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REPORT OF THE UNIDO INDUSTRY SECTOR ASSESSMENT MISSION TO THE PHILIPPINES**

28 August to 10 September 1986

Prepared by the

Regional and Country Studies Branch

Studies and Research Division

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C O N T E N T S

SUMMARY OF FINDINGS AND RECOMMENDATIONS

1. The UNIDO Industry Sector Assessment Mission to the Philippines - fielded at a crucial point in the country's economic development - was given the tasks to (i) identify major development constraints and bottlenecks in various industrial subsectors, (ii) advise on corresponding priority areas and objectives of industrial policy, and (iii) outline suitable policy measures at the national level as well as external inputs to be provided by multilateral/bilateral development co-operation agencies.

2. The challenges and demands facing economic and industrial policy formulation and implementation in the Philippines, particularly in the short run, can hardly be overestimated. The new Government has inherited an economy characterized by declining production, high and rising unemployment, rapidly increasing levels of foreign indebtedness, large and increasing regional disparities in economic activity, highly interventionist economic policies, widely distorted markets and productivity levels in many sectors which are now among the lowest in Southeast and East Asia. Accordingly, the authorities are faced with the demanding task of having to design and implement economic strategies and policies which are to tackle simultaneously all of these major issues - in a situation of severe financial resource constraints.

3. After the substantial decreases in GDP experienced in recent years, economic recovery is now called for. The Mission expresses its support for the expansionary demand stimulation approach pursued by the Government through the emergency employment programme. Considering that (i) there is a large excess productive capacity and (ii) inflation rates are down at record low levels, this strategy is not likely to create major inflationary pressures. While the fiscal impact (budget deficit) of this strategy should receive full attention in the medium run, it ought not be the major yardstick of policy evaluation in the short run.

4. The Mission is of the view that - based on the country's resource endowment and comparative advantage - the Government has established a set of economic policies that can be expected (i) to remove distortions created in the past by an overly capital-intensive and urban-biased development pattern and (ii) to pave the way for a more rapid and self-sustained development in the future. The new policies include in particular reduction of government interventions and hence a stronger reliance on markets and the private sector; emphasis on poverty alleviation and a more equitable distribution of economic gains, including regionally dispersed development; special attention to agricultural development and agro-based industrial development as well as labour-intensive small-scale industrial development on the basis of locally available raw materials.

5. While the Mission sees itself in broad concordance with the present industrial policy approach, it would like to draw attention to some specific areas where additional emphasis may be appropriate and/or where technical assistance may be required from external sources to support national industrial development efforts. They relate to selected subsectors of industry and in particular to certain cross-sectoral issues which the Mission considers critical for the country's future industrial development. In general, the Mission regards the projects included in the existing UNDP Country Programme to be well in line with the objectives and main thrust of the Government's policy approach.

Analysis of selected industrial branches

6. Agro-based industries have remained the backbone of the Philippine industrial sector and should receive particular attention. In general, it was found, enhanced co-ordination between agricultural production and the requirements of agro-industrial processing is called for. The creation of a Policy Co-ordination Authority (under the chairmanship of the Ministry of Trade and Industry) may be considered in this regard. Specifically, in order to further strengthen agro-processing, particularly its export-oriented segment, the establishment of a National Quality Certification System in connection with the required laboratory facilities is urgently recommended.

- Concerning coconut industries, the Mission suggests to diversify away from coconut oil and copra and concentrate on new, promising areas of coconut processing such as coconut food and coco-chemicals.

- Sugar industries are in a very depressed situation largely due to the drastic decline in world market prices. While crop diversification and crop substitution programmes should be further pursued, efforts at better utilizing sugar by-products and the revival of the ethanol programme may receive particular attention.

- Wood processing and rattan processing, above all for furniture making, seem to have excellent export potential. However, the sector calls for modernization with regard to equipment, specialization and product standardization. In view of the high concentration of woodworking industries in Central Visayas, the Mission recommends the establishment of a Furniture Centre in Cebu, which could focus on research and development, technical training as well as the provision of market information.

- The Government may also wish to consider the establishment of a Fibre Processing and Utilization Laboratory to foster development work in connection with industrial uses of non-traditional natural fibres.

