and the Republic of Korea respectively under long-term contracts, and is to be increased further to 20 million tons by 1989 when annual shipments of 1.5 million tons to the Taiwan Province of China are scheduled to commence. Meanwhile, Indonesia is also seeking to secure sufficient export orders to permit viable development of its largest known gasfield, located off the Natuna islands in the South China Sea, and negotiations with Singapore are currently underway on the feasibility of using natural gas to fuel Singapore's proposed new Pulau Seraya power station.

In order to utilize its natural gas resources more extensively, Indonesia has also embarked upon a programme to expand its production of liquified petroleum gas (LPG), which hitherto has been produced almost entirely as a by-product of crude oil refining. The recent signing of a contract to supply 2 million tons of LPG per year to Japan from 1988 onwards has permitted construction to begin on specifically designed LPG facilities at the Arun and Badak natural gas processing plants. The domestic utilization of natural gas, both as a source of energy and as raw material is also being encouraged. Thus, several large industrial plants have been converted to use LNG as a fuel and two urea plants in Aceh in northern Sumatra now use LNG as a feedstock. More recently, Indonesia has imported equipment for the production of compressed natural gas (CNG) to fuel a part of the Jakarta taxi fleet in a pilot project design to evaluate its potential as a automotive fuel.

With only about 10 per cent of Indonesia's potential coal bearing areas having been surveyed so far, estimates of the country's coal reserves vary considerably, from 6.5 billion tons to almost 23 billion tons. As part of its programme to diversify domestic energy sources, the Indonesian government is making a determined effort to increase the use of coal, especially in the

generation of electricity. This effort involves the expansion of the main existing coalfields at Bukit Asam in South Sumatra and Ombilin in West Sumatra, as well as the promotion of a more intensive exploration and development of new fields, and has already resulted in substantial production increases.

Table 24: Production of oil, gas and coal, 1974-1985

| | 1974 | 1979 | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 |
|---|---|---|---|---|---|---|---|---|
| Crude oil (mn b) | 502.0 | 580.0 | 577.0 | 584.0 | 488.2 | 490.5 | 516.9 | 483.8 |
| Natural gas (mcf) | 202.2 | 998.4 | 1,045.7 | 1,123.7 | 1,111.9 | 1,186.4 | 1,493.0 | 1,580.0 |
| Coal ('000 tons) | 156.2 | 278.6 | 304.0 | 350.4 | 481.0 | 485.7 | 1,084.7 | 1,491.6 |

Source: Central Bureau of Statistics, various publications.

The main producer of electricity in Indonesia is the state-owned company PLN, which generates, transmits and distributes electricity throughout the country. Its generating capacity has increased substantially since the early 1970s as a result of heavy investment involving financial assistance of some $2.8 billion from the World Bank and Asian Development Bank (Table 25). Despite these capacity increases, however, its production has not kept pace with demand, as is indicated by a considerable growth in non-PLN output until 1981. Its rates are also among the highest in south-east Asia, even after a 6 per cent cut for industrial users which came into effect in August 1986. This is due largely to waste and inefficiency, with a recent ADB study noting that the company's return on assets was just above zero, well below the 8 per cent level regarded by the Bank as the "lowest tolerable return".

Table 25: Generating capacity and production of electricity, 1974-1985

| | 1974 | 1979 | 1980 | 1981 | 1982 | 1983 | 1984 | 1985a/ |
|---|---|---|---|---|---|---|---|---|
| Generating Capacity (PLN only, mw) | | | | | | | | |
| Diesel | 264 | 534 | 522 | 569 | 635 | 784 | 839 | 883 |
| Steam | 250 | 750 | 756 | 956 | 1,356 | 1,556 | 2,086 | 2,286 |
| Hydro | 279 | 351 | 378 | 398 | 425 | 511 | 536 | 538 |
| Gas | 126 | 772 | 896 | 897 | 879 | 1,028 | 1,072 | 1,096 |
| Other | - | - | - | - | 30 | 30 | 30 | 30 |
| Total | 919 | 2,407 | 2,522 | 2,821 | 3,343 | 3,909 | 4,563 | 4,835 |
| Output (mn kwh) | | | | | | | | |
| PLN | 2,567 | 5,850 | 7,067 | 8,229 | 10,103 | 12,111 | 13,589 | 14,810 |
| Other b/ | 679 | 802 | 815 | 1,502 | 1,289 | 1,281 | 1,160 | 1,003 |
| Total | 3,246 | 6,652 | 7,882 | 9,731 | 11,392 | 13,392 | 14,749 | 15,813 |

Source: Perusahaan Listrik Negara (PLN).

a/ Preliminary. b/ Only includes electricity distributed through PLN.

Indonesia has a potential exploitable hydroelectricity capacity of some 15.5 billion kwh, of which nearly a third is located in Irian Jaya, although the Citarum river in West Java and the Asahan river in North Sumatra, where major hydroelectricity projects have already been inaugurated in the past few years, also offer considerable scope for hydropower generation, as do several rivers in Bali and Sulawesi. In addition, Indonesia has substantial geothermal resources, of which reserves with a capacity of some 900 mw have so far been discovered in Java and Sulawesi. Kamojang in West Java is so far the only site where these resources are being commercially exploited by means of a 30 mw generating plant established in 1983, which is currently being expanded to provide an output of more than 100 mw. Somewhat more controversially, if for no other reason than that uranium is the one energy source which has not so far been discovered in commercial quantities in Indonesia, the Indonesian government is at present also embarking on a project to establish a nuclear power generating capacity of some 600-1,000 mw at Mount Muria in Central Java.

4.4 The role of technical co-operation in industrial development

Indonesia is a major recipient of international development assistance, the bulk of which is provided by the Inter-Governmental Group on Indonesia (IGGI), a consortium of multilateral and bilateral Western aid donors. Commitments have been rising steadily in recent years, and for the current year were raised to more than $3.1 billion from approximately $2.9 billion last year. Disbursements have been considerably slower, however, leading to a buildup of some $16.6 billion in committed but undisbursed aid by the end of 1986. One of the main reasons for this slow rate of disbursement has been the fact that almost all of this assistance has consisted of project aid which Indonesia has had difficulties in absorbing. This has been due in part to financial constraints, which have limited the government's ability to provide the matching counterpart funds, but often mainly to technical and institutional constraints hampering the preparation and implementation of particular projects. Substantial flows of non-project aid have been made available to the Indonesian government since the beginning of this year to help offset its tightening financial constraints. These, together with the government's decision in 1986 to set up a high-powered team under the deputy chairman of the national development planning agency BAPPENAS to remove the other impediments to swift project implementation, should, however, help to alleviate these problems.

A sectoral breakdown of these project aid flows indicates that the industrial sector (including mining) has been one of their prime beneficiaries. During the Second Five-Year Development Plan (REPELITA II) from 1974/75 to 1978/79, more than 18 per cent of disbursed project aid was devoted to industrial development, with this figure rising to almost 28.5 per cent in the Third Development Plan (REPELITA III) period from 1979/80 to 1983/84. In the first two years of the current Plan (REPELITA IV) which began in April 1984, this share has fallen again to just over 19 per cent, and was budgeted to fall even lower to about 11.5 per cent in 1986/87-1987/88 as the government began to redirect its much reduced public investment into sectors with a greater capacity for rapid employment and income generation, such as agriculture and tourism, and into infrastructural and manpower development.

UNIDO has played an active role in providing technical assistance to Indonesia's industrial sector, and has executed all UNDP financial industrial development projects. During the period 1979-1984, a total of nine IPF funded projects with a total value of $6.14 million were approved under the Second

Country Programme for Indonesia. These have spanned a wide range of fields, including the development of small-scale industries, industrial development of the "outer" islands, the improvement of industries producing building materials for low-cost housing, the development of an industrial institutional infrastructure, improvement of research and development institutions, and human resources development at middle managerial and higher levels. Further an industrial sector survey was conducted by UNIDO in 1983/84.

Under the Third Country Programme for Indonesia, scheduled for 1985-1989, which was approved by the Governing Council of the UNDP in June 1985, $15.6 million have been earmarked for industrial development of which $4.43 million are allocated for on-going projects. In line with the objectives and priorities set by the Indonesian government, the main focus of the Country Programme is on human resources development as well as the development of key economic sectors such as agriculture, fisheries and forestry, and small- and medium-sized industries. It also aims to assist regional, rural and urban development, as well as promoting trade and exports and the advancement of social services and technology. In additon, the Country Programme also covers priority areas such as environmental control and conservation, enhancement of the role of women, technical co-operation among developing countries, and investment generation.

Within the framework set by the Third Country Programme, the UNDP/IPF funded technical assistance currently provided by UNIDO spans an extensive range, involving both general projects designed to promote industrial development and specific projects related to particular industries. The former category includes a project for strengthening the capabilities of the national Investment Co-ordinating Board (BKPM) for backstopping overseas investment efforts and organizing the 1987 Investor's Forum (INS/83/021), as well as a project to improve the system of industrial standards and quality control (INS/85/917) in order to raise the competitiveness of Indonesia's manufactured exports. It also includes projects to expand the capacity of the machine tool and engineering industries (INS/85/026) and to support management training for small-scale industrial enterprises (INS/85/037) in order to upgrade the manufacturing sector's technical base and enhance the quality of entre- preneurship. The latter category includes assistance for sub-sectoral studies relating to the downstream aluminium industry (INS/83/020), the nitric acid industry (INS/85/018), marine based industries (INS/85/015), and sucro based industries (INS/86/003). A list of manufacturing projects seeking external assistance is presented in Annex D. A list of operational and completed UNIDO technical assistance projects in Indonesia is included in Annex E.

In addition to IPF funded projects, UNIDO has also been charged with the execution of numerous projects under SIS, RP, IDF, and TF resources. Fifteen such projects with a total value of $776,650 have been approved since January 1983, and several other areas have been identified for future financing under non-IPF resources. The approved and pipeline projects funded by such means include broadly based projects to provide assistance in waste management and pollution control as well as training on investment promotion, industrial project management, project procurement and contract negotiation, and also more narrowly defined projects to assist specific industries, such as the automotive industry, the shipbuilding and repair industry, the textile and leather industires, the pharmaceutical industry, and the aluminium industry. These technical co-operation projects contribute to the strengthening and diversification of the Indonesian manufacturing sector in line with the changing priorities of the government.

# ANNEX A

# STATISTICAL TABLES

Table A-1. Budgetary revenue and expenditure, 1985/86-1986/87
(Rp billions)[a/]

| | | 1986/87 (Budget) | 1986/87 (Provisional Outturn) | 1985/86 - 1986/87 Change (%) | 1986/87 Budget -1986/87 Outturn Change (%) |
|---|---|---|---|---|---|
| REVENUE | | | | | |
| | A. Domestic Revenue | 17,833 | 16,151 | -16.2 | -9.5 |
| | Oil & LNG | 9,738 | 6,338 | -43.1 | -34.9 |
| | Oil | 8,146 | 5,263 | -44.3 | -35.4 |
| | LNG | 1,593 | 1,074 | -36.7 | -32.6 |
| | Non-Oil & LNG | 8,094 | 9,803 | 20.9 | 21.1 |
| | Income tax | 2,881 | 2,271 | -1.8 | -21.2 |
| | Value added tax | 2,143 | 2,900 | 24.6 | 35.3 |
| | Property tax | 284 | 190 | 13.5 | -33.1 |
| | Import duties | 580 | 960 | 58.1 | 65.5 |
| | Excise tax | 1,055 | 1,056 | 11.9 | 0.1 |
| | Export tax | 79 | 79 | 56.1 | 0.0 |
| | Non-tax revenue | 954 | 1,147 | -23.1 | 0.0 |
| | Fuel oil revenue | - | 1,010 | - | - |
| | Other taxes | 119 | 190 | -8.6 | 60.0 |
| | B. Development Revenue | 3,589 | 5,752 | 61.0 | 60.3 |
| | Program Aid | 81 | 1,958 | 2,729.1 | 2,304.8 |
| | Pure Program Aid | 81 | 81 | 17.6 | 0 |
| | Foreign funds converted to rupiah b/ | - | 1,876 | - | - |
| | Project Aid | 3,508 | 3,795 | 8.8 | 8.2 |
| | Ex-Im Bank Japan | - | 604 | - | - |
| | Other | 3,508 | 3,190 | -8.9 | -9.1 |
| | C. Total | 21,422 | 21,893 | -4.1 | 2.2 |
| | D. Basic Assumptions | | | | |
| | Oil production (m b/d) | 1.329 | 1.401 | 3.6 | 5.4 |
| | Oil price ($/b) | 25.00 | 13.07 | -51.6 | -47.7 |
| EXPENDITURE | | | | | |
| | E. Routine Expenditure | 13,126 | 13,559 | 13.5 | 3.3 |
| | Civil Service | 4,212 | 4,311 | 7.3 | 2.3 |
| | Salaries/Pensions | 3,211 | 3,330 | 8.4 | 3.7 |
| | Goods Procurement | 1,367 | 1,366 | 0.0 | 0.0 |
| | Regional Subsidies | 2,640 | 2,650 | 6.5 | 0.4 |
| | Debt Service c/ | 4,223 | 5,058 | 52.2 | 19.8 |
| | Domestic | 40 | - | - | - |
| | Foreign | 4,183 | 5,058 | 53.1 | 20.9 |
| | Food Stock Financing | 417 | 29 | - | -93.0 |
| | Other Routine Exp. | 266 | 145 | -80.8 | -45.5 |
| | Fuel Oil Subsidy | 142 | - | - | - |
| | Other | 124 | 145 | -61.8 | 17.2 |
| | F. Development Expenditure | 8,296 | 8,332 | -23.4 | 0.4 |
| | Rupiah Funded | 4,788 | 4,537 | -38.4 | -5.2 |
| | Ministries/Agencies | 1,782 | 1,698 | -58.2 | -4.7 |
| | Defence | 306 | 306 | -25.1 | 0.0 |
| | Regional Development d/ | 256 | 171 | 2.1 | -33.1 |
| | Inpres Projects | 1,315 | 1,288 | -3.0 | -2.1 |
| | East Timor | 7 | 7 | 5.0 | 1.1 |
| | Fertiliser subsidy | 672 | 467 | -2.1 | -30.4 |
| | Equity Investment | 207 | 86 | -79.2 | 58.6 |
| | Others | 243 | 514 | 0.6 | 111.0 |
| | Project Aid | 3,508 | 3,795 | 8.3 | 8.2 |
| | G. Total excl. debt service | 17,198 | 16,834 | -13.7 | -2.1 |
| | Total incl. debt service | 21,422 | 21,891 | -4.1 | 2.2 |
| | H. Government Savings e/ | 4,707 | 2,581 | -64.6 | -45.2 |
| | Budget Surplus | 0 | 1.5 | 88.5 | - |

Source: Ministry of Finance, unpublished data.

a/ Total and percentage changes calculated on unrounded data.
b/ Includes commercial borrowing.
c/ Includes interest and amortisation.
d/ Covered by property tax.
e/ Domestic revenues minus routine expenditures.

Table A-2. Balance of payments summary, 1985/86-1986/87
($ millions)

| | 1985/86 | 1986/87a/ |
|---|---|---|
| A. Goods and Services | | |
| Merchandise Exports, f.o.b. | 18,612 | 13,526 |
| Oil | 8,816 | 4,765 |
| LNG | 3,621 | 2,144 |
| Other | 6,175 | 6,617 |
| Merchandie Imports, c.i.f. | -13,908 | -12,436 |
| Oil | -2,510 | -2,167 |
| LNG | -212 | -215 |
| Other | -11,186 | -10,054 |
| Non-freight Services (net) | -6,536 | -5,114 |
| Oil | -2,302 | -1,309 |
| LNG | -1,290 | -782 |
| Other | -2,944 | -3,023 |
| Current Account | -1,832 | -4,024 |
| Oil | 4,004 | 1,289 |
| LNG | 2,119 | 1,147 |
| Other | -7,955 | -6,460 |
| B. Official Capital Flows | 3,432 | 5,024 |
| Program Aid | 38 | 48 |
| Project Aid | 3,394 | 4,976 |
| C. Debt Amortisation | -1,644 | -2,115 |
| D. Other Capital Flows | 572 | 967 |
| Direct Investment | 299 | 305 |
| Other | 273 | 662 |
| E. Total A to D | 528 | -148 |
| F. Errors and Omissions | -498 | -339 |
| G. Monetary Movements (Change in net foreign assets)b/ | -30 | 487 |

Source: Bank Indonesia.

a/ Provisional realized.
b/ Counterpart item; minus sign indicates addition to reserves.

Table A-3. Summary of external debt, 1975-1986 a/
($ millions)

| | 1975 | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **External debt data** | (US $ million) | | | | | | | | | | | |
| Disbursed and outstanding debt (DOD) /b | 7,994 | 10,002 | 11,670 | 13,150 | 13,278 | 14,971 | 15,870 | 18,514 | 21,649 | 22,870 | 26,593 | 32,119 |
| Bilateral/multilateral | 5,004 | 5,910 | 7,073 | 8,389 | 8,509 | 9,506 | 10,058 | 11,111 | 12,900 | 12,749 | 14,951 | 17,563 |
| Other /c | 2,990 | 4,092 | 4,597 | 4,761 | 4,769 | 5,465 | 5,813 | 7,403 | 9,650 | 10,121 | 11,642 | 14,556 |
| Total debt outstanding, including | | | | | | | | | | | | |
| undisbursed (TDO) /b | 11,741 | 14,575 | 16,197 | 19,037 | 21,202 | 22,452 | 27,210 | 32,226 | 35,552 | 37,015 | 42,644 | 48,712 |
| Bilateral/multilateral | 7,119 | 8,828 | 10,635 | 12,835 | 14,199 | 16,677 | 17,966 | 19,561 | 20,848 | 22,204 | 25,325 | 28,320 |
| Other /c | 4,622 | 5,747 | 5,561 | 6,202 | 7,003 | 5,775 | 9,244 | 12,665 | 14,704 | 14,811 | 17,319 | 20,393 |
| Commitments | 3,278 | 3,133 | 1,721 | 3,285 | 4,101 | 4,277 | 5,266 | 7,074 | 5,716 | 4,780 | 4,554 | 3,828 |
| Bilateral/multilateral | 1,071 | 1,698 | 1,382 | 1,590 | 2,247 | 2,640 | 2,472 | 2,610 | 2,340 | 2,738 | 2,385 | 1,824 |
| Other /c | 2,207 | 1,435 | 338 | 1,695 | 1,854 | 1,638 | 2,795 | 4,464 | 3,376 | 2,043 | 2,169 | 2,004 |
| Gross disbursements | 2,127 | 2,332 | 1,959 | 2,215 | 1,887 | 2,551 | 2,673 | 4,191 | 4,929 | 3,807 | 3,567 | 4,594 |
| Bilateral/multilateral | 578 | 920 | 867 | 935 | 826 | 1,130 | 1,363 | 1,835 | 1,709 | 1,865 | 1,671 | 1,953 |
| Other /c | 1,549 | 1,412 | 1,092 | 1,280 | 1,062 | 1,421 | 1,310 | 2,356 | 3,220 | 1,942 | 1,896 | 2,642 |
| Net disbursements | 1,779 | 1,898 | 1,138 | 667 | 559 | 1,615 | 1,621 | 3,089 | 3,636 | 2,179 | 1,198 | 2,207 |
| Bilateral/multilateral | 515 | 834 | 751 | 731 | 560 | 810 | 988 | 1,370 | 1,159 | 1,264 | 1,010 | 1,049 |
| Other /c | 1,264 | 1,064 | 387 | -65 | -1 | 805 | 633 | 1,720 | 2,477 | 915 | 187 | 1,157 |
| Net resource transfers | 1,604 | 1,572 | 698 | 153 | -212 | 792 | 626 | 1,945 | 2,381 | 555 | -445 | 193 |
| Bilateral/multilateral | 443 | 734 | 572 | 506 | 263 | 499 | 652 | 963 | 686 | 682 | 300 | 101 |
| Other /c | 1,161 | 837 | 106 | -353 | -475 | 293 | -26 | 981 | 1,694 | -127 | -745 | 93 |
| Public debt service | 523 | 761 | 1,262 | 2,062 | 2,099 | 1,758 | 2,047 | 2,246 | 2,548 | 3,252 | 4,012 | 4,401 |
| Amortization | 348 | 434 | 821 | 1,548 | 1,328 | 935 | 1,052 | 1,102 | 1,293 | 1,628 | 2,369 | 2,387 |
| Interest | 175 | 327 | 441 | 514 | 771 | 823 | 994 | 1,145 | 1,255 | 1,624 | 1,643 | 2,014 |
| Public debt service | 523 | 761 | 1,262 | 2,062 | 2,099 | 1,758 | 2,047 | 2,246 | 2,548 | 3,252 | 4,012 | 4,401 |
| Bilateral/multilateral | 135 | 186 | 276 | 429 | 563 | 631 | 710 | 872 | 1,023 | 1,183 | 1,371 | 1,852 |
| Other /c | 388 | 575 | 986 | 1,633 | 1,536 | 1,128 | 1,337 | 1,374 | 1,525 | 2,069 | 2,641 | 2,549 |
| **Disbursement indicators** | (%) | | | | | | | | | | | |
| Undisbursed debt (DOD) /b | 32 | 31 | 28 | 31 | 37 | 33 | 42 | 43 | 39 | 38 | 38 | 34 |
| Bilateral/multilateral | 30 | 33 | 33 | 35 | 40 | 43 | 44 | 43 | 42 | 43 | 41 | 38 |
| Other /c | 35 | 29 | 17 | 23 | 32 | 5 | 37 | 42 | 34 | 32 | 33 | 29 |
| Gross disbursements/commitments | 65 | 74 | 114 | 67 | 46 | 60 | 51 | 59 | 86 | 80 | 78 | 120 |
| Bilateral/multilateral | 54 | 54 | 63 | 59 | 37 | 43 | 55 | 70 | 73 | 68 | 70 | 107 |
| Other /c | 70 | 98 | 323 | 76 | 57 | 87 | 47 | 53 | 95 | 95 | 87 | 132 |
| Gross disbursements/undisbursed debt | | | | | | | | | | | | |
| And commitments /d | 36 | 34 | 31 | 28 | 19 | 21 | 21 | 23 | 25 | 20 | 19 | 23 |
| Bilateral/multilateral | 21 | 24 | 20 | 18 | 12 | 14 | 14 | 17 | 16 | 16 | 14 | 16 |
| Other /c | 48 | 46 | 55 | 48 | 32 | 37 | 42 | 30 | 37 | 27 | 28 | 34 |
| Net disbursements/gross disbursements | 84 | 81 | 58 | 30 | 30 | 63 | 61 | 74 | 74 | 57 | 74 | 48 |
| Bilateral/multilateral | 89 | 91 | 87 | 78 | 68 | 72 | 72 | 75 | 68 | 68 | 60 | 54 |
| Other /c | 82 | 75 | 35 | -5 | 0 | 57 | 48 | 73 | 77 | 47 | 10 | 44 |
| Net resource transfers/gross disbursements | 75 | 67 | 36 | 7 | -11 | 31 | 23 | 46 | 48 | 15 | -12 | 4 |
| Bilateral/multilateral | 77 | 80 | 68 | 54 | 32 | 44 | 48 | 52 | 40 | 37 | 18 | 5 |
| Other /c | 75 | 59 | 10 | -28 | -45 | 21 | -2 | 42 | 53 | -7 | -39 | 4 |

Source: IBRD Debtor Reporting System, based on data provided by Bank Indonesia.

a/ Data in this table refer to public sector medium and long-term loans. Loans with a maturity of less than one year, the LNG expansion and grants are not included.
b/ End of year.
c/ Suppliers' credits, loans from financial institutions, bonds, nationalization debt.
d/ Gross disbursements as a percentage of undisbursed debt (TDO-DOD) at beginning of year plus commitments during the year.

Table A-4: Physical volume of manufacturing products by industry, 1979/80-1985/86
('000 tonnes, except where stated; year ending March 31)

| | 1979/80 | 1980/81 | 1981/82 | 1982/83 | 1983/84 | 1984/85 | 1985/86[a/] |
|---|---|---|---|---|---|---|---|
| CHEMICALS | | | | | | | |
| Urea fertilizer | 1,827.0 | 1,985.1 | 2,006.7 | 1,961.0 | 2,255.0 | 2,910.0 | 3,588.8 |
| Cement | 4,705.1 | 5,851.8 | 6,844.2 | 7,650.0 | 8,078.1 | 8,813.3 | 9,817.4 |
| Detergent | 46.5 | 54.4 | 63.9 | 66.8 | 75.5 | 118.0 | 144.6 |
| Paper | 214.2 | 232.0 | 246.6 | 296.9 | 369.2 | 402.6 | 515.2 |
| BASIC METALS | | | | | | | |
| Reinforcing iron | 500.0 | 640.5 | 671.0 | 743.8 | 724.0 | 649.0 | 671.0 |
| Steel wire | 108.0 | 143.2 | 159.7 | 128.3 | 110.0 | 150.0 | 172.0 |
| Galvanized iron sheet | 250.0 | 294.2 | 301.6 | 316.7 | 332.3 | 253.0 | 274.0 |
| Steel pipe | 129.5 | 153.8 | 243.0 | 282.5 | 246.7 | 239.6 | 258.6 |
| ENGINEERING | | | | | | | |
| Automibiles ('000) | 102.6 | 170.1 | 209.9 | 188.4 | 155.8 | 153.7 | 139.8 |
| Motor cycles ('000) | 221.6 | 410.0 | 503.3 | 577.4 | 379.3 | 272.2 | 226.8 |
| Motor car tyres ('000) | 2,898.4 | 3,320.0 | 3,816.9 | 3,885.6 | 3,673.3 | 3,944.0 | 4,100.0 |
| Motor cycle tyres ('000) | 2,070.5 | 2,319.7 | 2,801.3 | 2,567.1 | 2,438.5 | 2,230.0 | 2,500.0 |
| Diesel engines ('000) | 25.0 | 34.1 | 69.4 | 64.6 | 52.8 | 48.3 | 41.6 |
| Aeroplanes (units) | 16 | 12 | 17 | 21 | 7 | 10 | 21 |
| Helicopters (units) | 16 | 12 | 12 | 21 | 29 | 30 | 43 |
| Television sets ('000) | 659.8 | 730.1 | 846.9 | 653.5 | 622.8 | 722.8 | 750.0 |
| Radio sets ('000) | 1,018.8 | 1,110.5 | 1,154.9 | 1,589.9 | 1,503.1 | 1,576.6 | 1,883.4 |
| Dry batteries (mn dozen) | 38.5 | 43.9 | 46.1 | 48.1 | 52.8 | 64.3 | 79.3 |
| Light bulbs (mn) | 29.9 | 33.8 | 36.5 | 30.4 | 45.4 | 53.2 | 86.0 |
| Refrigerators ('000) | 99.6 | 134.5 | 138.5 | 152.4 | 139.2 | 118.9 | 148.8 |
| Sewing machines ('000) | 477.6 | 525.4 | 551.6 | 393.5 | 290.2 | 253.0 | 170.5 |
| CONSUMER GOODS | | | | | | | |
| Textiles (mn m) | 1,910.0 | 2,027.3 | 2,094.0 | 1,708.9 | 2,347.2 | 2,401.6 | 2,464.0 |
| Yarn ('000 bales) | 998.0 | 1,184.0 | 1,233.0 | 1,370.0 | 1,253.6 | 1,781.6 | 1,876.8 |
| Coconut oil | 452.0 | 610.0 | 480.8 | 442.1 | 381.7 | 267.1 | 396.0 |
| Vegetable oil | 266.2 | 278.9 | 326.4 | 326.2 | 342.0 | 605.1 | 490.0 |
| Kretek cigarettes (bn) | 41.5 | 50.5 | 55.6 | 59.1 | 68.2 | 69.0 | 78.4 |
| Cigarettes (bn) | 28.6 | 33.4 | 28.4 | 27.1 | 28.1 | 26.6 | 23.9 |

Source: Department of Industry, Supplements to Annual Presidential Reports to the People's Representative Council.

a/ Provisional.

Table A-5: Input-Output Table: Total transactions valued at producer's prices, 1980
(in Rp billion)

| Sector of origin / Sector of destination | 1. Agri-culture | 2. Mining | 3. Manu-factu-ring | 4. Petr. ref. | 5. Electr. gas, water | 6. Con-struc-tion | 7. Trade tourism | 8. Trans-port, commun. | 9. Fin. and busi-ness services | 10. Public adm. | 11. Other services | Total inter-mediate demand |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. Agriculture, forestry and fishing | 2,526.0 | 0.1 | 4,051.4 | - | - | 463.9 | 491.1 | 5.0 | - | - | 58.2 | 7,596.1 |
| 2. Mining and quarrying | 0.1 | 418.7 | 367.8 | 1,377.3 | 3.9 | 307.5 | 0.1 | 0.8 | - | - | - | 2,478.6 |
| 3. Manufacturing | 592.9 | 390.6 | 4,327.2 | 36.8 | 35.7 | 2,149.5 | 496.8 | 171.5 | 45.5 | - | 767.3 | 9,022.1 |
| 4. Petroleum refining | 60.8 | 74.2 | 168.3 | 1.5 | 127.9 | 649.6 | 92.1 | 424.3 | 6.4 | - | 33.3 | 1,638.5 |
| 5. Electricity, gas and water | 8.1 | 0.7 | 60.3 | 16.8 | 73.2 | 6.1 | 91.9 | 16.5 | 17.5 | - | 71.4 | 362.5 |
| 6. Construction | 55.7 | 66.5 | 21.3 | 6.3 | 16.0 | 12.8 | 64.6 | 61.4 | 160.3 | - | 44.9 | 509.8 |
| 7. Trade and tourism | 241.4 | 72.5 | 832.5 | 35.8 | 13.9 | 1,031.2 | 185.0 | 53.6 | 31.6 | - | 171.8 | 2,669.3 |
| 8. Transport and communication | 141.3 | 19.5 | 299.1 | 15.6 | 7.2 | 219.6 | 163.0 | 359.5 | 47.9 | - | 69.6 | 1,372.3 |
| 9. Financial and business services | 128.4 | 422.6 | 121.0 | 31.5 | 7.0 | 102.4 | 276.8 | 136.7 | 70.8 | - | 89.6 | 1,386.8 |
| 10. Public administration and defence | - | - | - | - | - | - | - | - | - | - | - | - |
| 11. Other public and private services | 92.7 | 109.2 | 25.0 | 7.5 | 8.2 | 7.7 | 90.0 | 437.3 | 37.2 | - | 124.1 | 939.3 |
| Total intermediate inputs | 3,847.4 | 1,604.7 | 10,273.9 | 1,529.1 | 292.9 | 4,950.3 | 1,951.4 | 1,666.5 | 417.6 | - | 1,430.2 | 27,975.3 |
| 201 Wages and salaries | 2,392.0 | 333.7 | 1,350.8 | 32.4 | 85.3 | 1,347.4 | 1,185.5 | 720.8 | 360.2 | 2,344.7 | 1,515.1 | 11,667.4 |
| 202 Operating surplus | 9,070.2 | 11,743.6 | 2,982.3 | 361.9 | 111.0 | 940.5 | 5,700.8 | 1,035.8 | 1,793.9 | - | 663.1 | 34,419.2 |
| 203 Depreciation | 382.0 | 342.8 | 539.3 | 61.6 | 33.6 | 161.4 | 255.0 | 418.6 | 163.7 | 123.4 | 176.3 | 2,617.8 |
| 204 Indirect taxes | 96.3 | 16.7 | 440.5 | - | 0.8 | 125.1 | 291.5 | 35.8 | 36.6 | - | 72.8 | 1, 16.4 |
| 205 Subsidies | - | - | -435.3 | -361.9 | - | - | -693.6 | - | - | - | - | -1,490.7 |
| 209 Gross value added | 11,900.5 | 12,436.7 | 4,877.6 | 94.0 | 230.6 | 2,582.4 | 6,739.4 | 2,210.7 | 2,354.4 | 2,468.1 | 2,427.3 | 48,330.1 |
| 210 Total inputs | 15,755.9 | 14,041.5 | 15,151.6 | 1,623.1 | 523.5 | 7,532.7 | 8,690.8 | 3,877.3 | 2,772.1 | 2,468.1 | 3,857.5 | 76,305.3 |

Table A-5 (Cont.)

| Sector of origin \ Sector of destination | Total inter-mediate demand | Private con-sumption | Public con-sumption | Gross fixed capital formation | Changes in stock | Export of goods | Export of services | Total final demand | Total demand |
|---|---|---|---|---|---|---|---|---|---|
| 1. Agriculture, forestry and fishing | 7,596.1 | 6,258.0 | 9.3 | 2.2 | 257.7 | 1,995.4 | - | 8,522.8 | 16,118.9 |
| 2. Mining and quarrying | 2,478.6 | 25.6 | - | - | 903.3 | 11,331.6 | - | 12,260.5 | 14,739.1 |
| 3. Manufacturing | 9,022.1 | 8,712.7 | 360.1 | 3,171.2 | 169.0 | 760.4 | 20.0 | 13,193.5 | 22,215.6 |
| 4. Petroleum refining | 1,638.5 | 579.8 | 68.1 | - | -55.3 | 696.3 | - | 1,289.0 | 2,927.5 |
| 5. Electricity, gas and water | 362.5 | 135.8 | 25.2 | - | - | - | - | 161.0 | 523.5 |
| 6. Construction | 509.8 | - | 175.8 | 6,847.1 | - | - | - | 7,022.9 | 7,532.7 |
| 7. Trade and tourism | 2,669.3 | 3,486.0 | 380.1 | 467.3 | 54.3 | 745.3 | 59.2 | 6,152.2 | 8,821.4 |
| 8. Transport and communication | 1,372.3 | 1,907.2 | 171.6 | 61.9 | 15.5 | 173.2 | 149.8 | 2,679.2 | 4,051.5 |
| 9. Financial and business services | 1,386.8 | 1,582.4 | 108.5 | - | - | - | 30.3 | 1,721.2 | 3,108.1 |
| 10. Public administration and defence | - | - | 2,468.1 | - | - | - | - | 2,468.1 | 2,468.1 |
| 11. Other public and private services | 930.3 | 1,947.3 | 1,084.8 | - | - | 0.5 | - | 3,032.9 | 3,912.1 |
| Total deliveries | 27,975.3 | 25,594.8 | 5,147.7 | 10,549.7 | 1,144.7 | 15,702.9 | 459.3 | 58,799.1 | 86,778.4 |

| Sector of origin \ Sector of destination | Import of goods cif (-) | Import sales tax (-) | Import duties (-) | Import of services (-) | Total import at landed cost (-) | Total output |
|---|---|---|---|---|---|---|
| 1. Agriculture, forestry and fishing | 332.7 | 6.3 | 12.8 | | 351.9 | 15,766.9 |
| 2. Mining and quarrying | 696.0 | 0.7 | 0.9 | | 697.6 | 14,041.5 |
| 3. Manufacturing | 6,467.9 | 166.7 | 306.7 | 42.4 | 7,063.7 | 15,151.9 |
| 4. Petroleum refining and LNG | 1,296.0 | 3.5 | 4.9 | - | 1,304.4 | 1,623.1 |
| 5. Electricity, gas and water | - | - | - | - | - | 523.5 |
| 6. Construction | - | - | - | - | - | 7,532.7 |
| 7. Trade and tourism | - | - | - | 110.7 | 110.7 | 8,600.8 |
| 8. Transport and communication | - | - | - | 174.3 | 174.3 | 3,877.3 |
| 9. Financial and business services | 217.8 | - | - | 118.2 | 336.0 | 2,772.1 |
| 10. Public administration and defence | - | - | - | - | - | 2,468.1 |
| 11. Other public and private services | 2.5 | 0.2 | 0.5 | 51.3 | 54.6 | 3,857.5 |
| Total deliveries | 9,087.0 | 177.5 | 405.9 | 796.6 | 10,469.0 | 76,305.3 |

Source: Poot, H., Kuyvenhoven, A. and Jansen, J.C., "Trade and Industrialization in Indonesia", Netherlands Economic Institute, Rotterdam, 1987.

Note: All figures have been rounded and do, therefore, not always exactly add up to column and row totals.

Table A-6: Components of production growth, 1971-1975 and 1975-1980
(values in Rp million)

| | Production increase | | Final demand | | Import substitution | | | | Export | | Technology | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Final demand | | Intermediate demand | | | | | |
| | abs. | % | abs. | % | abs. | % | abs. | % | abs. | % | abs. | % |
| In current prices 1971-1975 | | | | | | | | | | | | |
| Manufacturing (excl. oil ref.) | 3,092,361.8 | 100.0 | 2,743,626.7 | 88.7 | 117,116.5 | 3.8 | -643.8 | - | 68,623.2 | 2.2 | 163,676.0 | 5.3 |
| non-durable consumer goods | 1,905,635.5 | 100.0 | 1,770,329.7 | 92.9 | 99,924.4 | 5.2 | 40,297.6 | 2.1 | 5,725.7 | 0.3 | -10,621.5 | 0.6 |
| durable consumer goods | 430,281.5 | 100.0 | 313,523.2 | 72.9 | 27,589.2 | 6.4 | 7,115.1 | 1.7 | 5,000.3 | 1.2 | 77,026.5 | 17.9 |
| intermediates | 552,025.7 | 100.0 | 440,800.6 | 79.9 | 21,092.2 | 3.8 | 5,799.6 | 1.1 | 43,311.8 | 7.8 | 41,025.4 | 7.4 |
| capital goods | 204,427.8 | 100.0 | 218,982.9 | 107.1 | -31,489.1 | -15.4 | -53,856.0 | -26.3 | 14,578.2 | 7.1 | 56,245.6 | 27.5 |
| Oil refineries | 153,648.7 | 100.0 | 234,073.8 | 152.3 | -58,032.3 | -37.8 | -134,976.5 | -87.8 | 223,826.7 | 145.7 | -111,253.9 | -72.4 |
| Total manufacturing | 3,244,010.5 | 100.0 | 2,977,700.5 | 91.7 | 59,084.2 | 1.8 | -135,620.3 | 4.2 | 292,449.9 | 9.0 | 52,422.1 | 1.6 |
| 1975-1980 | | | | | | | | | | | | |
| Manufacturing (excl. oil ref.) | 10,828,229.2 | 100.0 | 8,528,307.1 | 78.8 | 67,431.5 | 0.6 | 1,174,142.8 | 10.8 | 939,704.7 | 8.7 | 60,563.6 | 0.6 |
| non-durable consumer goods | 5,186,971.0 | 100.0 | 5,137,794.0 | 99.1 | -129,058.1 | -2.5 | 83,575.3 | 6.4 | 218,892.3 | 4.2 | -32,434.7 | -0.6 |
| durable consumer goods | 1,297,469.0 | 100.0 | 913,402.4 | 70.4 | 102,215.4 | 7.9 | 83,575.3 | 6.4 | 59,551.4 | 4.6 | 137,039.7 | 10.6 |
| intermediates | 3,232,318.5 | 100.0 | 1,573,375.7 | 48.7 | 83,527.8 | 2.6 | 914,628.0 | 28.3 | 601,981.7 | 18.6 | 41,804.3 | 1.3 |
| capital goods | 1,111,501.5 | 100.0 | 903,750.5 | 81.3 | 10,726.7 | 1.0 | 187,044.3 | 16.8 | 59,282.7 | 5.3 | -78,646.7 | -7.1 |
| Oil refineries | 1,279,720.7 | 100.0 | 444,442.9 | 34.7 | -25,374.3 | -2.0 | -63,335.1 | -4.9 | 592,356.0 | 46.3 | 328,631.1 | 25.7 |
| Total manufacturing | 12,107,949.9 | 100.0 | 8,972,750.0 | 74.1 | 42,057.2 | 0.3 | 1,110,807.7 | 9.2 | 1,532,060.7 | 12.7 | 397,194.7 | 3.3 |
| In constant prices 1975-1980 | | | | | | | | | | | | |
| Manufacturing (excl. oil ref.) | 622,908.6 | 100.0 | 3,897,666.4 | 62.6 | 67,411.8 | 1.1 | 1,174,144.7 | 17.8 | 689,919.1 | 11.1 | 399,941.1 | 6.4 |
| non-durable consumer goods | 2,033,789.2 | 100.0 | 1,974,758.7 | 97.1 | -129,058.1 | -6.3 | -11,102.9 | -0.5 | 145,863.8 | 7.2 | 53,327.7 | 2.6 |
| durable consumer goods | 922,886.4 | 100.0 | 520,425.7 | 56.4 | 102,215.4 | 11.1 | 83,575.3 | 9.1 | 50,229.6 | 5.4 | 166,440.4 | 18.0 |
| intermediates | 2,454,198.5 | 100.0 | 813,770.5 | 33.2 | 83,527.8 | 3.4 | 914,628.0 | 37.3 | 470,073.2 | 19.2 | 172,199.0 | 7.0 |
| capital goods | 818,219.6 | 100.0 | 588,720.4 | 72.0 | 10,726.7 | 1.3 | 187,044.3 | 22.9 | 23,754.4 | 2.9 | 7,974.0 | 1.0 |
| Oil refineries | 818,985.0 | 100.0 | 242,919.1 | 29.7 | -25,374.3 | -3.1 | -63,335.1 | -7.7 | 308,043.9 | 37.6 | 356,731.0 | 42.6 |
| Total manufacturing | 7,048,066.0 | 100.0 | 4,140,585.5 | 58.7 | 42,057.5 | 0.6 | 1,110,809.6 | 15.8 | 997,963.0 | 14.2 | 1,056,672.1 | 15.0 |

Source: Poot, H., Kuyvenhoven, A. and Jansen, J.C., "Trade and Industrialization in Indonesia", Netherlands Economic Institute, Rotterdam, 1987.

Table A-7: Labour and import requirements and sector rankings of manufacturing industries, 1980

| IO code | Effect of final demand for products of industry i (i=7, ..18;22, ..90) on | Labour requirements | | Import requirements | Rankings | | | |
|---|---|---|---|---|---|---|---|---|
| | | Total | Direct | Total | Labour | Skill | Capital | Import |
| | *Highly labour-intensive* | | | | | | | |
| 7 | Handpounded rice | 2914.1 | 1300.0 | 0200 | 1 | 81 | 80 | 78 |
| 29 | Grain mill products | 2460.1 | 210.0 | .2639 | 2 | 61 | 64 | 81 |
| 28 | Rice milling | 2220.5 | 435.0 | 0260 | 3 | 70 | 72 | 74 |
| 32 | Noodles, macaroni | 2146.4 | 687.0 | .0670 | 4 | 62 | 59 | 80 |
| 71 | Structural clay products | 2143.1 | 1900.0 | 0540 | 5 | 67 | 72 | 62 |
| 37 | Other food products | 1878.2 | 810.0 | 0681 | 6 | 51 | 58 | 59 |
| 8 | Cassava products | 1856.5 | 430.0 | 0215 | 7 | 78 | 78 | 76 |
| 31 | Bakery products | 1601.9 | 711.0 | 0607 | 8 | 50 | 50 | 61 |
| 11 | Copra | 1589.0 | 1000.0 | 0315 | 9 | 71 | 71 | 69 |
| 36 | Soya bean products | 1573.2 | 890.0 | 2778 | 10 | 76 | 73 | 37 |
| 51 | Wood and cork products | 1570.0 | 1240.0 | 1370 | 11 | 33 | 30 | 50 |
| 69 | Ceramics, earthenware | 1538.8 | 1410.0 | 2194 | 12 | 30 | 69 | 42 |
| | *Labour-intensive* | | | | | | | |
| 52 | Furniture, fixtures | 1351.6 | 910.0 | 1030 | 13 | 2 | 35 | 55 |
| 18 | Drying, salting fish | 1298.1 | 630.0 | 0301 | 14 | 70 | 65 | 70 |
| 13 | Processed tobacco | 1198.7 | 650.0 | 1013 | 15 | 17 | 70 | 56 |
| 25 | Fish processing | 1189.8 | 563.0 | 0476 | 16 | 68 | 53 | 65 |
| 10 | Brown sugar | 1144.4 | 750.0 | 0234 | 17 | 64 | 68 | 75 |
| 34 | Coffee grinding | 1126.7 | 516.0 | 0280 | 18 | 63 | 61 | 73 |
| 46 | Made-up textile goods | 1078.0 | 750.0 | .3405 | 19 | 54 | 76 | 33 |
| 12 | Farm coconut oil | 1028.5 | 680.0 | 0284 | 20 | 74 | 62 | 72 |
| 44 | Batik | 1025.8 | 752.0 | .3363 | 21 | 59 | 57 | 74 |
| 26 | Coconut, cooking oil | 1018.1 | 79.6 | 0771 | 22 | 65 | 26 | 58 |
| 16 | Slaughtering | 988.5 | 200.0 | .0134 | 23 | 66 | 66 | 79 |
| 35 | Tea processing | 959.3 | 471.0 | .0507 | 24 | 69 | 55 | 64 |
| 90 | Manufacturing nec. | 951.7 | 643.0 | .1780 | 25 | 50 | 16 | 44 |
| 14 | Farm processed coffee | 917.8 | 473.0 | .0285 | 26 | 73 | 60 | 71 |
| 27 | Other vegetable, animal oils | 914.7 | 72.0 | .1012 | 27 | 20 | 24 | 57 |
| 24 | Fruit, vegetable processing | 849.5 | 220.0 | .2152 | 28 | 29 | 54 | 43 |
| 15 | Farm processed tea | 841.6 | 473.0 | .0209 | 29 | 76 | 73 | 77 |
| 89 | Musical instruments, sports products | 809.7 | 460.0 | .2431 | 30 | 14 | 10 | 40 |
| 76 | Metal furniture, fixtures | 754.5 | 589.0 | .4482 | 31 | 56 | 25 | 19 |
| 73 | Other building materials | 750.5 | 475.0 | .1098 | 32 | 44 | 46 | 54 |
| 22 | Meat processing | 746.4 | 135.0 | 0413 | 33 | 65 | 30 | 66 |
| 49 | Leather products | 731.6 | 480.0 | 1421 | 34 | 16 | 48 | 48 |
| 48 | Tanneries, leather processing | 700.9 | 110.0 | .1287 | 35 | 55 | 38 | 51 |
| 30 | Sugar | 691.3 | 231.0 | 0650 | 36 | 8 | 32 | 60 |
| 75 | Metal products | 680.3 | 470.0 | .3964 | 37 | 21 | 15 | 23 |
| 39 | Soft drinks | 678.8 | 374.0 | 1521 | 38 | 6 | 34 | 46 |
| 45 | Knitting | 659.1 | 508.0 | 5108 | 39 | 52 | 75 | 10 |
| 9 | Rubber | 655.6 | 56.0 | 0334 | 40 | 60 | 19 | 67 |
| 88 | Professional scientific products | 629.0 | 453.0 | 5082 | 41 | 37 | 42 | 11 |
| 33 | Cocoa, chocolate, sugar products | 628.6 | 277.0 | 3409 | 42 | 24 | 67 | 29 |

Table A-7 (Cont.)

| IO code | Effect of final demand for products of industry j (j=7, ..18,22, ..90) on | Labour requirements | | Import requirements | Rankings | | | |
|---|---|---|---|---|---|---|---|---|
| | | Total | Direct | Total | Labour | Skill | Capital | Import |
| | *Intermediate labour-intensive* | | | | | | | |
| 42 | Weaving | 588.6 | 403.0 | .3951 | 43 | 26 | 63 | 24 |
| 67 | Other rubber products | 587.4 | 350.0 | .2912 | 44 | 43 | 47 | 35 |
| 82 | Ship building, repair | 523.0 | 255.0 | .2310 | 45 | 1 | 9 | 41 |
| *50 | Sawmilling and other products | 512.4 | 250.0 | .0519 | 46 | 23 | 36 | 63 |
| 17 | Sawmilling in forest | 497.6 | 250.0 | .0318 | 47 | 27 | 28 | 68 |
| 55 | Printing, publishing | 468.2 | 300.0 | .4879 | 48 | 13 | 49 | 15 |
| 86 | Repair of vehicles | 466.5 | 286.0 | .2956 | 49 | 3 | 7 | 34 |
| 47 | Carpets, rugs, ropes | 465.9 | 281.0 | .4374 | 50 | 75 | 75 | 20 |
| 60 | Soaps and cosmetics | 440.4 | 81.0 | .3885 | 51 | 11 | 27 | 25 |
| 68 | Plastic products | 414.9 | 335.0 | .5499 | 52 | 53 | 81 | 3 |
| 80 | Electrical apparatus n e c , repair | 414.4 | 250.0 | .5069 | 53 | 7 | 31 | 12 |
| 23 | Dairy products | 373.0 | 115.0 | .2837 | 54 | 40 | 21 | 36 |
| 40 | Tobacco ; ducts | 371.5 | 102.0 | .1415 | 55 | 72 | 43 | 49 |
| 70 | Glass, glass products | 344.2 | 188.0 | .3816 | 56 | 4 | 41 | 26 |
| 54 | Paper products | 337.3 | 160.0 | .5183 | 57 | 38 | 45 | 9 |
| 41 | Spinning | 335.1 | 155.0 | .4541 | 58 | 46 | 56 | 18 |
| *53 | Pulp and paper | 330.4 | 114.0 | .4097 | 59 | 31 | 33 | 22 |
| 61 | Other chemical products | 311.9 | 142.0 | .4586 | 60 | 47 | 13 | 17 |
| | *Labour-extensive* | | | | | | | |
| *78 | Machinery, repair | 295.0 | 135.0 | .5300 | 61 | 18 | 44 | 5 |
| 59 | Drugs and medicines | 291.3 | 139.0 | .4887 | 62 | 28 | 51 | 14 |
| *56 | Basic chemicals | 284.6 | 145.0 | .3444 | 63 | 12 | 14 | 31 |
| 81 | Accumulaters, dry batteries | 283.0 | 141.0 | .3645 | 64 | 5 | 29 | 28 |
| 66 | Tyres and tubes | 266.6 | 116.0 | .3540 | 65 | 9 | 22 | 30 |
| *72 | Cement | 252.9 | 117.0 | .1422 | 66 | 34 | 8 | 67 |
| 43 | Textiles finishing | 252.0 | 137.0 | .5189 | 67 | 57 | 52 | 8 |
| 58 | Paints | 229.5 | 138.0 | .4878 | 68 | 49 | 37 | 16 |
| 62 | Pesticides | 213.2 | 26.0 | .4129 | 69 | 36 | 6 | 21 |
| 77 | Structural metal products | 204.5 | 85.0 | .5337 | 70 | 42 | 18 | 4 |
| 85 | Motorcycles, bicycles | 203.4 | 56.0 | .5198 | 71 | 58 | 17 | 7 |
| 38 | Alcoholic beverages | 194.2 | 87.0 | .1610 | 72 | 10 | 20 | 45 |
| 83 | Railroad equipment, repair | 182.8 | 64.0 | .5290 | 73 | 15 | 11 | 6 |
| 79 | Radio, TV, appliances | 174.6 | 76.0 | .5868 | 74 | 32 | 40 | 2 |
| *74 | Basic metals | 167.6 | 37.0 | .2512 | 75 | 48 | 4 | 38 |
| 87 | Aircraft, repair | 147.3 | 64.0 | .6437 | 76 | 19 | 23 | 1 |
| *57 | Fertilisers | 135.4 | 26.0 | .3686 | 77 | 31 | 5 | 27 |
| 84 | Motor vehicles | 127.4 | 64.0 | .5009 | 78 | 25 | 12 | 13 |
| 65 | Other petroleum products | 109.1 | 26.0 | .2490 | 79 | 17 | 3 | 39 |
| 64 | Lubricant, grease oil | 92.4 | 26.0 | .1132 | 80 | 35 | 2 | 53 |
| 63 | Petroleum refineries, LNG | 74.3 | 26.0 | | 81 | 41 | 1 | 52 |

*Total labour requirements are measured in manyears per Rp billion of final demand; total import requirements of intermediate products per unit final demand. The negative import effects for sectors 29, grain mill products and 32, noodles and macaroni are caused by a substantial input of agricultural products in the import matrix, carrying an opposite sign which presumably represents subsidies. Capital requirements are measured as non-wage value added per manyear

Source: Kuyvenhoven A., and Poot, H., "The Structure of Indonesian Manufacturing Industry: An Input-Output Approach", Bulletin of Indonesian Economic Studies, Vol. XXII, No.2, Australian National University, Canberra, August 1986.

Table A-8: Employment creation by sector, 1980-1985
('000 persons)

| | Change | | Rate of Growth 1980-1985 | Rate of GDP Growth 1980-1985 | Employment elasticity | |
|---|---|---|---|---|---|---|
| | Number | Percentage | (Percentage) | (Percentage) | 1980-1985 | 1971-1980 |
| Agriculture | 5,132 | 47.1 | 3.3 | 3.3 | 1.00 | 0.26 |
| Mining | 27 | 0.3 | 1.4 | ... | ... | 2.29 |
| Manufacturing | 1,087 | 10.0 | 3.9 | 6.6 | 0.64 | 0.30 |
| Electricity | 4 | ... | 1.2 | 13.8 | 0.09 | 0.42 |
| Construction | 429 | 3.9 | 4.7 | 3.4 | 1.38 | 0.53 |
| Commerce | 2,625 | 24.0 | 6.8 | 4.0 | 1.48 | 0.59 |
| Transportation | 481 | 4.4 | 5.8 | 9.6 | 0.60 | 0.38 |
| Financial services | -53 | -0.5 | ... | 8.9 | ... | 0.60 |
| Other services | 1,102 | 10.2 | 2.9 | 7.5 | 0.39 | 0.60 |
| Total | 10,904 | 100.0 | 3.9 | 3.6 | 1.08 | 0.35 |

Source: BPS.

Table A-9: Employment in manufacturing by sex, urban and rural location and employment status, 1980 and 1985
('000 persons)

| | 1980 | | | 1985 | | | Growth rate totals |
|---|---|---|---|---|---|---|---|
| | male | female | total | male | female | total | % |
| Urban | | | | | | | |
| self-employed | 150,1 | 65,0 | 236,6 | 203,2 | 113,7 | 316,9 | 6,0 |
| employer | 46,1 | 15,1 | 61,1 | 49,3 | 11,0 | 60,3 | - |
| employee | 676,9 | 320,2 | 997,1 | 990,2 | 443,5 | 1433,7 | 7,5 |
| unpaid family work | 28,2 | 30,6 | 58,8 | 52,9 | 94,2 | 147,2 | 20,2 |
| t o t a l | 922,8 | 430,7 | 1353,7 | 1295,6 | 662,5 | 1958,1 | 7,6 |
| Rural | | | | | | | |
| self-employed | 709,2 | 780,4 | 1487,6 | 614,8 | 772,2 | 1387,0 | ... |
| employer | 82,0 | 25,7 | 107,7 | 61,0 | 13,4 | 74,5 | ... |
| employee | 763,5 | 467,6 | 1231,1 | 1032,9 | 628,4 | 1661,3 | 6,2 |
| unpaid family work | 117,2 | 358,4 | 475,6 | 163,1 | 548,1 | 711,2 | 8,4 |
| t o t a l | 1671,9 | 1632,1 | 3302,0 | 1871,8 | 1962,2 | 3834,0 | 3,0 |
| Total Indonesia | | | | | | | |
| self-employed | 857,5 | 866,9 | 1724,4 | 818,0 | 885,9 | 1703,9 | |
| employer | 128,0 | 40,9 | 168,9 | 110,4 | 24,5 | 134,9 | |
| employee | 1440,3 | 787,9 | 2228,2 | 2023,1 | 1071,9 | 3094,9 | 6,8 |
| unpaid family work | 145,4 | 389,1 | 534,4 | 216,0 | 642,5 | 858,5 | 4,9 |
| t o t a l | 2571,2 | 2084,8 | 4655,9 | 3187,5 | 2624,7 | 5792,2 | 4,5 |

Source: BPS. Population census 1980 (series S, No. 2).
BPS. Supas 1985 (No. 5).

Table A-10: Wages per worker in sub-sectors of manufacturing, 1980 and 1985
(in Rp 1000)

| ISIC | Manufacturing sub-sector | 1980 Amount | 1980 Index | 1984 Amount | 1984 Index | Growth index 1980-1984 |
|---|---|---|---|---|---|---|
| 311/2 | Food | 450 | 97 | 917 | 102 | 204 |
| 313 | Beverages | 1,141 | 246 | 1,628 | 180 | 143 |
| 314 | Tobacco | 211 | 46 | 514 | 57 | 244 |
| 321 | Textiles | 313 | 68 | 608 | 67 | 194 |
| 322 | Clothing | 311 | 67 | 698 | 77 | 224 |
| 323 | Leather | 376 | 81 | 810 | 90 | 215 |
| 324 | Footwear | 436 | 94 | 1,293 | 143 | 297 |
| 331 | Wood products | 527 | 114 | 709 | 79 | 135 |
| 332 | Furniture | 411 | 89 | 736 | 82 | 179 |
| 341 | Paper | 627 | 135 | 1,096 | 122 | 175 |
| 342 | Printing | 608 | 131 | 1,263 | 140 | 208 |
| 351 | Industrial chemicals | 1,224 | 264 | 2,170 | 241 | 177 |
| 352 | Other chemicals | 831 | 179 | 1,631 | 181 | 196 |
| 355 | Rubber | 556 | 120 | 1,115 | 124 | 201 |
| 356 | Plastics | 340 | 73 | 650 | 72 | 191 |
| 361 | Ceramics | 371 | 80 | 699 | 77 | 188 |
| 362 | Glass | 636 | 137 | 1,512 | 168 | 238 |
| 363 | Cement | 744 | 161 | 1,626 | 180 | 219 |
| 364/9 | Oth. building materials | 220 | 48 | 464 | 51 | 211 |
| 371 | Iron and steel | 1,012 | 219 | 1,932 | 214 | 191 |
| 381 | Metal products | 519 | 112 | 1,021 | 113 | 197 |
| 382 | Machinery | 672 | 145 | 1,191 | 132 | 177 |
| 383 | Electrical machinery | 650 | 140 | 1,276 | 141 | 196 |
| 384 | Transport equipment | 916 | 198 | 1,709 | 189 | 187 |
| 385/90 | Other manufactures | 350 | 76 | 700 | 78 | 200 |
| Total | | 463 | 100 | 902 | 100 | 195 |
| Consumer price index (1980 = 100) | | | | | | 144 |

Source: BPS, Statistik Industri, 1980 and 1984.

Table A-11: Total increment labour co-efficients for groups of industries and by end-use components, 1980
(Rp billion)

| | Total | Final demand | Export | Import substitution | |
|---|---|---|---|---|---|
| | | | | Final demand | Inter-mediate demand |
| Incremental labour coefficients | | | | | |
| Manufacturing (excl. oil ref) | 148 | 192 | 181 | 86 | 58 |
| - non-durable consumer goods | 166 | 150 | 248 | 144 | 153 |
| - durable consumer goods | 128 | 156 | 136 | 124 | 155 |
| - intermediates | 152 | 497 | 163 | 58 | 58 |
| - capital goods | 113 | 192 | 234 | 367 | 28 |

Source: BPS.

Table A-12: Destination of exports by industry, 1984

| Description of traded goods (SITC) | World total (in 1000 current US $) | Developing countries | Developed market economies | | | | Centrally planned economies |
|---|---|---|---|---|---|---|---|
| | | | Total | USA | EEC | Japan | |
| | | (Percent of world total) | | | | | |
| OILS AND FATS | | | | | | | |
| Animal oils and fats(411) | 311.3 | 27.2 | 57.2 | 0.0 | 0.0 | 57.2 | 0.0 |
| Fixed vegetable oils and fats(421/2) | 111051.0 | 23.0 | 74.9 | 6.6 | 67.5 | 0.8 | 1.5 |
| Processed animal and vegetable oils and fats(431) | 63506.7 | 44.4 | 31.7 | 11.7 | 12.7 | 6.1 | 18.8 |
| CHEMICALS | | | | | | | |
| Organic chemicals(512) | 15842.6 | 47.2 | 45.2 | 3.0 | 7.7 | 28.3 | 1.1 |
| Inorganic chem., oxides and halogen salts(513/4) | 34145.6 | 85.0 | 0.9 | 0.0 | 0.6 | 0.3 | 0.0 |
| Dyeing, tanning and colouring materials(531) | 11362.8 | 99.9 | 0.1 | 0.0 | 0.1 | 0.0 | 0.0 |
| Medicinal and pharmaceutical products(541) | 11683.9 | 66.5 | 33.4 | 4.2 | 25.7 | 1.0 | 0.0 |
| Plastics, cellulose and artificial resins(581) | 533.7 | 81.0 | 14.5 | 0.0 | 1.3 | 9.8 | 0.0 |
| FERTILIZERS | | | | | | | |
| Nitrogenous fertilizers & related materials(5611) | 29240.5 | 96.3 | 3.7 | 0.0 | 0.0 | 3.7 | 0.0 |
| Phosphatic fertilizers and related materials(5612) | 8019.9 | 100.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Potassic fertilizers and related materials(5613) | ... | ... | ... | ... | ... | ... | ... |
| PETROLEUM | | | | | | | |
| Petroleum, crude or partly refined(331) | 11021390.4 | 23.5 | 74.7 | 25.9 | 0.9 | 43.6 | 0.0 |
| Petroleum products(332) | 1094097.4 | 4.0 | 96.0 | 22.5 | 0.6 | 72.4 | 0.0 |
| RUBBER | | | | | | | |
| Crude rubber, synthetic and reclaimed(231) | 951915.4 | 26.0 | 63.8 | 46.9 | 7.6 | 3.4 | 10.0 |
| Rubber materials, e.g.sheets, threads, piping(621) | ... | ... | ... | ... | ... | ... | ... |
| Articles of rubber, e.g. tyres, tubes(629) | 2417.8 | 12.1 | 78.2 | 0.0 | 0.0 | 0.0 | 0.0 |
| WOOD AND FURNITURE | | | | | | | |
| Wood, shaped or simply worked(243) | 190534.7 | 37.2 | 55.0 | 4.6 | 32.2 | 17.0 | 0.0 |
| Pulp paper, including waste(251) | 6044.6 | 90.7 | 0.0 | 0.0 | 0.0 | 0.8 | 0.0 |
| Veneers, plywood, improved wood(631) | 792056.4 | 50.6 | 41.9 | 23.9 | 10.9 | 6.5 | 0.2 |
| Wood manufactures(632) | 10858.2 | 32.2 | 67.4 | 12.3 | 13.0 | 40.3 | 0.0 |
| Paper and paperboard(641) | 20236.7 | 95.8 | 3.9 | 0.3 | 0.0 | 0.5 | 0.0 |
| Articles of pulp, paper or paperboard(642) | 463.6 | 77.8 | 20.1 | 0.4 | 0.0 | 19.7 | 0.0 |
| Furniture(821) | 5421.4 | 19.2 | 80.2 | 16.8 | 35.7 | 16.5 | 0.0 |
| TEXTILES AND CLOTHING | | | | | | | |
| Wool and other animal hair(262) | 70.6 | 0.0 | 100.0 | 0.0 | 0.0 | 100.0 | 0.0 |
| Cotton(263) | 9.6 | 0.0 | 100.0 | 0.0 | 100.0 | 0.0 | 0.0 |
| Jute(264) | ... | ... | ... | ... | ... | ... | ... |
| Vegetable fibres, flax and hemp(265) | 17.7 | 0.0 | 79.9 | 0.0 | 79.9 | 0.0 | 0.0 |
| Synthetic and regenerated fibres(266) | 163.1 | 26.4 | 73.6 | 0.0 | 0.0 | 73.6 | 0.0 |
| Textile yarn and thread(651) | 16921.4 | 64.5 | 34.7 | 4.7 | 7.3 | 4.9 | 0.5 |
| Woven cotton fabrics(652) | 41396.3 | 14.0 | 82.8 | 24.3 | 45.2 | 9.7 | 0.0 |
| Woven textile fabrics(653) | 105524.8 | 26.2 | 58.5 | 30.0 | 15.1 | 8.4 | 0.0 |
| Made-up articles chiefly of textiles(656) | 4691.9 | 57.8 | 39.3 | 38.9 | 0.2 | 0.0 | 0.0 |
| Travel bags, handbags, etc.(831) | 227.9 | 10.4 | 89.3 | 1.7 | 71.9 | 0.4 | 0.0 |
| Clothing, excluding leather(841 less 8413) | 291493.6 | 12.0 | 84.4 | 65.2 | 11.4 | 0.3 | 0.0 |
| Calf leather(6113) | 15.1 | 0.0 | 100.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| LEATHER AND PRODUCTS | | | | | | | |
| Other leather, including artificial(611 less 6113) | 6925.9 | 61.8 | 36.4 | 0.0 | 18.7 | 8.9 | 0.0 |
| Leather manufactures(612) | 604.8 | 62.8 | 36.8 | 28.2 | 1.8 | 4.8 | 0.0 |
| Apparel and accessories of leather(8413) | 4430.8 | 46.2 | 53.3 | 39.3 | 1.2 | 7.7 | 0.0 |
| Footwear(85) | 4794.3 | 35.9 | 64.1 | 0.1 | 39.4 | 23.7 | 0.0 |
| BUILDING MATERIALS AND GLASS | | | | | | | |
| Lime, cement, fabricated building materials(661) | 12897.2 | 84.9 | 5.5 | 0.0 | 0.0 | 0.1 | 0.0 |
| Construction and refractory materials of clay(662) | 376.5 | 69.5 | 30.5 | 0.0 | 0.0 | 0.0 | 0.0 |
| Glass(664) | 3407.4 | 83.7 | 6.7 | 0.0 | 0.0 | 5.7 | 0.0 |
| Glassware and pottery(665/6) | 6782.0 | 66.0 | 29.4 | 0.1 | 0.2 | 12.4 | 0.0 |

Table A-12 (Cont.)

| Description of traded goods (SITC) | World total (in 1000 current US $) | Developing countries | Developed market economies | | | | Centrally planned economies |
|---|---|---|---|---|---|---|---|
| | | | Total | USA | EEC | Japan | |
| | | (Percent of world total) | | | | | |
| IRON AND STEEL | | | | | | | |
| Iron ore and concentrates(281) | ... | ... | ... | ... | ... | ... | ... |
| Iron and steel scrap(282) | 369.1 | 67.5 | 32.5 | 0.0 | 0.0 | 32.5 | 0.0 |
| Pig iron and sponge(671) | 3183.8 | 78.3 | 21.7 | 0.0 | 0.0 | 21.7 | 0.0 |
| Ingots and other primary forms(672) | 4156.1 | 100.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Bars, rods, shapes, sections(673) | 2616.4 | 100.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Universals, plates and sheets(674) | 0.1 | 0.0 | 100.0 | 0.0 | 0.0 | 100.0 | 0.0 |
| Hoop and strip(675) | ... | ... | ... | ... | ... | ... | ... |
| Iron and steel wire(677) | ... | ... | ... | ... | ... | ... | ... |
| Tubes, pipes and fittings(678) | 33.8 | 100.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Unworked castings and forgings(679) | 24.1 | 0.0 | 100.0 | 0.0 | 100.0 | 0.0 | 0.0 |
| NON-FERROUS METALS | | | | | | | |
| Non-ferrous ore and concentrates(283) | 272676.4 | 3.8 | 96.1 | 0.0 | 5.7 | 90.3 | 0.0 |
| Copper, blister, refined, alloys(6821) | ... | ... | ... | ... | ... | ... | ... |
| Copper bars, shapes, sections, wire, etc.(6822) | 675.4 | 99.6 | 0.4 | 0.0 | 0.4 | 0.0 | 0.0 |
| Aluminium, unwrought or worked(684) | 208949.8 | 1.0 | 98.9 | 0.0 | 0.0 | 98.9 | 0.0 |
| Lead, unwrought or worked(685) | 11808.1 | 28.8 | 63.5 | 0.0 | 0.0 | 63.5 | 0.0 |
| Zinc, unwrought or worked(686) | 23.3 | 56.8 | 43.2 | 0.0 | 0.0 | 43.2 | 0.0 |
| Tin and alloys, unwrought or worked(687) | 269802.5 | 61.0 | 37.2 | 0.0 | 36.9 | 0.2 | 1.9 |
| Wire products, e.g. cables, ropes(693) | 27.2 | 100.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| SELECTED CAPITAL GOODS | | | | | | | |
| Hand tools used in agriculture(6951) | 0.0 | 0.0 | 100.0 | 100.0 | 0.0 | 0.0 | 0.0 |
| Tools for use in hand or machine(6952) | 185.7 | 42.7 | 57.3 | 0.0 | 1.2 | 0.0 | 0.0 |
| Power generating machinery, non-electric(711) | 15.0 | 30.3 | 69.7 | 43.6 | 8.7 | 0.0 | 0.0 |
| Agricultural machinery(7121/2) | ... | ... | ... | ... | ... | ... | ... |
| Dairy equipment(7123) | ... | ... | ... | ... | ... | ... | ... |
| Tractors(7125) | ... | ... | ... | ... | ... | ... | ... |
| Office machines(714) | 12.8 | 100.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Metal working machinery(715) | 18.7 | 43.9 | 56.1 | 0.0 | 0.0 | 0.0 | 0.0 |
| Textile and leather machinery(717) | ... | ... | ... | ... | ... | ... | ... |
| Machines for paper, pulp and paper articles(7181) | ... | ... | ... | ... | ... | ... | ... |
| Industrial food-processing machinery(7183) | 30.1 | 98.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Machine tools for working minerals,wood,etc.(7195) | 2.9 | 0.0 | 100.0 | 1.0 | 0.0 | 0.0 | 0.0 |
| Electrical power machinery and switchgear(722) | 178.2 | 39.7 | 60.3 | 0.0 | 10.3 | 1.7 | 0.0 |
| MAJOR CONSUMER DURABLES | | | | | | | |
| Commercial road vehicles(732 less 7321) | 189.7 | 77.4 | 22.6 | 0.0 | 4.7 | 16.6 | 0.0 |
| Passenger motor cars(7321) | 6.4 | 100.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Television and radio sets(7241/2) | 485.2 | 99.3 | 0.7 | 0.0 | 0.0 | 0.7 | 0.0 |
| Domestic electrical equipment(725) | ... | ... | ... | ... | ... | ... | ... |
| TOTAL OF ABOVE | 15657344 | 24.5 | 72.8 | 25.6 | 3.8 | 39.8 | 0.7 |
| TOTAL OF ALL MERCHANDISE (SITC 0 to 9) | 21887765 | 21.8 | 75.6 | 20.6 | 4.7 | 47.3 | 0.7 |

Source: Statistics and Survey Unit, UNIDO. Based on data supplied by the UN Statistical Office, with estimates by the UNIDO Secretariat.

Note: Percentages may not add to 100.0 due to the fact that countries report trade to/from "unspecified areas". Selection of products shown in this table was based on the definition of the manufacturing sector used for production statistics (i.e., ISIC) and the associated raw material supplies. Thus, not all products are regarded as manufactures according to the conventional definitions of manufactured trade (e.g., SITC 5 to 8 less 68).

Table A-13: Export performance indicators, 1970-1973 and 1981-1983

| SITC CODE | PRODUCT GROUP | PRODUCT COMPOSITION OF EXPORTS (PERCENTAGE SHARES) | | PRODUCT COMPOSITION OF IMPORTS (PERCENTAGE SHARES) | | REVEALED COMPARATIVE ADVANTAGE (INDEX) | |
|---|---|---|---|---|---|---|---|
| | | 1970-1972 | 1981-1983 | 1970-1972 | 1981-1983 | 1970-1972 | 1981-1983 |
| 011-013 | MEAT AND MEAT PREPARATIONS | ... | 0 27 | 0 06 | 0.07 | .. | -0 01 |
| 022-024 | DAIRY PRODUCTS | ... | 0 00 | 1 07 | 0 70 | ... | -1 17 |
| 032 | FISH PREPARATIONS | .. | 0 12 | 0 08 | 0 02 | ... | 0 05 |
| 0422 | RICE, GLAZED OR POLISHED | ... | ... | 0.07 | 1 70 | . | .. |
| 046 | MEAL AND FLOUR OF WHEAT OR OF MESLIN | ... | .. | 0 71 | 0.03 | .. | ... |
| 047 | MEAL AND FLOUR OF CEREALS, EXCEPT OF WHEAT OR LF MESLIN | ... | 0 03 | 0 02 | 0 01 | ... | -0 59 |
| 048 | CEREAL PREPARATIONS AND STARCH | ... | 0 21 | 0 15 | 0 09 | ... | -0 27 |
| 052 | DRIED FRUIT | ... | 0 00 | 0 01 | 0 00 | ... | -0 09 |
| 053 | FRUIT PRESERVED AND FRUIT PREPARATIONS | ... | 0 07 | 0 05 | 0 04 | ... | -0 12 |
| 055 | VEGETABLES, ROOTS AND TUBERS, PRESERVED OR PREPARED | ... | 0 04 | 0 07 | 0 15 | ... | -0 98 |
| 061, 062 | SUGAR, SUGAR PREPARATIONS AND HONEY | ... | 0 67 | 0 83 | 2 81 | ... | -6 60 |
| 0713 | COFFEE EXTRACTS, ESSENCES AND SIMILAR PREPARATIONS | ... | 0 07 | 0 00 | 0 00 | ... | 0 34 |
| 0722/3+073 | COCOA AND CHOCOLATE PREPARATIONS | ... | 0 65 | 0 01 | 0.02 | ... | 0 78 |
| 074 | TEA AND MATE | ... | 3 61 | 0 00 | 0.00 | ... | 16 29 |
| 081 | FEEDING-STUFF FOR ANIMALS | ... | 2.86 | 0 01 | 0.53 | ... | 0 14 |
| 091 | MARGARINE AND SHORTENING | ... | 0 00 | 0 02 | 0 00 | ... | -0 04 |
| 099 | FOOD PREPARATIONS, N.E.S. | ... | 0.05 | 0 21 | 0.08 | ... | -0 50 |
| 111 | NON-ALCOHOLIC BEVERAGES, N.E.S. | ... | 0.01 | 0 06 | 0 07 | ... | -0 46 |
| 112 | ALCOHOLIC BEVERAGES | ... | 0.00 | 0 12 | 0 06 | ... | -0 14 |
| 122 | TOBACCO MANUFACTURES | ... | 0 19 | 0 03 | 0 03 | ... | 0 06 |
| 2219 | FLOUR AND MEAL OF OILSEEDS, NUTS AND KERNELS | ... | 0.00 | ... | 0.00 | ... | -1 06 |
| 2312.2313 | SYNTHETIC AND RECLAIMED RUBBER AND SUBSTITUTES | .. | ... | ... | 0 18 | ... | ... |
| 243 | WOOD, SHAPED OR SIMPLY WORKED | .. | 5.73 | 0 00 | 0.00 | ... | 2.35 |
| 251 | PULP AND WASTE PAPER | . | ... | 0.07 | 0 72 | . | ... |
| 2626-2628 | WOOL SHODDY, OTHER ANIMAL HAIR AND TOPS | . | ... | ... | 0 00 | . | ... |
| 266 | SYNTHETIC AND REGENERATED FIBRES | ... | 0.01 | ... | 0.75 | ... | -4 19 |
| 332 | PETROLEUM PRODUCTS | ... | 32.53 | 2.37 | 16 44 | ... | -2.55 |
| 411 | ANIMAL OILS AND FATS | ... | 0 01 | 0 14 | 0 01 | ... | -0.06 |
| 421, 422 | FIXED VEGETABLE OILS AND FATS | ... | 3.88 | 0 02 | 0.06 | ... | 2.46 |
| 431 | ANIMAL AND VEGETABLE OILS AND FATS, PROCESSED | ... | 0.89 | 0 05 | 0 07 | ... | 1.83 |
| 512 | ORGANIC CHEMICALS | ... | 0.60 | 0.78 | 3.16 | ... | -1.74 |
| 513 | INORGANIC CHEMICALS ELEMENTS, OXIDES AND HALIDES | ... | 0.12 | 0.72 | 1.70 | ... | -3.65 |
| 514 | OTHER INORGANIC CHEMICALS | ... | 0 04 | 0.80 | 0.70 | ... | -3.04 |
| 515 | RADIOACTIVE AND ASSOCIATED MATERIALS | ... | ... | ... | 0.02 | ... | ... |
| 521 | MINERAL TAR AND CRUDE CHEMICALS FROM COAL, PETROLEUM | ... | 0.25 | 0.01 | 0.03 | ... | 0.21 |
| 531 | SYNTHETIC ORGANIC DYESTUFFS | ... | 0.07 | 1.28 | 0 48 | ... | -3.05 |
| 532 | DYEING AND TANNING EXTRACTS AND MATERIALS | . | 0.03 | 0 01 | 0 03 | . | -1 43 |
| 533 | PIGMENTS, PAINTS, VARNISHES AND RELATED MATERIALS | ... | 0.01 | 0.58 | 0.25 | ... | -1.17 |
| 541 | MEDICINAL AND PHARMACEUTICAL PRODUCTS | . | 0 41 | 1 88 | 0 76 | . | -0 94 |
| 551 | ESSENTIAL OILS, PERFUME AND FLAVOUR MATERIALS | . | 0.59 | 0.37 | 0 12 | . | 0.12 |
| 553 | PERFUMERY AND COSMETICS, EXCEPT SOAPS | . | 0.24 | 0 07 | 0.03 | . | 0.18 |
| 554 | SOAPS, CLEANSING AND POLISHING PREPARATIONS | . | 0.01 | 0.16 | 0 11 | . | -0.77 |
| 561 | FERTILIZERS, MANUFACTURED | . | 0.71 | 3 12 | 1.37 | . | -3.34 |

| SITC CODE | PRODUCT GROUP | PRODUCT COMPOSITION OF EXPORTS (PERCENTAGE SHARES) | | PRODUCT COMPOSITION OF IMPORTS (PERCENTAGE SHARES) | | REVEALED COMPARATIVE ADVANTAGE (INDEX) | |
|---|---|---|---|---|---|---|---|
| | | 1970-1972 | 1981-1983 | 1970-1972 | 1981-1983 | 1970-1972 | 1981-1983 |
| 571 | EXPLOSIVES AND PYROTECHNIC PRODUCTS | ... | ... | 0 00 | 0.09 | ... | .. |
| 581 | PLASTIC MATERIALS, REGENERATED CELLULOSE, ARTIFICIAL RESINS | ... | 0 01 | 1.74 | 3.25 | ... | -2.38 |
| 599 | CHEMICAL MATERIALS AND PRODUCTS, N.E.S. | . | 0 01 | 2.30 | 1.40 | . | -1 81 |
| 611 | LEATHER | . | 0.23 | 0.00 | 0 00 | . | 0 29 |
| 612 | MANUFACTURES OF LEATHER OR RECONSTITUTES | . | 0.22 | 0.01 | 0 01 | . | 0 72 |
| 613 | FUR SKINS, TANNED OR DRESSED | ... | ... | .. | 0 00 | . | ... |
| 621 | MATERIALS OF RUBBER | ... | 0 00 | 0 05 | 0 12 | ... | -1 42 |
| 629 | ARTICLES OF RUBBER, N.E.S. | . | 0 07 | 0 77 | 0.32 | . | -0 65 |
| 631 | VENEERS, PLYWOOD BOARDS, RECONSTITUTED WOOD | ... | 14 57 | 0.10 | 0 01 | . | 12 07 |
| 632 | WOOD MANUFACTURES, N.E.S. | . | 0 24 | 0 15 | 0.01 | . | 0.26 |
| 633 | CORK MANUFACTURES | . | ... | 0 02 | 0 00 | . | ... |
| 641 | PAPER AND PAPERBOARD | . | 0 10 | 2 15 | 1.23 | . | -1 13 |
| 642 | ARTICLES OF PULP, PAPER OR PAPERBOARD | . | 0 00 | 0 24 | 0 22 | . | -0 85 |
| 651 | TEXTILE YARN AND THREAD | . | 0 19 | 5 24 | 0 53 | .. | -0 83 |
| 652 | COTTON FABRICS, WOVEN | . | 0 42 | 0 74 | 0 05 | . | 0 12 |
| 653 | TEXTILE FABRICS, WOVEN OTHER THAN COTTON | . | 1 31 | 2 38 | 0 44 | . | -0 24 |
| 654 | TULLE, LACE, EMBROIDERY, RIBBONS, ETC | . | 0 05 | 0 03 | 0 02 | . | -0 08 |
| 655 | SPECIAL TEXTILE FABRICS AND RELATED PRODUCTS | . | 0 01 | 0 37 | 0.30 | . | -0 31 |
| 656 | MADE-UP ARTICLES, CHIEFLY OF TEXTILES | . | 0 04 | 0 77 | 0 12 | . | -0 65 |
| 657 | FLOOR COVERINGS, TAPESTRIES, ETC | . | 0 29 | 0 05 | 0 02 | . | 0 19 |
| 661 | LIME, CEMENT, BUILDING MATERIALS, EXCL. GLASS AND CLAY | .. | 0 42 | 1 79 | 0 37 | . | -1 47 |
| 662 | CLAY AND REFRACTORY CONSTRUCTION MATERIALS | . | 0 03 | 0 16 | 0 31 | . | -1 63 |
| 663 | MINERAL MANUFACTURES, N.E.S. | ... | 0 00 | 0.10 | 0 30 | . | -1 67 |
| 664 | GLASS | .. | 0 01 | 0 28 | 0 27 | ... | -1 42 |
| 665 | GLASSWARE | . | 0 16 | 0 32 | 0 06 | .. | -0 15 |
| 666 | POTTERY | . | 0 00 | 0 16 | 0 01 | . | -0 10 |
| 671 | PIG IRON, SPIEGELEISEN, SPONGE IRON, ETC. | . | 0 27 | 0.11 | 0 15 | . | -0 55 |
| 672 | INGOTS AND FORMS OF IRON OR STEEL | .. | 0.00 | ... | 0 61 | . | -1 92 |
| 673 | IRON AND STEEL BARS, RODS, ANGLES, ETC. | ... | 0 13 | 2 56 | 0 80 | .. | -1 35 |
| 674 | UNIVERSALS, PLATES AND SHEETS OF IRON OR STEEL | . | 0 00 | 3 29 | 3 71 | ... | 4 08 |
| 675 | HOOP AND STRIP OF IRON OR STEEL | . | ... | 0 11 | 0 13 | ... | ... |
| 676 | RAILS AND RAILWAY TRACK CONSTRUCTION MATERIALS | . | ... | 0.21 | 0 10 | .. | ... |
| 677 | IRON AND STEEL WIRE | . | 0 00 | 0 87 | 0 08 | . | -0 98 |
| 678 | TUBES, PIPES AND FITTINGS OF IRON OR STEEL | . | 0 03 | 2 58 | 2 94 | . | -3 76 |
| 679 | IRON AND STEEL CASTINGS, FORGINGS, UNWROUGHT | . | 0 01 | 0 01 | 0 15 | . | -3 88 |
| 681 | SILVER, PLATINUM AND RELATED METALS | . | .. | 0 00 | 0 00 | . | ... |
| 682 | COPPER | . | 0 04 | 0 44 | 0 39 | . | -0 77 |
| 683 | NICKEL | . | 0 01 | 0 19 | 0 09 | . | -0 91 |
| 684 | ALUMINIUM | . | 0 79 | 0 70 | 0 88 | . | -0 50 |
| 685 | LEAD | . | 0 00 | 0 02 | 0 53 | . | 10 04 |
| 686 | ZINC | . | ... | ... | ... | . | ... |

Table A-13 (Cont.)

| SITC CODE | PRODUCT GROUP | PRODUCT COMPOSITION OF EXPORTS (PERCENTAGE SHARES) | | PRODUCT COMPOSITION OF IMPORTS (PERCENTAGE SHARES) | | REVEALED COMPARATIVE ADVANTAGE (INDEX) | |
|---|---|---|---|---|---|---|---|
| | | 1970-1972 | 1981-1983 | 1970-1972 | 1981-1983 | 1970-1972 | 1981-1983 |
| 689 | MISCELLANEOUS NON-FERROUS METALS USED IN METALLURGY | ... | ... | 0.01 | 0.01 | .. | ... |
| 691 | FINISHED STRUCTURES AND STRUCTURAL PARTS, N.E.S | ... | 0.57 | 1.05 | 1.78 | . | -5.09 |
| 692 | METAL CONTAINERS FOR STORAGE AND TRANSPORT | ... | 0.02 | 0.34 | 0.34 | .. | -2.99 |
| 693 | WIRE PRODUCTS (EXCL. ELECTRIC), FENCING GRILLS | ... | 0.00 | 0.38 | 0.12 | .. | -1.28 |
| 694 | NAILS, SCREWS, NUTS, BOLTS, RIVETS, ETC. | ... | 0.00 | 0.30 | 0.34 | ... | -4.21 |
| 695 | TOOLS FOR USE IN THE HAND OR IN MACHINES | ... | 0.01 | 0.45 | 0.54 | ... | -1.8 |
| 696 | CUTLERY | ... | 0.00 | 0.02 | 0.02 | ... | -0.35 |
| 697 | HOUSEHOLD EQUIPMENT OF BASE METALS | ... | 0.00 | 0.16 | 0.06 | ... | -0.40 |
| 698 | MANUFACTURE OF METALS, N.E.S. | . | 0.01 | 1.01 | 0.38 | . | -0.77 |
| 711 | POWER GENERATING MACHINERY, EXCL. ELECTRIC | ... | 0.14 | 3.77 | 2.95 | ... | -2.00 |
| 712 | AGRICULTURAL MACHINERY AND IMPLEMENTS | ... | 0.00 | 0.05 | 0.35 | ... | -0.65 |
| 714 | OFFICE MACHINES | .. | 0.00 | 0.56 | 0.48 | ... | -0.30 |
| 715 | METALWORKING MACHINERY | .. | 0.00 | 1.31 | 1.04 | ... | -2.13 |
| 717 | TEXTILE AND LEATHER MACHINERY | .. | 0.00 | 3.33 | 1.24 | ... | -3.05 |
| 718 | MACHINES FOR SPECIAL INDUSTRIES | ... | 0.14 | 4.88 | 4.38 | ... | -3.88 |
| 719 | MACHINES, APPLIANCES (EXCL. ELECTRIC.), PARTS | ... | 0.19 | 8.54 | 11.04 | ... | -3.18 |
| 722 | ELECTRIC POWER MACHINERY, SWITCHGEAR | ... | 0.01 | 1.81 | 2.84 | ... | -2.42 |
| 723 | EQUIPMENT FOR DISTRIBUTING ELECTRICITY | ... | 0.00 | 1.03 | 1.02 | ... | -4.00 |
| 724 | TELECOMMUNICATIONS APPARATUS | .. | 0.09 | 2.14 | 1.23 | ... | -0.82 |
| 725 | DOMESTIC ELECTRICAL EQUIPMENT | .. | 0.00 | 0.57 | 0.17 | ... | -0.64 |
| 726 | ELECTRIC APPARATUS FOR MEDICAL PURPOSES | .. | 0.00 | 0.06 | 0.10 | ... | -0.65 |
| 729 | OTHER ELECTRICAL MACHINERY AND APPARATUS | . | 3.58 | 1.07 | 2.27 | ... | -0.69 |
| 731 | RAILWAY VEHICLES | ... | .. | 0.40 | 0.39 | ... | ... |
| 732 | ROAD MOTOR VEHICLES | ... | 0.01 | 10.75 | 8.43 | ... | -1.00 |
| 733 | ROAD VEHICLES OTHER THAN MOTOR VEHICLES | . | 0.00 | 0.84 | 0.54 | ... | -2.84 |
| 734 | AIRCRAFT | . | 1.18 | 0.01 | 2.01 | ... | -1.41 |
| 735 | SHIPS AND BOATS | . | 0.05 | 2.33 | 2.02 | . | -2.50 |
| 812 | SANITARY, PLUMBING, HEATING AND LIGHTING FIXTURES | ... | 0.03 | 0.42 | 0.10 | ... | -0.53 |
| 821 | FURNITURE | ... | 0.10 | 0.23 | 0.08 | ... | -0.12 |
| 831 | TRAVEL GOODS, HANDBAGS AND SIMILAR ARTICLES | ... | 0.02 | 0.00 | 0.02 | ... | -0.15 |
| 841 | CLOTHING, EXCEPT FUR CLOTHING | . | 4.29 | 0.19 | 0.06 | . | 0.47 |
| 842 | FUR CLOTHING AND ARTICLES MADE OF FUR SKINS | . | 0.00 | ... | 0.00 | ... | -0.01 |
| 851 | FOOTWEAR | . | 0.10 | 0.04 | 0.03 | . | -0.01 |
| 861 | SCIENTIFIC, MEDICAL, OPTICAL, MEASURING INSTRUMENTS | ... | 0.04 | 3.06 | 1.15 | ... | -1.03 |
| 862 | PHOTOGRAPHIC AND CINEMATOGRAPHIC SUPPLIES | ... | 0.00 | 0.32 | 0.24 | ... | -0.72 |
| 864 | WATCHES AND CLOCKS | ... | 0.00 | 0.06 | 0.08 | ... | -0.10 |
| 891 | MUSICAL INSTRUMENTS, SOUND RECORDERS AND REPRODUCERS | ... | 0.51 | 0.12 | 0.27 | ... | -0.21 |
| 892 | PRINTED MATTER | . | 0.01 | 0.28 | 0.10 | . | -0.24 |
| 893 | ARTICLES OF ARTIFICIAL PLASTIC MATERIALS, N.E.S. | ... | 0.01 | 0.48 | 0.19 | ... | -0.50 |
| 894 | PERAMBULATORS, TOYS, GAMES, SPORTING GOODS | ... | 0.02 | 0.15 | 0.11 | ... | -0.24 |
| 895 | OFFICE AND STATIONERY SUPPLIES, N.E.S. | ... | 0.02 | 0.04 | 0.08 | ... | -0.94 |
| 897 | JEWELLERY, GOLD AND SILVER WARES | . | 0.23 | 0.05 | 0.00 | . | 0.17 |
| 899 | MANUFACTURED ARTICLES, N.E.S. | . | 0.09 | 0.39 | 0.16 | . | -0.81 |

Source: UNIDO, International Comparative Advantage in Manufacturing, Vienna 1986.

Table A-14: Imports of manufactures by major commodity groups, 1975, 1980 and 1983
(Rp billion)

| | | 1975 | | 1980 | | 1983 | |
|---|---|---|---|---|---|---|---|
| | | value (cif) | share (%) | value (cif) | share (%) | value (cif) | share (%) |
| 31 | Food, beverages, tobacco | 172.9 | 8.6 | 655.5 | 8.4 | 716.2 | 4.3 |
| 32 | Textiles | 81.5 | 4.1 | 115.1 | 1.5 | 133.4 | 0.8 |
| 33 | Wood products | 2.4 | 0.1 | 3.2 | -- | 3.7 | -- |
| 34 | Paper and printing | 29.3 | 1.5 | 151.2 | 1.9 | 311.5 | 1.9 |
| 35 | Chemicals | 546.3 | 27.2 | 2,264.4 | 29.2 | 6,283.7 | 38.5 |
| | (Petroleum products) | (184.0) | (9.2) | (1296.0) | (16.7) | (4,412.5) | (26.6) |
| 36 | Non metallic mineral prod. | 41.3 | 2.1 | 81.5 | 1.1 | 157.6 | 0.9 |
| 37 | Basic metals | 205.2 | 10.2 | 723.4 | 9.3 | 1,222.3 | 7.4 |
| 38 | Metal products and machines | 907.6 | 45.1 | 3,644.9 | 46.9 | 7,420.0 | 44.7 |
| 39 | Other manufactures | 24.5 | 1.2 | 124.8 | 1.6 | 251.1 | 1.5 |
| Total manufactures | | 2,011.0 | 100.0 | 7,764.0 | 100.0 | 16,599.6 | 100.0 |
| Total commodity imports | | 2,369.5 | | 9,886.0 | | 20,493.3 | |
| Share of manufactures in total imports | | | 84.9 | | 78.5 | | 81.0 |

Source: BPS, Tabel Input-Output, Indonesia, 1975 and 1980. Departement Peridustrian, Penyusunan Tabel Input-Output Indonesia Updated, Jakarta 1983.

Table A-15: Share of imports in domestic demand by manufacturing sub-sectors, 1975 and 1980

| ISIC | Sector | 1975 | 1980 |
|---|---|---|---|
| 311/2 | Food products | 7.3 | 11.7 |
| 313 | Beverages | 7.8 | 10.8 |
| 314 | Tobacco | 2.1 | 0.4 |
| 321 | Textiles | 19.8 | 8.9 |
| 322 | Wearing apparel | 10.4 | 8.9 |
| 323 | Leather | 0.2 | 0.2 |
| 324 | Footwear | 3.8 | 2.6 |
| 331 | Wood products | 2.6 | 0.7 |
| 332 | Furniture | 3.8 | 0.4 |
| 341 | Paper products | 54.1 | 55.3 |
| 342 | Printing/publishing | 3.4 | 3.4 |
| 351 | Industrial chemicals | 79.0 | 68.2 |
| 352 | Other chemicals | 32.1 | 20.8 |
| 353 | Petroleum refinery | 53.9 | 58.5 |
| 355 | Rubber products | 35.9 | 24.1 |
| 356 | Plastic products | 26.7 | 7.2 |
| 361 | Ceramics/earthenware | 68.4 | 50.0 |
| 362 | Glass products | 74.4 | 32.9 |
| 363 | Cement | 51.0 | 11.8 |
| 364 | Structural clay products | 0.9 | 15.4 |
| 369 | Other non-metallic min. | 10.6 | 8.5 |
| 371 | Iron and steel | 93.2 | 64.8 |
| 372 | Non-ferrous basic metals | 62.5 | 61.5 |
| 381 | Metal products | 45.8 | 45.3 |
| 382 | Non-electric machinery | 85.4 | 65.3 |
| 383 | Electrical machinery | 80.6 | 45.7 |
| 384 | Transport equipment | 45.2 | 59.0 |
| 390 | Other manufacturing | 46.0 | 57.7 |
| 3 | Total manufacturing | 33.8 | 35.3 |

Source: BPS.

Table A-16: Origin of imports by industry, 1984

| Description of traded goods (SITC) | World total (in 1000 current US $) | Developing countries | Developed market economies | | | | Centrally planned economies |
|---|---|---|---|---|---|---|---|
| | | | Total | USA | EEC | Japan | |
| | | (Percent of world total) | | | | | |
| OILS AND FATS | | | | | | | |
| Animal oils and fats(411) | 725.7 | 17.3 | 82.1 | 1.8 | 9.2 | 4.5 | 0.0 |
| Fixed vegetable oils and fats(421/2) | 40790.9 | 79.4 | 20.5 | 5.7 | 9.9 | 4.7 | 0.0 |
| Processed animal and vegetable oils and fats(431) | 10216.0 | 47.0 | 52.1 | 0.9 | 24.4 | 20.9 | 0.0 |
| CHEMICALS | | | | | | | |
| Organic chemicals(512) | 548695.9 | 10.9 | 85.0 | 30.1 | 26.8 | 21.7 | 0.7 |
| Inorganic chem., oxides and halogen salts(513/4) | 462733.8 | 29.6 | 65.6 | 11.0 | 11.1 | 20.7 | 1.2 |
| Dyeing, tanning and colouring materials(531) | 64775.0 | 8.7 | 87.6 | 1.1 | 38.4 | 25.7 | 0.6 |
| Medicinal and pharmaceutical products(541) | 88110.4 | 8.3 | 89.8 | 20.6 | 46.6 | 6.6 | 0.6 |
| Plastics, cellulose and artificial resins(581) | 543841.7 | 24.0 | 64.9 | 20.5 | 13.1 | 24.3 | 2.0 |
| FERTILIZERS | | | | | | | |
| Nitrogenous fertilizers & related materials(5611) | 49525.0 | 15.9 | 48.2 | 22.0 | 16.5 | 2.4 | 29.4 |
| Phosphatic fertilizers and related materials(5612) | 5337.4 | 70.9 | 29.1 | 0.1 | 25.4 | 0.0 | 0.0 |
| Potassic fertilizers and related materials(5613) | 33762.8 | 18.0 | 76.0 | 2.5 | 27.5 | 0.6 | 5.9 |
| PETROLEUM | | | | | | | |
| Petroleum, crude or partly refined(331) | 1320667.3 | 100.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Petroleum products(332) | 1374749.0 | 94.8 | 4.5 | 1.4 | 0.9 | 0.7 | 0.0 |
| RUBBER | | | | | | | |
| Crude rubber, synthetic and reclaimed(231) | 26270.7 | 12.0 | 71.5 | 10.2 | 12.5 | 46.6 | 0.0 |
| Rubber materials, e.g.sheets, threads, piping(621) | 18042.5 | 24.6 | 70.4 | 23.2 | 13.5 | 32.6 | 0.5 |
| Articles of rubber, e.g. tyres, tubes(629) | 38592.0 | 16.0 | 79.8 | 11.9 | 17.0 | 48.8 | 0.0 |
| WOOD AND FURNITURE | | | | | | | |
| Wood, shaped or simply worked(243) | 42.4 | 4.2 | 95.8 | 3.6 | 0.5 | 91.7 | 0.0 |
| Pulp paper, including waste(251) | 184486.7 | 4.0 | 90.8 | 26.9 | 0.7 | 0.5 | 0.0 |
| Veneers, plywood, improved wood(631) | 625.7 | 34.4 | 62.2 | 2.4 | 41.0 | 5.3 | 0.0 |
| Wood manufactures(632) | 821.5 | 48.2 | 49.2 | 8.2 | 10.9 | 29.0 | 0.0 |
| Paper and paperboard(641) | 139866.8 | 7.5 | 88.0 | 8.1 | 18.5 | 10.4 | 1.0 |
| Articles of pulp, paper or paperboard(642) | 29346.3 | 8.4 | 74.3 | 7.1 | 34.6 | 18.6 | 0.7 |
| Furniture(821) | 7365.5 | 24.1 | 67.8 | 17.2 | 28.4 | 21.7 | 0.2 |
| TEXTILES AND CLOTHING | | | | | | | |
| Wool and other animal hair(262) | 7.8 | 57.4 | 42.6 | 0.0 | 42.6 | 0.0 | 0.0 |
| Cotton(263) | 214472.0 | 19.9 | 74.0 | 71.3 | 0.2 | 0.2 | 2.8 |
| Jute(264) | 2554.3 | 100.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Vegetable fibres, flax and hemp(265) | 716.0 | 65.7 | 4.2 | 0.4 | 3.4 | 0.4 | 0.0 |
| Synthetic and regenerated fibres(266) | 86695.0 | 29.2 | 37.4 | 12.3 | 0.5 | 24.6 | 0.6 |
| Textile yarn and thread(651) | 45656.1 | 39.6 | 52.1 | 2.0 | 3.2 | 45.4 | 0.0 |
| Woven cotton fabrics(652) | 4634.4 | 86.6 | 11.0 | 1.3 | 0.9 | 7.5 | 0.0 |
| Woven textile fabrics(653) | 44691.0 | 42.3 | 54.4 | 1.9 | 3.4 | 48.4 | 0.0 |
| Made-up articles chiefly of textiles(656) | 1234.8 | 32.2 | 52.2 | 22.4 | 14.1 | 12.4 | 0.0 |
| Travel bags, handbags, etc.(831) | 947.2 | 28.3 | 25.0 | 2.8 | 9.2 | 12.2 | 0.0 |
| Clothing, excluding leather(841 less 8413) | 4766.7 | 46.3 | 48.4 | 31.4 | 5.9 | 7.1 | 0.0 |
| Calf leather(6113) | ... | ... | ... | ... | ... | ... | ... |
| LEATHER AND PRODUCTS | | | | | | | |
| Other leather, including artificial(611 less 6113) | 80.7 | 30.1 | 34.0 | 0.0 | 21.6 | 12.3 | 0.0 |
| Leather manufactures(612) | 819.8 | 29.2 | 50.4 | 3.2 | 20.2 | 26.1 | 0.0 |
| Apparel and accessories of leather(8413) | 110.4 | 27.5 | 70.9 | 29.5 | 12.4 | 2.7 | 0.0 |
| Footwear(85) | 3726.2 | 11.5 | 61.2 | 10.1 | 25.7 | 18.0 | 0.6 |
| BUILDING MATERIALS AND GLASS | | | | | | | |
| Lime, cement, fabricated building materials(661) | 14710.7 | 56.0 | 33.5 | 9.4 | 10.0 | 13.1 | 0.2 |
| Construction and refractory materials of clay(662) | 45597.6 | 8.5 | 91.2 | 5.6 | 31.6 | 29.8 | 0.0 |
| Glass(664) | 27089.4 | 26.3 | 64.7 | 6.7 | 4.6 | 48.2 | 0.9 |
| Glassware and pottery(665/6) | 7752.0 | 31.0 | 64.9 | 18.0 | 21.0 | 22.2 | 0.2 |

Table A-16 (Cont.)

| Description of traded goods (SITC) | World total (in 1000 current US $) | Developing countries | Developed market economies | | | | Centrally planned economies |
|---|---|---|---|---|---|---|---|
| | | | total | USA | EEC | Japan | |
| | | (Percent of world total) | | | | | |
| IRON AND STEEL | | | | | | | |
| Iron ore and concentrat .81) | 58798.3 | 9.2 | 90.8 | 0.0 | 0.0 | 0.0 | 0.0 |
| Iron and steel scrap(28. | 34694.2 | 58.3 | 25.7 | 16.0 | 0.0 | 0.0 | 0.0 |
| Pig iron and sponge(671) | 29417.3 | 62.9 | 32.6 | 0.6 | 4.6 | 3.9 | 0.0 |
| Ingots and other primary forms(672) | 31207.0 | 58.2 | 40.7 | 1.0 | 18.0 | 7.1 | 0.0 |
| Bars, rods, shapes, sections(673) | 109205.1 | 5.0 | 89.8 | 4.0 | 2.4 | 81.5 | 1.1 |
| Universals, plates and sheets(674) | 413525.8 | 10.7 | 87.8 | 1.8 | 7.0 | 73.7 | 0.2 |
| Hoop and strip(675) | 9563.5 | 12.4 | 81.7 | 2.4 | 5.0 | 64.7 | 0.0 |
| Iron and steel wire(677) | 10285.5 | 16.1 | 74.1 | 2.1 | 24.9 | 44.7 | 0.0 |
| Tubes, pipes and fittings(678) | 215359.9 | 8.8 | 89.3 | 25.8 | 10.1 | 52.0 | 1.5 |
| Unworked castings and forgings(679) | 21602.3 | 13.5 | 75.4 | 30.5 | 14.9 | 28.1 | 0.0 |
| NON-FERROUS METALS | | | | | | | |
| Non-ferrous ore and concentrates(283) | 2520.3 | 46.1 | 53.9 | 1.0 | 7.0 | 4.8 | 0.0 |
| Copper, blister, refined, alloys(6821) | 23996.1 | 78.9 | 21.1 | 0.1 | 1.0 | 19.1 | 0.0 |
| Copper bars, shapes, sections, wire, etc.(6822) | 13175.0 | 12.1 | 80.9 | 4.3 | 19.3 | 51.7 | 0.0 |
| Aluminium, unwrought or worked(684) | 65665.1 | 13.8 | 76.3 | 4.9 | 17.4 | 24.6 | 0.0 |
| Lead, unwrought or worked(685) | 1255.4 | 2.0 | 97.2 | 0.1 | 1.4 | 4.0 | 0.0 |
| Zinc, unwrought or worked(686) | 1715.6 | 7.9 | 87.0 | 9.3 | 4.7 | 45.1 | 0.0 |
| Tin and alloys, unwrought or worked(687) | 203.9 | 49.2 | 50.8 | 1.4 | 29.0 | 20.4 | 0.0 |
| Wire products, e.g. cables, ropes(693) | 11974.2 | 24.5 | 67.8 | 20.2 | 16.7 | 28.5 | 0.0 |
| SELECTED CAPITAL GOODS | | | | | | | |
| Hand tools used in agriculture(6951) | 533.3 | 58.3 | 38.2 | 10.6 | 19.1 | 5.8 | 0.0 |
| Tools for use in hand or machine(6952) | 83598.8 | 13.4 | 84.2 | 45.0 | 10.9 | 25.2 | 0.1 |
| Power generating machinery, non-electric(711) | 337170.2 | 3.6 | 94.5 | 20.8 | 33.9 | 33.0 | 0.1 |
| Agricultural machinery(7121/2) | 6319.9 | 1.4 | 98.2 | 15.0 | 6.4 | 69.9 | 0.3 |
| Dairy equipment(7123) | 1208.7 | 1.6 | 98.3 | 6.3 | 79.0 | 1.1 | 0.0 |
| Tractors(7125) | 14248.2 | 3.3 | 96.2 | 42.7 | 16.9 | 27.1 | 0.4 |
| Office machines(714) | 103098.4 | 11.1 | 87.2 | 44.1 | 16.0 | 23.7 | 0.9 |
| Metal working machinery(715) | 82261.1 | 14.5 | 73.0 | 8.2 | 20.7 | 36.1 | 0.1 |
| Textile and leather machinery(717) | 101825.7 | 9.0 | 77.3 | 3.4 | 29.1 | 39.7 | 3.2 |
| Machines for paper, pulp and paper articles(7181) | 82020.1 | 0.9 | 90.8 | 0.1 | 51.1 | 33.0 | 0.3 |
| Industrial food-processing machinery(7183) | 42798.3 | 16.9 | 68.5 | 9.0 | 16.2 | 40.3 | 0.0 |
| Machine tools for working minerals,wood,etc.(7195) | 79854.0 | 14.5 | 71.9 | 8.3 | 34.3 | 27.2 | 1.4 |
| Electrical power machinery and switchgear(722) | 333194.5 | 6.4 | 90.8 | 18.4 | 25.8 | 39.4 | 0.2 |
| MAJOR CONSUMER DURABLES | | | | | | | |
| Commercial road vehicles(732 less 7321) | 512274.5 | 1.1 | 98.5 | 4.1 | 11.2 | 82.5 | 0.0 |
| Passenger motor cars(7321) | 234682.3 | 2.7 | 97.3 | 0.4 | 8.9 | 87.7 | 0.0 |
| Television and radio sets(7241/2) | 73494.4 | 6.4 | 91.5 | 13.1 | 12.0 | 64.6 | 0.0 |
| Domestic electrical equipment(725) | 27634.7 | 5.4 | 91.2 | 16.0 | 6.8 | 66.9 | 0.0 |
| TOTAL OF ABOVE | 8716035 | 39.9 | 56.3 | 11.4 | 11.2 | 25.5 | 0.7 |
| TOTAL OF ALL MERCHANDISE (SITC 0 to 9) | 13884547 | 30.7 | 65.5 | 18.5 | 14.8 | 23.9 | 0.7 |

Source: Statistics and Survey Unit, UNIDO. Based on data supplied by the UN Statistical Office, with estimates by the UNIDO Secretariat.

Note: Percentages may not add to 100.0 due to the fact that countries report trade to/from "unspecified areas". Selection of products shown in this table was based on the definition of the manufacturing sector used for production statistics (i.e., ISIC) and the associated raw material supplies. Thus, not all products are regarded as manufactures according to the conventional definitions of manufactured trade (e.g., SITC 5 to 8 less 68).

Table A-17: Value added and employment in cottage and household industry by sector, 1975

| Sector | | Value added % | Employment (thousands of workers) | | | | Mandays worked per worker per year | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | household | hired | total | % of total | Total | Hired workers | Household participants |
| 311/2 | Food | 43.7 | 1,303.1 | 77.6 | 1,380.0 | 35.4 | 134 | 212 | 129 |
| 313 | Beverages | 0.2 | 5.2 | 0.3 | 5.5 | 0.1 | 85 | 210 | 79 |
| 314 | Tobacco | 1.3 | 11.2 | 3.8 | 15.0 | 0.4 | 118 | 158 | 104 |
| 321 | Textiles | 5.9 | 390.4 | 8.4 | 398.6 | 10.2 | 89 | 256 | 86 |
| 322 | Clothing | 1.7 | 23.7 | 2.6 | 26.3 | 0.7 | 107 | 258 | 90 |
| 323 | Leather | 0.4 | 0.3 | 1.2 | 4.2 | 0.1 | 136 | 232 | 97 |
| 324 | Footwear | 0.7 | 4.4 | 1.4 | 5.8 | 0.1 | 142 | 273 | 101 |
| 331 | Wood products | 21.1 | 1,518.9 | 17.4 | 1,536.4 | 39.4 | 91 | 222 | 89 |
| 332 | Furniture | 5.5 | 94.5 | 13.1 | 107.6 | 2.8 | 107 | 231 | 90 |
| 341 | Paper products | 0.2 | 4.8 | 0.4 | 5.2 | 0.1 | 111 | 275 | 97 |
| 342 | Printing | 0.3 | 3.1 | 1.2 | 4.3 | 0.1 | 141 | 275 | 88 |
| 352 | Other chemicals | 0.5 | 5.9 | 2.1 | 8.0 | 0.2 | 83 | 143 | 62 |
| 355 | Rubber products | 0.4 | 4.4 | 1.8 | 6.2 | 0.2 | 110 | 209 | 69 |
| 356 | Plastics | 0.5 | 5.5 | 1.1 | 6.6 | 0.2 | 113 | 271 | 81 |
| 361 | Pottery and China ware | 0.1 | 60.5 | 1.1 | 61.6 | 1.6 | 121 | 192 | 120 |
| 363 | Cement | 1.3 | 14.1 | 4.8 | 18.9 | 0.5 | 114 | 193 | 86 |
| 364 | Structural clay prod | 8.8 | 143.7 | 22.4 | 166.1 | 4.3 | 136 | 245 | 119 |
| 369 | Other non-metallic mineral products | 0.4 | 15.7 | 1.0 | 16.7 | 0.4 | 107 | 284 | 96 |
| 381 | Metal products | 3.1 | 39.8 | 9.8 | 49.6 | 1.3 | 119 | 227 | 92 |
| 382/3 | Machinery | 1.0 | 3.6 | 1.6 | 5.2 | 0.1 | 130 | 247 | 76 |
| 384 | Transport equipment | 0.5 | 5.6 | 0.7 | 6.2 | 0.1 | 87 | 215 | 71 |
| 390 | Others | 2.0 | 61.7 | 3.2 | 64.9 | 1.7 | 107 | 255 | 99 |
| Total | | 100.0 | 3,722.7 | 177.2 | 3,899.9 | 100.0 | 110 | 222 | 105 |

Source: BPS, Sensus Industri 1974/75.

Table A-18: Value added and employment in small-enterprises, 1975 and 1979

| Sector | | 1975 | | | | 1979 | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Value added | | Employment | | Value added | | Employment | |
| | | value (Rp bill.) | % | number ('000) | % | value (Rp bill.) | % | number ('000) | % |
| 311/12 | Food | 24.8 | 46.7 | 143.9 | 41.9 | 78.6 | 42.0 | 370.0 | 44.7 |
| 313 | Beverages | 0.5 | 1.0 | 3.5 | 1.0 | 1.7 | 0.9 | 7.6 | 0.9 |
| 314 | Tobacco | 0.2 | 0.6 | 3.8 | 1.1 | 2.2 | 1.2 | 26.0 | 3.1 |
| 321 | Textiles | 4.8 | 9.0 | 45.8 | 13.3 | 17.1 | 9.1 | 66.0 | 8.0 |
| 322 | Clothing | 0.7 | 1.3 | 4.8 | 1.4 | 4.5 | 2.4 | 15.8 | 1.9 |
| 323 | Leather | 0.3 | 0.5 | 1.2 | 0.3 | 2.0 | 1.1 | 4.9 | 0.6 |
| 324 | Footwear | 0.5 | 1.0 | 2.6 | 0.8 | 2.4 | 1.3 | 4.6 | 0.6 |
| 331 | Wood products | 4.5 | 8.1 | 25.6 | 7.4 | 17.8 | 9.5 | 62.9 | 7.6 |
| 332 | Furniture | 2.5 | 5.1 | 16.1 | 4.7 | 11.4 | 6.1 | 48.1 | 5.8 |
| 341 | Paper | 0.1 | 0.1 | 0.7 | 0.2 | 0.2 | -- | 0.[illegible] | -- |
| 342 | Printing | 1.6 | 3.1 | 7.4 | 2.2 | 4.5 | 2.4 | 11.2 | 1.4 |
| 351 | Industrial chemicals | 0.5 | 0.8 | -- | -- | 1.9 | 1.0 | 1.0 | -- |
| 352 | Other chemicals | 2.0 | 1.9 | 1.1 | 0.3 | 3.3 | 1.8 | 5.5 | 0.7 |
| 355 | Rubber products | 2.2 | 2.2 | 4.1 | 1.2 | 1.0 | 0.5 | 1.6 | 0.2 |
| 356 | Plastics | 1.6 | 1.1 | 2.9 | 0.8 | 2.5 | 1.4 | 9.1 | 1.1 |
| 361 | Ceramics | 0.1 | 0.2 | 1.4 | 0.4 | 0.4 | 0.2 | 3.4 | 0.4 |
| 362 | Glass | -- | 0.6 | -- | -- | 0.1 | -- | 0.4 | -- |
| 363 | Cement | 2.4 | 4.5 | 16.1 | 4.7 | 6.1 | 3.3 | 32.0 | 3.9 |
| 364/9 | Other building mat. | 2.0 | 3.6 | 29.2 | 8.5 | 12.0 | 6.4 | 97.9 | 11.8 |
| 381 | Metal products | 1.5 | 4.4 | 16.2 | 4.7 | 8.4 | 4.5 | 32.6 | 3.9 |
| 382/3 | Machinery | 0.6 | 1.3 | 2.3 | 0.6 | 1.4 | 0.8 | 3.5 | 0.3 |
| 384 | Transport equipment | 0.8 | 1.6 | 3.5 | 1.0 | 4.1 | 2.2 | 12.5 | 1.5 |
| 385 | Professional equipment | -- | -- | -- | -- | 0.3 | 0.2 | 0.9 | -- |
| 390 | Others | 0.7 | 1.4 | 5.5 | 1.6 | 1.8 | 1.0 | 8.5 | 1.0 |
| Total | | 53.0 | 100.0 | 343.2 | 100.0 | 187.3 | 100.0 | 827.9 | 100.0 |

Source: BPS, Sensus Industri, 1974/75; Statistik Industri Kecil, 1979.

Table A-19: Selected indicators of the overall manufacturing sector, by province, 1980

| Province | Provincial level | | | | Provincial share in national total (%) | | | Index of provincial level (Indonesia = 100) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Number of persons engaged (x 1000) | Value added (Rp $10^9$) | Manuf. exports, non-MRB (US$ $10^6$) | Value added per person engaged (Rp 1000) | Number of persons engaged | Value added | Manuf. exports, non-MRB[a] | Number of persons engaged per capita | Value added per capita | Manuf. exports per capita[a] | Value added per person engaged |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) |
| 1 Aceh, DI | 33.0 | 21.4 | 5.8 | 647.6 | 0.7 | 0.6 | 1.2 | 39.4 | 32.0 | 66.7 | 81.2 |
| 2 North Sumatra | 181.6 | 176.9 | 32.7 | 1,249.4 | 3.9 | 4.7 | 7.2 | 52.8 | 82.8 | 126.5 | 156.7 |
| 3 West Sumatra | 61.9 | 66.9 | 0.7 | 1,080.4 | 1.3 | 1.8 | 0.2 | 56.7 | 76.9 | 6.6 | 135.5 |
| 4 Riau | 38.4 | 165.1 | 31.2 | 4,796.1 | 0.7 | 4.4 | 6.8 | 85.5 | 297.8 | 463.9 | 601.5 |
| 5 Jambi | 22.2 | 32.4 | 0.0 | 1,458.6 | 0.5 | 0.9 | 0.0 | 47.9 | 87.7 | 0.0 | 182.9 |
| 6 South Sumatra | 80.5 | 376.2 | 4.0 | 4,675.5 | 1.7 | 10.0 | 0.9 | 58.2 | 317.5 | 27.5 | 586.4 |
| 7 Bengkulu | 3.4 | 2.2 | 0.0 | 695.8 | 0.1 | 0.1 | 0.0 | 17.7 | 11.0 | 0.0 | 62.2 |
| 8 Lampung | 63.6 | 61.9 | 0.0 | 974.3 | 1.3 | 1.6 | 0.0 | 42.9 | 52.4 | 0.0 | 122.2 |
| 9 Jakarta, DKI | 287.7 | 466.6 | 270.6 | 1,621.8 | 6.1 | 12.4 | 59.4 | 138.0 | 250.7 | 1,342.0 | 203.4 |
| 10 West Java | 899.7 | 575.5 | 12.2 | 639.7 | 19.1 | 15.3 | 2.7 | 102.2 | 82.0 | 14.3 | 80.2 |
| 11 Central Java | 1,198.8 | 347.8 | 1.5 | 289.8 | 25.5 | 9.3 | 0.3 | 187.4 | 53.6 | 1.9 | 36.3 |
| 12 Yogyakarta, DI | 155.2 | 35.4 | 0.4 | 228.2 | 3.3 | 0.9 | 0.1 | 176.0 | 50.4 | 4.7 | 25.6 |
| 13 East Java | 1,056.7 | 1,109.9 | 13.5 | 1,050.5 | 22.4 | 29.6 | 3.0 | 112.9 | 148.8 | 14.9 | 131.7 |
| 14 West Kalimantan | 33.0 | 77.3 | 0.4 | 2,340.9 | 0.7 | 2.1 | 0.1 | 61.5 | 121.7 | 5.2 | 253.6 |
| 15 Central Kalimantan | 19.5 | 30.7 | 0.0 | 1,573.6 | 0.4 | 0.8 | 0.0 | 63.7 | 125.6 | 0.0 | 197.3 |
| 16 South Kalimantan | 49.9 | 15.1 | 0.0 | 303.2 | 1.1 | 0.4 | 0.0 | 75.4 | 28.7 | 0.0 | 38.0 |
| 17 East Kalimantan | 26.3 | 83.4 | 58.3 | 3,175.1 | 0.5 | 2.2 | 11.9 | 67.3 | 268.0 | 1,437.8 | 398.2 |
| 18 North Sulawesi | 58.9 | 16.2 | 0.0 | 295.4 | 1.2 | 0.4 | 0.0 | 81.0 | 30.0 | 0.0 | 37.1 |
| 19 Central Sulawesi | 23.0 | 5.5 | 0.0 | 227.7 | 0.5 | 0.1 | 0.0 | 55.1 | 16.6 | 0.0 | 25.6 |
| 20 South Sulawesi | 131.2 | 45.4 | 7.6 | 346.1 | 2.8 | 1.2 | 1.7 | 67.5 | 29.3 | 80.5 | 65.9 |
| 21 South East Sulawesi | 18.4 | 0.9 | 0.0 | 65.7 | 0.3 | 0.0 | 0.0 | 87.8 | 3.9 | 0.0 | 8.2 |
| 22 Bali | 94.1 | 22.3 | 2.3 | 237.3 | 2.0 | 0.6 | 0.5 | 112.8 | 25.4 | 30.0 | 29.8 |
| 23 West Nusa Tenggara | 108.9 | 6.1 | 0.0 | 56.0 | 2.3 | 0.2 | 0.0 | 128.7 | 8.8 | 0.0 | 7.0 |
| 24 East Nusa Tenggara | 83.9 | 8.3 | 0.5 | 88.8 | 2.0 | 0.2 | 0.1 | 107.0 | 11.9 | 5.9 | 11.1 |
| 25 Maluku | 9.6 | 2.8 | 0.3 | 287.6 | 0.2 | 0.1 | 0.1 | 21.2 | 7.7 | 6.9 | 36.1 |
| 26 Irian Jaya | 10.4 | 3.5 | 17.9 | 336.0 | 0.2 | 0.1 | 3.9 | 27.7 | 11.7 | 491.7 | 42.1 |
| INDONESIA | 4,709.8 | 3,755.5 | 455.6 | 797.4 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |

Source: BPS, Regional Income Accounts, Population Census 1980, and data on exports.

a/ The data pertain to the year 1981. They comprise all mechandise exports excluding NRB products.

Table A-20: Investment approvals in manufacturing industries, 1985-1987
($ million)

| Industry | 1985 | 1986 | 1987 |
|---|---|---|---|
| Food | 6 | 34 | 52 |
| Textiles | 7 | 9 | 85 |
| Wood products | ... | 32 | 5 |
| Paper | 25 | 47 | 55 |
| Chemicals | 337 | 293 | 144 |
| Non-ferrous metals | 3 | ... | 129 |
| Basic metals | 65 | 39 | 1 |
| Metal products | 245 | 82 | 33 |
| Other industries | ... | ... | 3 |
| Total manufacturing | 688 | 536 | 507 |
| Share of Manufacturing in total (percentage) | 80 | 65 | 63 |

Source: BKPM.

# ANNEX B

# FOREIGN INVESTMENT ADMINISTRATION AND REGULATIONS, 1987

## I FOREIGN CAPITAL INVESTMENT PROCEDURE

Prospective investors under the Foreign Capital Investment Laws can submit their application to BKPM for investment approval

### Application Stages

1 The prospective investor may submit "Letter of Intent" or a statement of his desire to make a capital investment to

The Investment Coordinating Board
Badan Koordinasi Penanaman Modal (BKPM)
Jalan Gatot Subroto No. 6
P.O. Box 2181
Jakarta Indonesia
Telex. 45651 BKPM IA
Telephone 512008. 512769. 51700. 510023

In the Letter of Intent or statement could be included the business references, the area of business, the amount of investment, a marketing plan and the amount of land that will be required by the investment, etc.

2 The potential investor should (upon request of the BKPM) present a pre-feasibility study project proposal and complete the application forms

3 The application forms to be used are as follows

- Model I.PMA, for new applications or project proposals.
- Model II.PMA, for product and/or production capacity expansion and project modification

The application for capital investment forms I and/or II in 7 (seven) copies must be submitted directly to the Chairman of BKPM in Jakarta. 1 (one) copy of each application should be submitted directly to the Chairman of BKPMD (Regional Capital Investment Coordinating Board) - BKPM office in the region where the investment will be carried out

4 The Provisional Approval Letter (SPS) shall be issued by the Chairman of BKPM at the latest 4 (four) weeks after the application of Form I.PMA has been declared to be received by BKPM

5 At the latest 12 (twelve) months after the date of issue of the SPS, BKPM should receive all complete data and additional material which are required from the capital investor.

6 a) Approvals of applications for foreign capital investments will be issued by the President based on the recommendation from the Chairman of BKPM. The Presidential Decree shall be conveyed by the Chairman of BKPM to the capital investor by way of Notification of Presidential Approval (SPP President) accompanied to the particulars of the approved project

b) For Foreign Capital investment applications in the non-oil and natural gas mining sector in particular, the Chairman of BKPM must submit a contract to the President accompanied by the Chairman's consideration. Based on the considerations of the Chairman of BKPM and the results of consultation between the government e.g. Department of Mining and Energy and the Parliament, the President shall authorize the Minister of Mining and Energy to sign the contract of Work or Profit-Sharing Contract on behalf of the Government

7. A Provisional Approval Letter (SPS) is valid for 1 (one) year commencing from the date of issue of the SPS which may be extended by a period of 6 (six) months, should there be sufficient reasons. Exceeding the time limit as set forth in the SPS shall result in cancellation of the respective SPS, unless otherwise decided by the Chairman of BKPM.

8. a) Enterprises which shall obtain SPT/SPP President after the date of issue of this Letter of Decision, shall be given a time allowance to complete their projects for a maximum of 3 (three) years calculated from the date of issuance of the respective SPT/SPP President except for specified sectors to be determined by the Chairman of BKPM.

b) Enterprises which have already received a SPT/SPP President before this Letter of Decision, the validity period shall be re-determined in accordance with the above paragraph a except that Letters of Approval for which the validity period is more than 3 (three) years shall remain valid as decided.

c) The period of time for project completion as stipulated in the above-mentioned paragraphs a and b, may not be extended further and the validity of the SPT/SPP President shall be automatically cancelled should it appear within the extended time limit that no realization thereof has taken place, except when otherwise decided by the Chairman of BKPM.

## II. OTHER REQUIREMENTS FOR INVESTING IN INDONESIA

### 1. Minimum Investment

All investments under Foreign Investment Scheme (PMA) has been fixed at minimum of US$1 million; exceptions will be given only to certain lines of business such as engineering, export trade consultations and other such businesses.

### 2. Joint Ventures

All new foreign investment must be initiated as joint ventures with ethnic Indonesian citizens achieving a minimum equity participation of 51% within 10 years after the commencing date of commercial production. Initial Indonesian participation is at least 20%.

For the PMA Companies:

a. With a high risk of failure, or
b. Requiring large capital and high technology, or
c. Located in remote places, or
d. Their entire output for export

the 20% national participation may be reached in stages. A preliminary investment can be started with a 5% national participation, which can be increased to 20% in 5 years from the time of the undertaking went into commercial production.

With a view of encouraging the achievement of the 51% majority of the national share in 10 years, the following provisions have been laid down:

a. In case the existing national participants are unable to increase their share of ownership, the chance may be given to other national participants
b. If there is no other national participants interested in using the opportunity, offer will be made to banks, non bank institutes of finance or the capital market.
c. If the requirement still cannot be met within the fixed period, the Capital Investment Coordinating Board (BKPM) shall try to have the requirement met in stages.

## 3 Limited Liability Company

Under Indonesian Law, foreign investors must organise A LIMITED LIABILITY COMPANY or PERSEROAN TERBATAS (PT) which must be domiciled in Indonesia. Unless the firm is operating a branch, as foreign banks are permitted to do.

To organise such a P.T. the investor has to work through an Indonesian Notary public who is practising in Indonesia

## 4. Bonded Areas

Investors wishing to set up their projects in Bonded Zone or use bonded facilities may apply to BKPM through Bonded Area Authority; the new provisions apply to Bonded Zone are as follows.

a. Bonded Zone is a zone with certain boundaries (in the Indonesian customs area) where special stipulations in the customs aspect is effective.
b. The inflow of goods from abroad to the Bonded Zone is not regarded as import, therefore, goods from abroad entering the Bonded Zone can be free from import duty and other levies.
c. The inflow of goods from other Indonesian customs area to the Bonded Zone is not constituted as export and they are exempted from export tax and other export regulations.
d. The Bonded Zone also provides stocking/warehousing processing/ manufacturing facilities for goods from local suppliers or from abroad for export.
e. Considering the fact that products from the Bonded Zone are provided mainly for export, stipulations in DSP (Priority Rating List) are not implemented in the Bonded Zone.

## 5. Period of Validity of PMA Licence

a. A Licence for PMA Companies engaged in industry is valid for 30 years since the time approval was granted.
b. PMA Companies which increase their capital or their investment through diversification and or increase production capacity and or increase the added value and or their local content, in accordance with the government's schedule, may apply for a licence valid for another 30 years as from the time their investment increase is approved by the Government

## 6. Establishment of Representative Offices and Service Companies

One of the sectors in Indonesia which is restricted for foreign firms is the trading and distribution business. For running its business especially dealing with trading and distribution affairs, PMA Companies may appoint

### a Representative office

To establish this office in Indonesia, PMA Companies should submit an application to the Director for Trading Institution at the Department of Trade in Jakarta. Once established, the representative office may only engage in promotional activities such as sales promotion, market research, product demonstration and so on. Trading activities such as accepting orders, bidding for tenders, signing contracts, importing, exporting and distribution are prohibited

b **Appointment of an Agent**

A foreign company may also appoint an Indonesian firm or person to act as its agent. Unlike a Representative Office, an agent is not limited in function and can perform all trading activity and is allowed to have several offices throughout Indonesia. Expatriate personnel which are assigned to the agent, becomes an employee of the agent.

c. **Cooperation with an Indonesian Company under a MANAGEMENT AGREEMENT**

PMA Companies can make an agreement with Indonesian Companies under A Management Agreement which is classified as follows

i. Technical Assistance Agreement
ii. Management Agreement
iii. Management Agreement coupled with a financial agreement

ad i. Under the Technical Assistance Agreement, the foreign company's function is limited to pure technical assistance to the Indonesian entity.

ad ii. Under this scheme, the foreign company's role is to manage the company or a division thereof.

ad iii. Under this agreement, foreign company finances the operation of the Indonesian entity. The remuneration of the foreign company can be in the form of:

a) fixed fees
b) commission
c) profit sharing

7. **Reporting**

Every capital investor approved for Domestic Capital Investment (PMDN) and PMA is obliged to submit a report on the development of the capital investment by using:

a. Report Form A 1 to be used by a capital investor whose project is in the developing stages. This report must be submitted every 6 months on the 1st of May and 1st of November in each year.
b. Report From A.2 to be used by a Company which has commenced production and must be submitted at the latest on every 1st of May.

## III. TREATMENT AND FACILITIES

1. **Treatment of PMA Companies with national share majority**

Without changing its PMA status, a PMA company:

a. With at least 75% of its shares owned by the government and/or national private undertakings; or
b. which has gone public, with at least 51% of its shares sold through the capital market; or
c. which has gone public, with 51% of its share owned by the government and/or national private undertakings, and sold through the capital market, with the stipulation that the shares offered through the capital market amounted at least to 20%;

will receive equal treatment as domestic capital investment (PMDN) companies.

2 **Profit re-investment**

a PMA companies are allowed to re-invest their profits for the expansion of their own undertakings

b Profits of PMA businesses may be re-invested in other companies, either those already operating or new ones under the status of PMA (foreign capital investment scheme)

3. **Facilities for PMA and PMDN, using home made capital goods**

With a view to boosting domestic production, companies selling home-made capital goods, both those included on the NEGATIVE LIST and those outside the list and PMA or PMDN companies whose master lists have been approved by BKPM, may receive back the import duties they have paid in importing of raw materials and/or components they have produced.

4. **Import Duty Facilities for Capital Goods and Raw or Supporting Materials**

a Capital investments which have obtained a Permanent Approval Letter (SPT) or Notification of Presidential Approval (SPP Presiden) may submit their Master List for Capital Goods (Form IV) to BKPM for approval to import machinery, equipment and spare parts by obtaining import duty facilities (partial or full exemption of duties on imported capital goods and raw material)

b. Capital investment enterprises which are ready for production may submit their Master List of Raw Materials (Form IV) to BKPM for approval for importation thereof by obtaining import duty facilities

c Form IV referred to in paragraphs a and b above, after having been checked by a surveyor appointed by the government, shall be legalised by BKPM so as to become a basis to implement the importation of the items in such list

5. **Value Added Tax (PPN) on Imported Capital Goods**

In order to assist companies engaged in services, with the exception of construction, the payment of PPN on imported capital goods may be postponed up to the time the company goes into commercial production, and payment may be made in instalments within not later than 5 (five) years since the company goes into commercial production.

6. **Other Facilities**

Incentives currently available through BKPM, beside as stated in item nos 3, 4 and 5 above, included also the exemption from stamp duty on share capital subscribed and paid up.

## IV. TAX AND DEPRECIATION

1. In 1983 the Government of the Republic of Indonesia created the new laws on taxes, i.e. Law of the RI no 6/1983 on General Provisions and Procedure on Taxes, Law of the RI no. 7/1983 on Income Tax and Law of the RI no 8/1983 on Value Added Tax on Goods and Services and Sales Tax on Luxury Goods

2. The new tax legislation which replaced the previous laws, phased out gradually certain tax holidays and concessions granted to large domestic and foreign investors up to the end of 1983, the new tax law lowered maximum marginal rates and accelerated of capital depreciation allowable for investors.

3 a **Income Tax**

Income tax, effective January 1, 1984, both corporate and personal incomes are taxed at 3 (three) rates

15% on income up to Rupiah (Rp) 10 million (m)
25% on income between Rp 10m - Rp. 50m
35% on income of Rp 50m and above

Formerly the top marginal tax rate was 45% for businesses and 50% for individuals.

b. Taxable income equals all income of the taxpayer reduced by allowable deductions. Income is broadly defined to include any increase in economic prosperity received or accrued by the taxpayer, including any compensation for work performed, honoraria, gross profit from business, gains from the transfer of property, interest (other than interest on time deposits), dividends, royalties, rents, annuities, gains from the cancelation of indebtedness, and any other additions to wealth.

c. Residents are taxable on world-wide income, but are allowed a foreign tax credit for income taxes paid to a foreign country. The definition of residents includes organizations set up in Indonesia, individuals in Indonesia for more than six months, individuals in Indonesia and intending to reside here indefinitely, and permanent establishments of foreign organizations operating in Indonesia.

d. The definition of Permanent Establishment is any regular or substantial business or professional activity carried out in Indonesia by an individual or organization, although Indonesian permanent establishment are to be taxed on their worldwide income, however Indonesia does not tax entire MNC sales by foreign-based establishment that in no way involve the Indonesian branch.

Investment income (such as interest and dividends) earned in Indonesia by the Head Office will not be attributed to an Indonesian branch if such income is already subject to the withholding tax of 20% on foreign remittance.

e. Non-residents (meaning any taxpayer who is not a resident) are taxable only on income earned in Indonesia. Taxation of non-residents is to be accomplished generally through withholding of 20% of the gross amount by the payers of the income, whether wages, salary, interest, dividends, rents, royalties, or other types of income.

f. Resident individuals are allowed personal exemptions of Rp. 960.000 for the taxpayer, Rp 480.000 for a spouse, and Rp. 480.000 for each of up to 3 dependents (more than double previous exemptions). A working wife whose work is unrelated to that of her husband is allowed an additional full Rp. 960.000 personal exemption.

Under the old tax laws individuals were subjected to a progressive system of tax rates of from 10% to 50% and firms were subjected to a progressive system of rates of up to 45%. The new tax rates are significantly lower than the old ones for almost all tax payers, and given the personal exemptions less than 10% of the population will qualify as tax payers.

4. **Sales Tax (Valued Added and Luxury Sales Taxes)**

a. The Sales Tax is really 2 taxes:

- a manufacturer's value-added tax of 10% and

- luxury sales tax of either 10% or 20% on certain specified luxury goods

b. The Value Added Tax (VAT) applies equally to all manufactured goods whether manufactured domestically or imported. Manufacturing could include fabrication, cooking, assemblying, packing, canning bottling and mining

i. The VAT on goods is collected by manufacturer at the time of sale to a wholesaler. It will be assessed on the value added to a product by an enterprise at each stage of production process, but not beyond the manufacturing stage. In the case of imports, the tax is collected at the time of import (at the time of sale by the importer) by the Directorate General of Customs, Department of Finance.

ii. The VAT on services is presently applied to only construction services, including contracting, architectural services and other services related to the construction of buildings and other items of real property.

The VAT on services is to be collected by the Performer of the service at the time it is rendered. Authority is given by the law to extend the VAT through Government Regulation to apply to other types of services.

iii. Exports will be subjected to a VAT rate of zero percent, meaning that the tax paid is fully refundable to the exporting company.

c. The Luxury Sales Tax is in essence an excise tax, and is to be collected once only, either at the time of sale by the manufacturing firm or at the time of import. The goods are subjected to either the 10% rate OR the 20% rate are specified by Government Regulation.

### 5. Depreciation

a. The new tax law also provides for a faster capital depreciation allowance that can now be claimed by all businesses, large and small.

b. Assets can be depreciated as follows, using the double declining method of calculation:

| | |
|---|---|
| First category | : 50% each year for assets (all items **directly** involved in production) with a useful life of not more than 4 years |
| Second category | : 25% each year for assets (all items directly involved in production) with a useful life of from 4 to 8 years. |
| Third category | : 25% for assets (all other items which are not covered in 1st and 2nd category) with a useful life of more than 8 years. |
| Fourth category | : buildings can be depreciated at 5% per year, using the straight line method of calculation, up to 20 years. |

c. The Government allows firms to carry forward any losses up to 5 years, and a maximum of 8 years in the case of mining or investment in so-called "HARD" agricultural crops.

## V. INVESTMENT IN CERTAIN AREA OF BUSINESS

### 1. Petroleum and LNG

a. Foreign participation in the old and gas industry, specifically for exploration and production, is accomplished through a Production

Sharing Control with PERTAMINA the state owned oil company Under this arrangement a contractor is required to finance all exploration, development and production cost relating to oil and gas resources within a specified area while PERTAMINA is responsible for the management of operations as stipulated in the Production Sharing Contract

The contractor is entitled to recover all operating cost, including capital investments out of crude oil production The balance of oil production is then divided between the government and the contractor, resulting in an after-tax sharing ratio of approximately 85 : 15 in favour of the government

The duration of production sharing contracts is 30 years but they expire after an unsuccessful 6 to 10 years exploration period.

b Terms of production sharing contracts for natural gas are similar to the arrangements for oil The contractor is entitled to recover all operating costs, including capital investments out of the natural gas produced

2. **Capital Investment on Agriculture**

a. Development of oil palm estates under the Smallholder Nucleus Estate (PIR) System

Remaining firm to the 20 to 80 ratio of the surface area of a nucleus estate to its plasma, the ratio of the nucleus land to the plasma in the production stage (fourth year), may be started with the 40 to 60 ratio Gradually, the plasma part must be expanded to reach a ratio of 20 to 80 within not longer than 10 years

b. Shrimp breeding under the Smallholder Nucleus Fishpond (TIR) System.

With a veiw to further intensifying shrimp breeding under the TIR system, namely capital investment as the nucleus and the farmers as the plasma, the government has decided on the following:

i. Java island
Each unit may work on not more than 30 hectares of fishpond Any increase in area will have to apply the TIR system with the 40 to 60 ratio between the nucleus and plasma

ii Outside Java island

a In work on land already in the form of a fishpond, each work unit may work on not more than 50 hectares of fishpond Any increase in area exceeding 50 hectares will have to apply the TIR system with a 40 to 60 ratio between the nucleus and the plasma.

b. In work on land not yet in the form of a fishpond, or land which must be reclaimed first, each work unit may work on not more than 100 hectares Expansion over more than 100 hectares will have to apply to the TIR system with the 60 to 40 ratio between the nucleus and the plasma

## V FOREIGN SHARE PARTICIPATION IN BUSINESS COMPANIES ALREADY IN OPERATION

1 Owners of foreign capital, having a share or without a share in a joint ventures under the Foreign Capital Investment Scheme, may invest their capital in the national business companies already in operation

2 Investments by the owners of foreign capital may be realized by the purchase of the shares of national companies already in operation, both in

the form of paid-up capital and subscribed capital or in the form of new emissions

3 The participation of foreign capital in national business companies must meet the following requirements:

a The field of business undertaken by the national company concerned is still open according to the Priority Rating List valid at the time of the filing of the application for investment to foreign capital investment

b. Capital investment in national companies is urgently needed for improving the condition of the business company concerned or for opening the possibility of exporting its entire products or a part thereof, which is proved by a report made by a public accountant or as suggested by the bank which is providing the credit.

c. The amount of the national share:

i. If the addition of capital is exclusively designed to improve the condition of the company for meeting its need for extra capital and the mastery of technology, the national shares in the company may not be reduced to less than 75%

ii. if the company exports part of its products, the national shares in the company may not be reduced to less than 51%.

iii if the company exports all its products, the national shares in the company may not be reduced to less than 20%, and gradually increased again to 51% pursuant to the regulations in force

The national business companies which has foreign capital shares shall henceforth operate as joint ventures under Foreign Capital Investment Law

4. a. The participation of multilateral finance institutions in which the Indonesian government has shares, such as the International Finance Corporation, the Asian Development Bank and the Islamic Development Bank, in national business companies, both newly established ones and those already in operation, is considered as national participation.

b. A joint venture between a multilateral finance institution and a national capital owner may be approved to become an undertaking operating under Law No. 6 of 1968 on domestic capital investment

5. a. The foreign shareholding at foreign investment companies in need of additional share capital for improving their operational condition to enable them to export all or part of their products or boost their exports, may be increased to not more than 95% if the existing national shareholding is unable to increase its shareholding in accordance with the existing ratio of shares.

b. A change in the foreign shareholding at a foreign investment company as stated in item (a) will be possible only after the presentation of proof in the form of a report of a public accountant or suggestion of the credit-providing bank that an increase in share capital is urgently needed as referred to above.

c. The national shareholding must be increased:

i. back to the original ratio within a period 5 years;

ii. if the original national shareholding is less than 51%, to at least 51% within a period of 10 years;

after the increase in share capital has been approved by the Capital Investment Coordinating Board.

Source: Government of Indonesia, Doing Business with Indonesia, Singapore, April 1987.

# ANNEX C

# PRINCIPAL POLICIES FOR CAPITAL INVESTMENT, BASED ON DECREE OF MAY 6, 1986

(1) In view of recent economic developments and the need to increase private capital investment further, the provisions on capital investment as contained in the "Priority List for Investment 1985" (DSP) have been reviewed and adjusted as follows

(2) Capital investment falls into three categories
(a) Foreign Investment (PMA) is a capital investment subject to and receiving investment facilities in accordance with Law No. 1 of 1967 and Law No. 11 of 1970, together with the rules and regulations concerning their implementation
(b) Domestic Investment (PMDN) is a capital investment subject to and receiving investment facilities in accordance with Law No. 6 of 1968 and Law No. 12 of 1970, together with the rules and regulations concerning their implementation
(c) Non-Foreign/Domestic (Non-PMA/PMDN) Investment is a capital investment that is not subject to and does not receive investment facilities in accordance with Law No. 1 of 1967, relating to PMA, or Law No. 6 of 1968, relating to PMDN

(3) The 1985 Priority List for Investment consists of four categories
Category I
Business sectors open to foreign investment (PMA), domestic investment (PMDN) and non-PMA/PMDN investment, including investment by small entrepreneurs.
Category II
Business sectors open to domestic investment (PMDN) and non-PMA/PMDN investment, including investment by small entrepreneurs.
Category III
Business sectors open only to small entrepreneurs and in the context of non-PMA/PMDN investment; and
Category IV
Business sectors closed to all investments (PMA, PMDN and non-PMA/PMDN investments)

(4) Business sectors declared open are open to new projects as well as the expansion of existing investment projects to the extent not otherwise decided. The expansion of existing projects will be considered if the construction or production has reached an appropriate stage of realization and the investor has fulfilled his obligations to submit a report on the development of his enterprise in accordance with the applicable rules and regulations then in force

(5) Business sectors not included in the Priority List for Investment 1986 may be open for investment if existing investment projects are not negatively affected

(6) The following are new guidelines for foreign capital investment
(a) The permit for a PMA is valid for thirty years from the date of issuance
(b) Each PMA company that increases its capital or raises its investment by way of (i) diversification or (ii) an increase in its production capacity or (iii) an increase in its value-added or the local content of its products in accordance with the applicable schedule set by the Government of Indonesia may be granted an additional permit for up to thirty years after the additional investment has been approved by the Government of Indonesia
(c) Foreign investment is permitted only in the form of a joint venture between a foreign company and an Indonesian national company or Indonesian national. The Indonesian equity share ownership in the joint venture must be at least twenty percent at the outset
(d) PMA companies which
(i) are high risk ventures,
(ii) require large capital and high technology,
(iii) are located in remote areas, or
(iv) are producing entirely for export,
may be established with an initial five-percent Indonesian equity ownership to be increased to twenty percent within five years after commercial production begins
(e) The foreign partner in a joint venture should give his Indonesian partner the first option to increase his equity share to acquire a majority in the enterprise (fifty-one percent or more of the equity shareholding) within ten years after commercial production begins. The same rule applies for any additional shares required to finance expansion. In case the Indonesian partner is unable to acquire the additional equity shares, the foreign partner may then offer his shares to other Indonesian participants, and if no other Indonesian participants acquire the shares, he may offer them to a bank or to a non-bank financial institution or for sale on the stock exchange. If, after all those efforts, the foreign partner is still unable to sell his shares within the prescribed period, the foreign partner will be allowed to meet his obligation to divest his majority shareholding in stages
(f) For mining sector enterprises operating under a contract of work, the provisions of the contract of work shall apply
(g) A foreign investment (PMA) company will be treated as a domestic investment company (PMDN) in three cases
(i) if the Indonesian state and/or Indonesian private nationals own at least seventy-five percent of the company's shares,
(ii) if the company has "gone public" and at least fifty one percent of its equity shares have been offered and sold on the stock exchange, or
(iii) if the company has "gone public" and the shares owned by the Indonesian state and/or Indonesian private nationals and the shares that have been offered on the stock exchange amount to at least fifty-one percent. In this case, the shares that have been sold on the stock exchange must amount to at least 20 percent.
This PMDN treatment will in no way change the PMA status of the company concerned
(h) A PMA company may reinvest its profits in its own business for expansion purposes and may also reinvest those profits in another enterprise, whether established or new. The same rule applies to new investments from PMA enterprises using funds not derived from profits. Enterprises in which part or all of the equity shares are owned by a PMA enterprise will have the status of a PMA company
(i) The investment value of a foreign investment company (PMA) must be at least one million U.S. dollars, with the exception of consultancy and engineering service enterprises and certain other business sectors to be determined presently by the departments concerned or by BKPM
(j) All business sectors declared either open or closed in the DSP may be open to both foreign and domestic investment if the production is intended entirely for export. The term "entirely for export" means that at least eighty-five percent of the production is sold for export, while the remaining fifteen percent or less may be sold in the domestic market

**(7)** With the enactment of Law No 7 of 1983 on Income Tax, Law No 8 of 1983 on Value-Added Tax and Services and Sales Tax on Luxury Goods, Law No 12 of 1985 on Land and Building Tax, and Law No 13 of 1985 on Stamp Duties, fiscal facilities that can be extended to PMA/PMDN investors are as follows:

(a) Exemption or reduction of import duties on imported equipment, machinery and spare parts.

(b) Exemption or reduction of import duties on imported raw materials and ancillary goods required for production for a maximum period of two years.

(c) Deferment of payment of the value-added tax (PPN) on imported capital goods required for the production of goods or services; and

(d) Exemption from transfer of ownership duties with respect to the initial registration of ships in Indonesia

**(8)** Goods produced in sufficient quantities in Indonesia and described in the List of Capital Goods not Eligible for Receiving Import Duty Facilities (the so-called "negative list") will not receive any import duty facilities when imported. However, enterprises that produce entirely for export may import those goods duty free. All other goods outside the "negative list" may still be imported duty-free by both foreign investment and domestic investment companies

**(9)** Both foreign investment and domestic investment companies that buy capital goods made in Indonesia will be granted import duty facilities for the imported raw materials and components required in making those capital goods

**(10)** Concerning land and the location of investment projects

(a) The Right of Land Exploitation (HGU) is granted to the Indonesian partner in a joint venture. In accordance with Presidential Decree No 23 of 1980, the Indonesian partner in a PMA company may, in turn, provide the PMA company the use of the HGU

(b) The Regional Investment Coordinating Board is responsible for all matters concerning the location, provision of land, land grant, building permit and permit under the Nuisance Law with respect to any investment project. The minister for internal affairs determines applicable rules

(c) In order to obtain certain investment facilities, investors who intend to export all or part of their products may choose to locate their company in a bonded zone. The rules concerning bonded zones are set forth in a Government Regulation on bonded zones. The rules and regulations concerning the import, export, and transfer of goods into and from the industrial processing zone of Batam Island follow the provisions of Presidential Decree No 22 of 1978

**(11)** In order to protect and promote the efforts of economically weak group enterprises, small business sectors, and cooperatives, and to induce companies to "go public," the following measures have been adopted

(a) New competing capital investments are restricted in traditional fields of economic activity that are operated by and reserved for economically weak enterpreneurs

(b) In certain new business sectors, participation by economically weak entrepreneurs as business partners will be required in joint ventures, irrespective of whether these entrepreneurs are associated with a cooperative or not. Certain business sectors will be reserved for small entrepreneurs or cooperatives only

(c) Business sectors open only to small entrepreneurs and capital investments that are non-PMA/PMDN may receive PMDN investment facilities if operated by a small entrepreneur or a cooperative. A national company may invest in those sectors and be granted investment facilities extended to a PMDN if it takes a cooperative as its business partner. In this case, the cooperative must hold at least twenty percent of the equity shares at the time the business venture is established

(d) Business sectors open only to domestic (PMDN) and non-foreign/domestic (non-PMA/PMDA) investment (Category II) may be opened to foreign (PMA) investment if the foreign enterprise takes a cooperative as its business partner. The cooperative must hold at least twenty percent of the equity shareholding at the time the foreign (PMA) joint venture is established

(e) For business sectors closed to further foreign investment, the permit for an expansion of an existing foreign joint-venture operation may be considered so long as those sectors are open to domestic (PMDN) and non-foreign/domestic (non-PMA/PMDN) investment (Category II). In this case, twenty percent of the equity shares with respect to the expansion must be sold to the public on the stock exchange or a cooperative shall own at least twenty percent of the equity shares with respect to the expansion at the time the application for expansion is submitted

(f) For business sectors closed to domestic investment (PMDN), the expansion of a domestic investment venture may be considered as long as the sectors concerned are declared open to non-foreign domestic (non-PMA/PMDN) investment (Category III). In this case, twenty percent of the equity shares of the enterprise must be sold to the public on the stock exchange, or a cooperative shall own at least twenty percent of the equity shares with respect to the expansion at the time the application for expansion is submitted

(g) For certain enterprises in the field of agriculture, the People's Nucleus Estate (PIR) Pattern has been established, with the investor serving as the nucleus and the individual farmer as the smallholder (plasma). For oil-palm estates and shrimp hatcheries, in particular, the regulations stipulate that

(i) In the case of an oil-palm estate (PIR pattern), the investor/smallholder ratio at the first stage of the operation (by the fourth year) can begin at 40 60 with the proportion of the smallholder (plasma) estate expanding until the ratio reaches 20 80 within ten years after production begins

(ii) In the case of the People's Nucleus Ponds (TIR) Pattern for shrimp hatcheries, each unit within Java shall consist of a maximum of thirty hectares of ponds. For any additional area, the TIR pattern shall be applied with an investor/smallholder ratio of 40 60

Outside Java, for operations in which ponds already exist, each unit shall consist of a maximum of fifty hectares. For any additional area, the TIR pattern must be applied with an investor/smallholder ratio of 40 60. For operations in which ponds did not previously exist and in which land must be excavated, the maximum area for a unit shall be 100 hectares. For any additional area, the TIR pattern must be applied with an investor/smallholder ratio of 60 40

**(12)** Capital investment enterprises may employ foreign experts needed to ensure the successful operation of the enterprises, provided they set up an education and/or training program for Indonesian nationals, and transfer both expertise and technology with the objective that in stages, at the time determined, Indonesian nationals will assume the work performed by expatriates

# ANNEX D [1/]

# LIST OF MANUFACTURING PROJECTS SEEKING EXTERNAL ASSISTANCE, 1987

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1/ Issued by the Industrial Investment Division of UNIDO on the basis of information provided by the project sponsors and the Indonesian Government and Chamber of Commerce. It is the wish of the project sponsors to present their projects in the present form. UNIDO, therefore, does not accept responsibility for any inaccuracy or incompleteness.

**LIST OF PROJECTS**

| Number INS/ | Title | Total Investment US$ Mln | Capacity | Foreign contribution sought |
|---|---|---|---|---|
| Mining | | | | |
| 193/V/87-06 [162] | Bentonite Mining | 2.81 | 15,000 tons/year | EQY, LNS, JVE, SOT, EQS, SCR, MAX, TEX, TRX |
| 194/V/87-06 | Processing of Bentonite | 1.53 | Calcium bentonite powder: 15,000 tons/year | EQY, JVE, SOT, EQS, AFM, MAX, TEX, TRX |
| 195/V/87-06 [163] | Barite Mining | 4.58 | 100,000 tons/year | EQY, JVE, EQS, MAX TEX, TRX |
| 197/V/87-06 [140] | Mining and Processing of Diatomaceous Earth | 2.37 | 10,000 tons/year | EQY, JVE, LIC, MAX |
| Food and Beverages | | | | |
| 198/V/87-06 [116] | Dehydrated Vegetable Processing | 1.54 | 1,000 tons/year | EQY, JVE, SCR, AFM, MAX, TEX,MKX |
| 199/V/87-06 [118] | Processing of Tomato Paste and Canned Vegetables | 2.84 | Tomato paste: 3,000 tons/year Canned carrots: 2,900 tons/year Canned green beans: 2,700 tons/year | EQY, JVE, EQS, MAX, TEX, TRX |
| 200/V/87-06 [52] | Canned Pineapple Juice | 0.83 | 10,960 tons/year | EQY, JVE, LIC, SCR, AFM, MAX, TEX, TRX |
| 201/V/87-06 [42] | Coconut Processing | 1.19 | Copra: 500 tons/year Coconut oil: 470 tons/year | EQY, JVE, EQS, SCR, MAX, TEX, TRX |
| 202/V/87-06 [121] | Processing of Ginger | 2.61 | Brined/crystallized ginger: 1,000 tons/year Dried ginger: 1,200 tons/year | EQY, JVE, EQS |

| Number | Title | Total Investment US$ Mln. | Capacity | Foreign contribution sought |
|---|---|---|---|---|
| 203/V/87-06 [115] | Processing of Menthol Crystal | 1.02 | Natural menthol: 60 tons/year | EQY, LNS, JVE, EQS, SCR, MAX, TEX, TRX |
| 204/V/87-06 [39] | Production of Tapioca Powder | 4.86 | 11,000 tons/year | EQY, JVE, SOT, EQS, AFM, MAX, TEX, TRX, MKX |
| 205/V/87-06 [117] | Tropical Fruit Juice Concentrate and Puree | 4.64 | Puree: 13,000 tons/year Concentrate: 1,150 tons/year | EQY, JVE, EQS, MAX, TEX, TRX, MKX |
| 206/V/87-04 [LKI] | Cocoa Bean Processing | 6.39 | Cocao butter: 2,358 tons/year Cocao powder: 2,658 tons/year | EQY, LNS, SOT, EQS, AFM, TEX, TRX, MKX |
| 207/V/87-04 [LKI] | Tropical Fruit Juice and Concentrate | 4.83 | Processing of 2 tons/hour of fresh fruit | EQY, LNS, JVE, LIC, SOT, TKP, AFM, MAX, TEX, TRX, MKX |
| 208/V/87-04 [LKI] | Integrated Tuna Export Project | 12.09 | Tuna: 565,000 cases/year Petfood: 12,000 cases/year Fish meal: 3,000 tons/year | EQY, LNS, JVE, LIC, SOT, TKP, EQS, AFM, MAX, TEX, TRX, MKX |
| 209/V/87-04 [LKI] | Canned Shellfish and Mackerel | 0.77 | 1,250 tons/year | EQY, LNS, JVE, AFM, MAX, TEX, TRX, MKX |
| 210/V/87-04 [LKI] | Cattle Feed from Sugar Cane Waste | 1.28 | 8,750 tons/year | EQY, LNS, JVE, AFM, MAX, TEX, TRX, MKX |
| 211/V/87-04 [LKI] | Pineapple Cannery | 17.36 | Processing of 80,000 tons/year of fresh pineapple | EQY, LNS, JVE, AFM, MAX, TEX, TRX, MKX |

| Number | Title | Total Investment US$ Mln. | Capacity | Foreign contribution sought |
|---|---|---|---|---|
| 212/V/87-06 [120] | Processing of Cashew Products and Fruit | 4.33 | Cashew concentrate, kernels and nut shell oil; guava and pineapple concentrate: 3,350 tons/year | EQY, JVE, EQS, MAX, TEX, TRX |
| 213/V/87-06 [122] | Freeze-Dried Vegetables, Chicken and Shrimp | 3.73 | 316 tons/year | EQY, JVE, MAX, TEX, TRX, MKX |
| 214/V/87-06 [123] | Tropical Fruit Packing House | 2.12 | 16,000 tons/year | EQY, JVE, TKP, EQS, MAX, TEX, TRX, MKX |
| 215/V/87-06 [156] | Tomato Processing | 3.95 | Processing of 8,750 tons/year of raw tomato to yield 3,500 tons of processed output | EQY, JVE, EQS, MAX, TEX, TRX, MKX |
| 216/V/87-06 [157] | Citrus Fruit Processing | 5.17 | Concentrated orange juice: 375,000 boxes/year | EQY, JVE, EQS, MAX, TEX, TRX, MKX |
| 217/V/87-06 [158] | Pure Marquisa Juice and Concentrate | 3.12 | 3,200 tons/year of concentrate from 4 million litres of juice | EQY, JVE, EQS, MAX, TEX, TRX, MKX |
| 218/V/87-06 [160] | Processing of Dehydrated Vegetables | 1.50 | 1,000 tons/year | EQY, JVE, EQS, MAX, TEX, TRX, MKX |
| 260/V/87-04 [LKI] | Shrimp Hatchery | 1.02 | Fry of tiger shrimp: 8 million/year Fresh, head on: 137 tons/year | EQY, JVE, SOT, AFM, MAX, TEX, TRX, MKX |

| Number | Title | Total Investment US$ Mln. | Capacity | Foreign contribution sought |
|---|---|---|---|---|
| Wood Products and Furniture | | | | |
| 220/V/87-04 [LKI] | Rattan Furniture | 1.98 | Lounge sets: 14,400 sets/year Dining sets: 14,400 sets/year | EQY, LNS, JVE, SOT, TEX, TRX, MKX |
| 221/V/87-04 [LKI] | Joinery and Furniture Factory | 2.34 | Doors, window frames, furniture, semi-finished items: 84,000 units/year | EQY, LNS, JVE, SOT, EQS, AFM, TEX, TRX, MKX |
| 222/V/87-06 [137] | Manufacture of Wooden Mouldings | 0.93 | 3,000 cu. m/year | EQY, JVE, EQS, MAX, TEX, TRX, MKX |
| 223/V/87-06 [136] | Medium Density Fibre-board | 22.74 | 70,000 cu. m/year (50,000 tons/year) | EQY, JVE, EQS, MAX, TEX, TRX, MKX |
| Industrial Chemicals | | | | |
| 224/V/87-06 [155] | Salicylic Acid | 0.61 | 610 kg/day (210 tons/year) | EQY, JVE, EQS, MAX, TEX, TRX, MKX |
| 225/V/87-06 [154] | Furfural Production | 1.02 | 17 tons/day (5,00 0 tons/year) | EQY, LNS, JVE, EQS, MAX, TEX, TRX, MKX |
| 226/V/87-06 [146] | Manufacture of Ultramarine Blue | 1.08 | Industrial grade: 700 tons/year Laundry grade: 300 tons/year | EQY, JVE, EQS, MAX, TEX, TRX, MKX |
| 227/V/87-04 [LKI] | Activated Carbon from Coconut Shell Charcoal | 1.52 | 2,400 tons/year | EQY, LNS, LIC, AFM, TEX |

| Number | Title | Total Investment US$ Mln. | Capacity | Foreign contribution sought |
|---|---|---|---|---|
| 228/V/87-06 [142] | Freon Plant | 5.87 | Freon 12: 1,750 tons/year<br>Freon 22: 750 tons/year<br>Hypochloric acid: 2,975 tons/year | EQY, JVE, LIC, EQS, MAX, TEX, TRX |
| 229/V/87-06 [141] | Epoxy Resin Manufacture | 1.29 | 1,000 tons/year | EQY, JVE, SCT, EQS, AFM, SCR, MAX, TEX, TRX, MKX |
| Rubber Goods | | | | |
| 231/V/87-06 [135] | Manufacture of Rubber Belts and Hoses | 5.91 | Conveyor belts: 1,000 tons/year<br>Transmission belts: 230 tons/year<br>Hoses: 830 tons/year | EQY, JVE, SCT, EQS, MAX, TEX, MKX |
| Glass and Glass Products | | | | |
| 232/V/87-06 [152] | Manufacture of Glass Fibre | 22.54 | 4,500 tons/year | EQY, LNS, LIC, EQS, MAX, TEX, TRX, MKX |
| Non-Metallic Mineral Products | | | | |
| 233/V/87-06 [161] | Marble Slabs | 6.47 | 3,000 cu. m/year | EQY, LNS, JVE, LIC, MAX, TEX, TRX, MKX |
| 234/V/87-06 [139] | Manufacture of High Quality Refractories | 3.80 | Medium and heavy duty: 7,000 tons/year<br>Monolithics: 3,000 tons/year | EQY, JVE, EQS, MAX, TEX, TRX, MKX |

| Number | Title | Total Investment US$ Mln. | Capacity | Foreign contribution sought |
|---|---|---|---|---|
| Basic Metal Industries | | | | |
| 235/V/87-04 [LKI] | Foundry | 0.70 | Grey iron casting: 2,000 tons/year Ductile iron casting: 1,000 tons/year | EQY, LNS, AFM, MAX, TEX |
| 237/V/87-06 [91] | Machine-Grade Iron Foundry | 3.85 | Grey iron casting: 3,000 tons/year | EQY, JVE, LIC, EQS, MAX, TEX, TRX |
| Non-Ferrous Metal Basic Industry | | | | |
| 238/V/87-06 [90] | Aluminium Gravity/Low Pressure Die Casting Foundry | 3.73 | Automotive parts, parts for industrial and agricultural equipment, etc.: 1,500 tons/year | EQY, JVE, SUT, EQS, MAX, TEX, TRX, MKX |
| Fabricated Metal Products | | | | |
| 239/V/87-06 [80] | Drop Forged Industrial Hand Tools | 2.99 | Spanners, wrenches, tinmens' cutters, pliers: 250 tons/year | EQY, JVE, EQS, MAX, TEX, TRX |
| 240/V/87-06 [82] | Precision Dies and Moulds | 3.24 | Dies and moulds: 250 tons/year Steel scrap: 50 tons/year | EQY, JVE, EQS, MAX, TEX, TRX, MKX |

| Number | Title | Total Investment US$ Mln | Capacity | Foreign contribution sought |
|---|---|---|---|---|
| Manufacture of Machinery | | | | |
| 241/V/87-06 [81] | Precision Jigs and Fixtures | 1.24 | 150 tons/year | EQY, JVE, MAX, TEX, TRX |
| 242/V/87-06 [97] | Cutting Tools for Metalworking | 4.87 | Twist and centre drills: 56 tons/year<br>Taps and reamers: 24 tons/year | EQY, JVE, LIC, EQS, MAX, TEX, TRX |
| 243/V/87-06 [86] | Electric Welding Equipment | 1.04 | Light duty welders: 2,200 units/year<br>Heavy duty welders: 500 units/year<br>MIG welders: 300 units/year | EQY, JVE, EQS |
| 244/V/87-06 [84] | High Performance Dryers and Coolers for Plantation Crops | 0.83 | Batch tray dryers: 30 units/year<br>Continuous tower dryers: 5 units/year | EQY, JVE, LIC, EQS, MAX, TEX, TRX |
| 245/V/87-06 [83] | Food Processing Equipment and Machinery | 2.23 | Stainless steel tanks, mixers, evaporators, etc., plant equipment modules: 400 tons/year | EQY, JVE, LIC, EQS, MAX, TEX, TRX, MKX |
| 246/V/87-06 [112] | Hydraulic, Compressor and Blower Pumps | 2.08 | 50,000 units/year | EQY, JVE, LIC, EQS, MAX, TEX, TRX, MKX |
| 247/V/87-06 [85] | Industrial Heating Equipment | 1.48 | Standard components, small standard and larger ovens and furnaces: 370 tons/year | EQY, JVE, LIC, EQS, MAX, TEX, TRX |

| Number | Title | Total Investment US$ Mln | Capacity | Foreign contribution sought |
|---|---|---|---|---|
| 248/V/87-06 [88] | Industrial Conveyors and Components Plant | 3.22 | 1,600 tons/year | EQY, JVE, EQS, TEX, TRX |
| 249/V/87-06 [92] | Industrial Valves | 3.00 | 16,000-20,000 units/year | EQY, JVE, EQS, TEX, TRX |
| 250/V/87-06 [93] | Industrial Pumps | 4.52 | 8,000 units/year | EQY, JVE, LIC, MAX, TEX, TRX |
| 251/V/87-06 [94] | Mechanical Transmission Equipment Plant | 5.63 | 750 tons/year | EQY, JVE, LIC, MAX, TEX, TRX |
| 252/V/87-06 [98] | Injectors, Nozzles and Injection Pumps | 5.97 | Injectors: 100,000 units/year<br>Injector nozzles: 300,000 units/year<br>Injection pumps: 100,000 units/year | EQY, JVE, SOT, EQS, MAX, TEX, TRX |
| Electrical Machinery | | | | |
| 253/V/87-06 [95] | Electric Motor Control Gear | 0.79 | Direct on-line starters: 23,100 units/year<br>DOL reversing starters: 3,900 units/year<br>Star-delta starters: 1,800 units/year<br>Special starters: 350 units/year | EQY, JVE, LIC, EQS, MAX, TEX, TRX |
| 254/V/87-06 [87] | Electric Motors | 4.65 | Small motors: 27,500 units/year<br>Medium motors: 1,750 units/year | EQY, JVE, EQS, TEX |
| 255/V/87-06 [138] | Graphite Electrodes | 62.74 | Electrodes & nipples: 15,600 tons/year<br>By-products: 4,500 tons/year | EQY, JVE, LIC, EQS, MAX, TEX, TRX |

| Number | Title | Total Investment US$ Mln | Capacity | Foreign contribution sought |
|---|---|---|---|---|
| 256/V/87-06 [113] | Manufacture of Electronic Products by Subcontracting | 0.64 | Commissioning of local firms: electronics components, assembly and/or finished products | EQY, JVE, SCT, AFM, MAX, TEX, TRX, MKX |
| Other Manufacturing Industries | | | | |
| 258/V/87-06 [147] | Manufacture of Soft Toys | 0.68 | 8", 10" and 12" soft toys: 100,000 pieces/year | EQY, LIC, EQS, TEX, MKX |
| **ADDENDUM** | | | | |
| 261/V/87-08 | Meat Processing Industry | 1.05 | Fresh and frozen meat, sausages, smoked meat: 360 tons/year<br>Canned sausages and smoked meat: 3 million cans/year | EQY, JVE |
| 262/V/87-08 | Manufacture of Cotton Yarn | 9.43 | 18,000 bales/year | EQY, LNS, JVE, TKP, EQS, MAX, TEX, TRX |
| 263/V/87-08 | Shipbuilding and Engineering | 46.00 | Ships up to 30,000 DWT, marine/engineered structures up to 200 tons dead load, process equipment: 12,000 tons/year steel throughput | EQY, LNS, JVE, SCT, EQS, AFM, MAX, TEX, TRX, MKX |
| 264/V/87-08 | Pure Marquisa Juice and Concentrate | 1.39 | 2,600 tons/year | JVE, AFM, MKX |
| 265/V/87-08 | Sawn Wood Industry | 0.08 | Sawn teak wood: 525 cu. m/year | EQY, AFM, TEX, MKX |

| Number | Title | Total Investment US$ Mln. | Capacity | Foreign contribution sought |
|---|---|---|---|---|
| 266/V/87-08 | Wood Processing Industry | 2.47 | 1,850 cu. m/month | EQY, LNS, JVE, MKX |
| 267/V/87-08 | Finished and Semi-Finished Rattan Products | 0.64 | Furniture: 1,200 sets/year<br>Handicrafts: 400,000 pieces/year<br>Semi-finished products: 760 tons/year | LNS, JVE, EQS, AFM, SCR, TEX, TRX, MKX |
| 268/V/87-08 | Dry Mortar Production | 4.20 | 50,000 tons/year | LNS, JVE, TRX |
| 269/V/87-08 | Salicylic Acid | 0.60 | Depends on market | JVE, SOT, EQS, AFM |
| 270/V/87-08 | Activated Carbon | 4.80 | 2,000 tons/year | EQY, LNS, JVE, LIC, EQS, MAX, TEX, TRX |
| 271/V/87-08 | Marble Slabs | 3.60 | 120,000 sq. m/month | JVE, MKX |
| 272/V/87-08 | Drop-Forged Industrial Hand Tools | 2.99 | n.a. | EQY, JVE |
| 273/V/87-08 | Marine Container Manufacture | 3.00 | 876 units/year | LNS, JVE, LIC, EQS, MAX, TEX, TRX, MKX |
| 274/V/87-08 | Printed Circuit Boards | 8.70 | Single sided: 24,000 sq. m/year<br>Double sided: 48,000 sq. m/year | JVE, TKP, EQS, TEX, TRX |
| 275/V/87-08 | Jarosite Mining | 7.50 | Iron pigment: 3,000 tons/year<br>Sulphuric acid: 2,000 tons/year<br>Potassium sulphate: 1,500 tons/year | EQY, LNS, JVE, LIC, SOT, EQS, AFM, SCR, MAX, TEX, TRX, MKX |
| 276/V/87-08 | Processing of Ginger Products | 3.61 | 6,000 tons/year (max.) | JVE, MAX, TEX, TRX, MKX |

Abbreviations are listed on p.vi.

Source: Investors' Forum for Indonesia, Jakarta, 23-27 November 1987.

N.B. The number in brackets refers to the project number according to the BKPM list of projects.

# ANNEX E

# THE COMPLETED, APPROVED AND/OR OPERATIONAL TECHNICAL CO-OPERATION PROJECTS OF UNIDO SINCE 1971

UNIDO's Approved and/or Operational Technical Co-operation Projects
(approved = PAD issued)

Republic of INDONESIA
(1)

| Backstopping Responsibility | Progr.Element | Project Number | Project Title |
|---|---|---|---|
| IO/IIS/INFR | J12103 | DP/INS/86/006 | Integrated entrepreneurship-cum-technology - Development of small industry clusters - preparatory assistance |
| IO/IIS/INFR | J12103 | DP/INS/78/078** | Assistance to the development of small industries |
| IO/IIS/FCTY | J12207 | DP/INS/87/004* | Assistance to P.T. Barata Indonesia towards improved plant operations - preparatory assistance |
| IO/IIS/FEAS | J12516 | DP/INS/85/015* | Study on the development of marine based industry in eastern Indonesia |
| IO/IIS/FEAS | J12516 | US/INS/85/172 | Feasibility study to assist in establishing a modern wooden building and repair industry in Irian Jaya in co-operation with the Irian Jaya Joint Development Foundation (J.D.F.) (related to US/GLO/85/019) |
| IO/IIS/FEAS | J12517 | TF/INS/86/001 | Associate expert |
| IO/IIS/FEAS | J12517 | TF/INS/86/002 | Associate expert |
| IO/IIS/FEAS | J12517 | TF/INS/84/001 | Associate expert |
| IO/IIS/FEAS | J12517 | DP/INS/85/037* | Strengthening of national capabilities for assistance in generating medium-scale industrial projects |
| IO/T/AGRO | J13104 | DP/INS/85/016* | Assistance in the development of new activities for research and development of leather and allied industries |
| IO/T/AGRO | J13105 | DP/INS/86/005* | Establishment of a packaging unit at the Institute for Research and Development for Chemical Industry |
| IO/T/MET | J13207 | DP/INS/83/020* | Master plan for the development of an aluminium downstream industry |
| IO/T/ENG | J13316 | DP/INS/85/026 | Development of engineering industries - preparatory assistance |

* Large-scale project (= total allotment $150,000 or above)
** Total allotment $1 million or above

UNIDO's Approved and/or Operational Technical Co-operation Projects
(approved = PAD issued)

Republic of INDONESIA
(2)

| Backstopping Responsibility | Progr.Element | Project Number | Project Title |
|---|---|---|---|
| IO/T/CHEM | J13419 | DP/INS/81/006** | Assistance in the development of building materials and supplies industry for low-cost housing (continuation of DP/INS/74/034) |
| IO/T/CHEM | J13421 | DP/INS/85/018 | Study for integrated development of nitric acid industries |
| IPCT/II/PIF | G01102 | DP/INS/83/021* | Training of professional staff for the overseas investment promotion office of the Capital Investment Co-ordination Board (BKPM) |

* Large-scale project (= total allotment $150,000 or above)
** Total allotment $1 million or above

UNIDO's Completed Technical Co-operation Projects

Republic of INDONESIA
(1)
since 1972

| Backstopping Responsibility | Spec.Act.Code/ Progr.Element | Project Number | Project Title |
|---|---|---|---|
| IO/INFR | 00.0 | TS/INS/74/005 | Co-operation between developing countries, transfer of technology |
| IO/INFR | 00.0 | RP/INS/72/004 | Industrial estates development |
| IO/INFR | 31.3.04 | DP/INS/73/017 | Industrial legislation adviser, Jakarta |
| IO/INFR | 31.3.04 | TS/INS/73/016 | Industrial administration and legislation |
| IO/INFR | 31.4.01 | DP/INS/72/056 | Light industries adviser |
| IO/INFR | 31.4.01 | RP/INS/74/003 | Industrial extension services |
| IO/INFR | 31.4.04 | DP/INS/73/004 | Assistance to local support network for small-scale industries, Java, preparatory assistance |
| IO/INFR | 32.3.03 | DP/INS/71/006 | Investment promotion |
| IO/INFR | 31.3.A | DP/INS/74/003 | Assistance to the Jakarta Fair |
| IO/INFR | 31.3.A | IS/INS/75/016 | Assistance to the Materials Testing Institute |
| IO/INFR | 31.3.A | IS/INS/75/026 | Assistance to the Chemical Research Institute in Bogor |
| IO/INFR | 31.3.A | TS/INS/74/001 | Assistance to the Jakarta Fair |
| IO/INFR | 31.3.C | DP/INS/74/014 | Product adaptation adviser, Jakarta |
| IO/INFR | 31.3.C | DP/INS/74/046 | Assistance to the national small-scale industry development programme |
| IO/INFR | 31.3.D | DP/INS/73/016 | Senior industrial administration adviser |
| IO/INFR | 31.3.D | DP/INS/73/019 | Small industries planning and entrepreneurship training |
| IO/INFR | 31.3.D | DP/INS/74/013 | Industrial field extension service adviser |
| IO/INFR | 31.3.E | DP/INS/74/019 | Jakarta Industrial Estate, Pulogadung |
| IO/INFR | 31.3.G | IS/INS/74/030 | Assistance to the National Institute for Export Development (NAFED) in the field of export product adaptation |

UNIDO's Completed Technical Co-operation Projects

Republic of INDONESIA
(2)

| Backstopping Responsibility | Spec.Act.Code/ Progr.Element | Project Number | Project Title |
|---|---|---|---|
| IO/INFR | 31.3.G | SI/INS/74/830 | Assistance to the National Institute for Export Development (NAFED) in the field of export product adaptation |
| IO/INFR | 31.3.J | DP/INS/76/001 | Strengthening of the Chemical Research Institute, Bogor |
| IO/INFR | 31.3.K | DP/INS/74/002 | National consensus standards and quality control |
| IO/INFR | 31.3.L | DP/INS/77/004 | Assistance to small-scale industry development |
| IO/INFR | 31.3.M | IS/INS/79/801 | Assistance to the National Agency for Export Development (NAFED - Department of Trade) in the field of export product adaptation |
| IO/IIS/INFR | J12102 | DP/INS/85/017 | Preparatory assistance in implementation of Indonesian industrial standards in small and medium industry |
| IO/FCTY | 31.3.01 | TS/INS/67/002 | Paper mills |
| IO/FCTY | 31.4.E | DP/INS/78/004 | Operational consultancy to the small- and medium-scale public sector manufacturing |
| IO/TRNG | 31.5.01 | DP/INS/72/059 | Achievement motivation training in industrial development |
| IO/TRNG | 31.5.01 | IS/INS/73/008 | Preparatory mission - in-plant training programme for the utilization of more appropriate technology |
| IO/TRNG | 31.5.01 | IS/INS/75/004 | Adaptive research and development of entrepreneurial development |
| IO/TRNG | 31.5.01 | TS/INS/74/007 | Training programme for implementation of appropriate technology |
| IO/TRNG | 31.5.A | DP/INS/74/045 | Assistance to the national entrepreneurship training programme, Jakarta |
| IO/TRNG | 31.5.A | SI/INS/75/849 | Training programme in marketing and management of modern grain storage and drying equipment, phase II |

UNIDO's Completed Technical Co-operation Projects

Republic of INDONESIA
(3)

| Backstopping Responsibility | Spec.Act.Code/ Progr.Element | Project Number | Project Title |
|---|---|---|---|
| IO/TRNG | 31.5.B | IS/INS/73/036 | Training programme in marketing and management of modern grain storage and drying equipment |
| IO/TRNG | 31.5.B | RP/INS/76/001 | Fellowships in advanced concrete technology |
| IO/TRNG | 31.5.B | RP/INS/77/001 | Leather goods, technology and marketing |
| IO/TRNG | 31.5.B | RP/INS/77/002 | Fourth general course on development banking |
| IO/TRNG | 31.5.B | RP/INS/78/001 | Leather goods, technology and marketing |
| IO/TRNG | 31.5.B | RP/INS/80/002 | Fellowship in planning and appraisal of agro-industrial projects |
| IO/TRNG | 31.5.B | RP/INS/81/002 | Training in the field of productive maintenance |
| IO/TRNG | 31.5.B | RP/INS/82/001 | Training in investment negotiation |
| IO/TRNG | 31.5.B | RP/INS/82/002 | Training for seven engineers of a new public sector cement plant, P.T. Semen Kupang |
| IO/TRNG | 31.5.B | RP/INS/84/002 | Training on project procurement and contract negotiation |
| IO/TRNG | 31.5.B | RP/INS/84/003 | Training on industrial project management |
| IO/TRNG | 31.5.B | RP/INS/84/004 | Training in investment promotion |
| IO/TRNG | 31.5.C | IS/INS/75/019 | Designing entrepreneurial devlopment programmes |
| IO/PLAN | 32.1.01 | DP/INS/69/029 | Industrial development |
| IO/PLAN | 32.1.01 | DP/INS/71/535 | Industrial advisory team |
| IO/PLAN | 32.1.01 | DP/INS/72/055 | Basic industries adviser, policy and long-term planning engineering industries |
| IO/PLAN | 32.1.01 | RP/INS/74/005 | Industrial programming |
| IO/PLAN | 31.2.A | DP/INS/74/012 | Industrial policy analyst |
| IO/IIS/PLAN | J12413 | DP/INS/78/003 | Comprehensive investment profiles for selected regions |

UNIDO's Completed Technical Co-operation Projects

Republic of INDONESIA
(4)

| Backstopping Responsibility | Spec.Act.Code/ Progr.Element | Project Number | Project Title |
|---|---|---|---|
| IO/FEAS | 31.6.A | SI/INS/77/803 | Pre-feasibilty study on the establishment of coconut coir fibre processing industry |
| IO/FEAS | 31.6.A | TF/INS/82/002 | Associate expert |
| IO/FEAS | 31.6.A | TF/INS/83/004 | Associate expert |
| IO/FEAS | 31.6.B | IS/INS/75/046 | Advisory mission to assist the Ministry of Industry and the TDG/ITB Bandung in preparing a long-range programme in product development |
| IO/IIS/FEAS | J12516 | TF/INS/82/005 | Associate expert |
| IO/IIS/FEAS | J12517 | DP/INS/78/002 | Assistance in identification and development of industrial projects in selected regions |
| IO/IIS/FEAS | J12517 | TF/INS/82/003 | Associate expert in marketing |
| IO/IIS/FEAS | J12517 | TF/INS/82/004 | Associate expert |
| IO/IIS/FEAS | J12517 | TF/INS/85/001 | Associate expert |
| IO/AGRO | 30.3.04 | TS/INS/74/006 | Assistance to the lime industry |
| IO/AGRO | 30.6.00 | DP/INS/72/017 | Industries adviser |
| IO/AGRO | 30.6.01 | RP/INS/74/006 | Silk processing dying and weaving |
| IO/AGRO | 30.6.03 | TS/INS/75/004 | Assistance to the Leather Research Institute, review meeting |
| IO/AGRO | 31.7.A | DP/INS/79/006 | Assistance in establishing a centre for sawdoctor training |
| IO/AGRO | 31.7.A | DU/INS/78/054 | Forestry and forest products development in Indonesia (Executing agency: FAO) |
| IO/AGRO | 31.7.A | SI/INS/79/802 | Assistance in sawdoctoring |
| IO/AGRO | 31.7.B | DP/INS/74/018 | Textile industry development programme, phase II |
| IO/AGRO | 31.7.B | TF/INS/76/002 | Textile industry development programme - associate experts |
| IO/AGRO | 31.7.C | IS/INS/74/040 | Development of coconut by-products processing industry |

UNIDO's Completed Technical Co-operation Projects

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| Backstopping Responsibility | Spec.Act.Code/ Progr.Element | Project Number | Project Title |
|---|---|---|---|
| IO/AGRO | 31.7.D | DP/INS/71/531 | Textile industry and development programme, phase I |
| IO/AGRO | 31.7.D | DP/INS/78/001 | Improvement of extension service at the Leather Research Institute |
| IO/AGRO | 31.7.E | IS/INS/75/001 | Packaging Research and Services Institute, Jakarta |
| IO/T/AGRO | J15104 | UC/INS/83/017 | Assistance to the Institute for Research and Development of Leather and Allied Industries |
| IO/MET | 30.2.03 | TS/INS/74/009 | Assistance to the Mining and Metallurgical Research Centre (MMRC) Bandung |
| IO/MET | 31.8.C | SI/INS/79/803 | Master plan for the iron and steel industry |
| IO/ENG | 00.0 | IS/INS/71/803 | Assistance to shipyards |
| IO/ENG | 00.0 | IS/INS/71/813 | Assistance in development of electrical industry |
| IO/ENG | 30.1.00 | DP/INS/72/065 | Shipyards building and operations |
| IO/ENG | 30.1.01 | TS/INS/73/003 | Rice storage equipment manufacturing |
| IO/ENG | 30.1.01 | TS/INS/74/004 | Assistance in formulating projects in the engineering industries sector |
| IO/ENG | 30.1.02 | TS/INS/74/003 | Assistance to the Machinery and Tools Design Section in the Metal Industries Development Centre in Bandung, agricultural machinery |
| IO/ENG | 30.1.05 | IS/INS/71/812 | Survey mission in engine (Diesel and petrol) overhaul and rehabilitation |
| IO/ENG | 31.9.A | DP/INS/74/032 | Assistance to the metals industries through the Metals Industries Development Centre, Bandung |
| IO/ENG | 31.9.A | RP/INS/84/001 | Technical study on the establishment of a quality control, testing and service centre for the automotive and allied industries |
| IO/ENG | 31.9.B | DP/INS/74/033 | Spare parts development, repair and maintenance |

UNIDO's Completed Technical Co-operation Projects

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| Backstopping Responsibility | Spec.Act.Code/ Progr.Element | Project Number | Project Title |
|---|---|---|---|
| IO/ENG | 31.9.B | DP/INS/74/041 | Senior adviser on basic industries, Jakarta |
| IO/ENG | 31.9.B | DU/INS/72/057 | Task force for technical assistance in rice processing (Executing agency: FAO) |
| IO/ENG | 31.9.B | SI/INS/75/848 | Reactivation study of the Muara Engineering Workshop Complex |
| IO/ENG | 31.9.B | TS/INS/74/002 | Pilot tractor hiring station with stationary workshop |
| IO/T/ENG | J13316 | SI/INS/84/801 | Technical study on the establishment of a quality control, testing and service centre for the automotive ancillary and allied industries |
| IO/CHEM | 30.3.00 | IS/INS/73/020 | Assistance to the development and realization of building materials industries, Bandung |
| IO/CHEM | 30.3.01 | DP/INS/72/058 | Lime industry adviser |
| IO/CHEM | 30.4.01 | DP/INS/72/054 | Chemical industries adviser |
| IO/CHEM | 30.4.02 | DP/INS/72/018 | Assistance to essential oils plant, Tawangmangu, preparatory assistance |
| IO/CHEM | 30.4.03 | TS/INS/71/001 | Assistance to the Goa Paper Mills |
| IO/CHEM | 30.4.03 | TS/INS/74/008 | Assistance to the Cellulose Research Institute in Bandung, preparatory assistance |
| IO/CHEM | 30.5.02 | RP/INS/75/006 | Participation in the sixth training programme on plastics industry and LKT, Vienna |
| IO/CHEM | 30.5.03 | IS/INS/71/814 | Survey of the petrochemical industries |
| IO/CHEM | 30.5.03 | IS/INS/75/005 | Plastics technology |
| IO/CHEM | 30.5.03 | IS/INS/75/020 | Preparatory assistance to Government (PAG) mission on the establishment of a plastic technology centre |
| IO/CHEM | 32.1.A | DP/INS/74/034 | Industrial development of building materials manufacture |
| IO/CHEM | 32.1.A | DP/INS/78/077 | Development of low cost housing production industry |

UNIDO's Completed Technical Co-operation Projects

Republic of INDONESIA
(7)

| Backstopping Responsibility | Spec.Act.Code/ Progr.Element | Project Number | Project Title |
|---|---|---|---|
| IO/CHEM | 32.1.A | TF/INS/75/002 | Assistance to the industrial development of building materials - associate experts |
| IO/CHEM | 32.1.A | TF/INS/79/001 | Associate expert in implementation of R+D results in production units, Kinoshita |
| IO/CHEM | 32.1.A | TF/INS/79/002 | Associate expert in implementation of R+D results in production units |
| IO/CHEM | 32.1.A | TF/INS/79/003 | Support project for Indonesia building materials project |
| IO/CHEM | 32.1.A | TF/INS/79/004 | Support project for Indonesia building materials project |
| IO/CHEM | 32.1.A | TF/INS/79/005 | Support project for Indonesia building industries |
| IO/CHEM | 32.1.A | TF/INS/80/002 | Associate expert in refractories |
| IO/CHEM | 32.1.A | TF/INS/81/001 | Support project for building material industries project in Indonesia (multifund to DP/INS/74/034) |
| IO/CHEM | 32.1.B | SI/INS/75/802 | Assistance in promotion of ceramic art ware, Bandung |
| IO/CHEM | 32.1.F | SI/INS/80/801 | Preliminary assistance for composting of municipal solid wastes |
| IO/CHEM | 32.1.G | SI/INS/77/801 | Expert assistance in establishing a 2,4-D MCPA plant in Indonesia |
| IO/CHEM | 32.1.H | DP/INS/80/007 | Plastics week |
| IO/CHEM | 32.1.H | SI/INS/77/802 | Assistance to the Polymer Technology Centre |
| IO/CHEM | 32.1.K | TF/INS/83/003 | Associate expert in industrial promotion of local building materials |
| IO/T/CHEM | J13419 | TF/INS/83/001 | Associate expert |
| IO/T/CHEM | J13419 | TF/INS/83/002 | Associate expert (related to DP/INS/81/006) |
| PC/ECDC | 30.9.Z | RP/INS/81/003 | Assistance to the Jakarta Fair Organization |

UNIDO's Completed Technical Co-operation Projects

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(8)

| Backstopping Responsibility | Spec.Act.Code/ Progr.Element | Project Number | Project Title |
|---|---|---|---|
| IO/COOP | 00.0 | AR/INS/75/003 | IBRD mission to the field of |
| IO/COOP | 31.1.D | DP/INS/80/012 | Training in investment promotion |
| IS/REG | 62.2.Z | UC/INS/82/106 | Industry sector study mission |
| IS/TEC | 62.5.Z | TS/INS/81/001 | Assistance in setting-up technology transfer registry |

# ANNEX F

# LEADING COMPANIES, 1986

# Annex F
## Leading companies, 1986
## (values in $ millions for 1985/86)

| Rank | 1986 | Company | Type of business | Sales/ Turnover | Net profit/ (loss) | Net assets | Employees | Ownership |
|---|---|---|---|---|---|---|---|---|
| 1 | (1) | Pertamina | Oil | 8,047 | 552.1 | 9,144a/ | 50,000 | State |
| 2 | | Perusahaan Listrik Negara | Electricity | 1,276 | | | | |
| 3 | | Gudang Garam, PTb/ | Clove cigarettes | 737 | | | | |
| 4 | | Astra International b/ | Cars, agribusiness, trading | 700 | | | | |
| 5 | (2) | Garuda Indonesia Airlines | Airline | 667 | (30.2) | | | State |
| 6 | | Djarum, PTb/ | Clove cigarettes | 636 | | | | |
| 7 | | Bentoel, PT | Clove cigarettes | 256 | | | | |
| 8 | | Krakatau Steel, PT | Steel | 252 | (12.1) | | | |
| 9 | | Pupuk Sriwijaya - PT PUSRI | Fertiliser | 205 | 43.3 | 695a/ | | |
| 10 | (4) | PT Unilever Indonesia | Consumer products | 192 | 17.1 | 122a/ | 3,000 | Unilever, UK/Nethlds. |
| 11 | | Dharma Niaga, PT | Trading | 167 | 6.3 | 45a/ | | |
| 12 | | PT Tjipta Niagab/ | Trading | 134 | 1.8 | 76a/ | | |
| 13 | | Kerta Niaga, PT | Trading | 128 | 2.4 | 43a/ | | |
| 14 | | Freeport Indonesia Inc | Copper concentrate | 115 | | | | |
| 15 | | PT Pantja Niaga | Trading | 112 | | 53a/ | | |
| 16 | | Mega Eltra, PT | Trading | 102 | 0.2 | 39a/ | | |
| 17 | | Intl Nickel Indonesia, PT | Nickel | 95 | (39.8) | 732 | | |
| 18 | (12) | British American Tobacco | Tobacco | 91 | 2.9 | 58a/ | 1,100 | BAT, UK |
| 19 | | Gramedia, PT | Publishing | 89 | | | 3,000 | |
| 20 | | Pelni, PT | Shipping | 65 | (0.1) | 183a/ | 3,700 | |
| 21 | (16) | PT Bayer Indonesia | Pharmaceuticals | 63 | 2.3 | 49a/ | 1,030 | Bayer, FRG |
| 22 | (11) | PT Wijaya Karya | Construction | 59 | 1.0 | 44 | 750 | |
| 23 | (5) | PT Teijin Indonesia Fiber Corp. | Textiles | 57 | 3.2 | 70a/ | 1,284 | Teijin, Japan 65.8% |
| 24 | (10) | PT Semen Cibinong | Cement | 56 | 4.6 | 84a/ | 1,175 | |
| 25 | (14) | PT Multi Bintang Indonesia | Beverages | 52 | 5.3 | 45a/ | 1,242 | |
| 26 | (15) | Goodyear Indonesia | Rubber | 49 | (3.3) | 53a/ | | Goodyear, US |
| 27 | (20) | PT Sepatu Bata | Shoes | 35 | 2.9 | 24a/ | 1,429 | Bata, Canada |
| 28 | | Kimia Farma, PT | Pharmaceuticals | 34 | | | | |
| 29 | (23) | PT Delta Jakarta | Brewery | 32 | (1.3) | 22a/ | | |
| 30 | | Supreme Cable Mfg, PT | Cables | 32 | 1.5 | 41a/ | 1,006 | |
| 31 | (24) | PT Jakarta Int Hotel | Hotels | 25 | 4.5 | 47a/ | | |
| 32 | | Century Textile Ind - PT Centex | Textiles | 19 | (1.0) | 21a/ | | |
| 33 | | Perum Tambang Batubara | Coal | 19 | 4.8 | | | |
| 34 | | PT Sari Husada | Beverages | 14 | 0.9 | 9a/ | 513 | |
| 35 | | PT Unitex | Textiles | 13 | (0.3) | 21a/ | 1,200 | |
| 36 | | Perum Indofarma | Pharmaceuticals | 13 | | | | |
| 37 | | Sarinah, PT | Trading | 12 | | 14 | | |
| 38 | | PT Richardson-Vicks | Pharmaceuticals | 9 | 1.2 | 5a/ | 162 | |
| 39 | | Sucofindo, PT | Trading | 9 | 1.5 | 6a/ | | |
| 40 | | PT Merck Indonesia | Pharmaceuticals | 6 | 0.9 | | | |

Source: South, July 1986.

a/ Total assets.
b/ Estimate.

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