7. In general the Mission found agro-support industries to be among the weakest parts of the country's agro-industrial sector. More attention than hitherto may be given in the future to rural engineering industries (foundries, mechanical workshops), to the potential to locally manufacture food processing machinery, and to deficits in packaging materials and techniques (including the low quality of locally produced cans). In this context, the Mission also suggests to explore the potential in developing new packaging materials based on domestically available natural resources.

8. Regarding the textiles and garments sector, the crucial problem of the Philippine garment industry seems to lie with the insufficiencies, both in quantity and quality terms, of domestically obtainable inputs from the textiles industry. The latter has remained largely domestic market oriented. It is in particular suffering from outdated equipment and from a low degree of specialization which - in a situation of low competitive pressure due to high protection rates - has kept productivity low. Furthermore, there is a noticeable lack of trained textile engineers at the plant level. The resulting almost entire dependence of the export-oriented garments industry on imported fabrics has made the textiles and garments sector the second most

import-dependent segment of the country's industry. In the case of garments exports, the Mission considers it essential that a stronger geographic market diversification be achieved, in particular towards non-quota markets.

9. In the chemical industries, as in many other industrial branches, capacity utilization rates are at very depressed levels. Accordingly, the Government has assigned high priority to the rehabilitation of existing plant capacity. In this context, improvements in the technical management of chemical plants are crucial to increase efficiency and be able to meet future stronger competition from liberalized imports. Furthermore, emphasis has been placed on the strong utilization of indigenous resources. UNIDO's current assistance activities in the chemical sector are in line with this objective and could in particular be used as a basis on which to initiate larger projects to pilot the potential to produce sucro-based chemicals.

10. With regard to energy, further reductions in the dependency on imported oil could be achieved (i) by increasing the contribution of indigenous energy resources (coal, hydro-energy, geothermal energy, non-conventional sources) to the total primary energy supply, and (ii) by energy consumption savings to be achieved through conservation measures. In this, training and education play an important role since informing workers of the need to be more careful with regard to energy use and providing sufficient motivation is of primary importance when implementing an energy savings programme. In the field of non-conventional energy sources, considerable experience has already been acquired with the gasification and combustion of agricultural residues, biogas development and alcohol production partly within UNIDO projects implemented by the Bureau of Energy Development. The task now facing project authorities is to transfer the more successful processes and equipment developed by these programmes to the commercial sector and to promote their deployment nationwide.

Cross-sectoral development issues

11. As regards the important issue of import liberalization, the Mission recognizes that the country's manufacturing sector has enjoyed in the past a relatively high level of protection which has caused distortions and inefficiencies that the Government may wish to correct as indicated in the import liberalization programme. At the same time, it is considered crucial that a balance between adjustment requirements and adjustment capacities be sought to prevent a collapse of local industries which may be viable in the long run. Accordingly, sectoral impact studies should be undertaken and structural adjustment and modernization programmes launched to enhance the competitiveness of those branches which will be the most seriously affected by the planned liberalization measures. In addition, the Mission wishes to point out that insufficient attention has so far been given to the fact that many industrial branches are penalized rather than benefited by existing non-tariff barriers (i.e. those using highly protected inputs) and that, accordingly, the removal of quantitative restrictions will not necessarily result in declining employment and incomes - unless the implementation of trade liberalization does not allow for the required adjustments to take place.

12. As a complement to the basically domestic market-oriented emphasis on small-scale industries and to counter the import surge to be expected from increasing aggregate demand, the Mission considers it essential to pay sufficient attention to export-oriented manufacturing. The country's recent

drive in export promotion has largely depended on a narrow product range of garments and electronics (semiconductors) which accounted for some 60 per cent of total non-traditional manufactured exports. Expectations regarding slowly increasing levels of local content have obviously not materialized and hence net foreign exchange earnings have remained rather low. There is every indication that the potential of local resource-based manufactured exports has been largely untapped in the past. In general special emphasis should be given in this context to the development of technologies geared to producing high-quality exportable goods using as far as possible local raw materials. Inadequacies observed at the production level based on the work of the Center for International Trade, Exhibitions and Missions (CITEM) in its Product Specialist Programme confirm this need, e.g. in the field of quality control. It is futher suggested that for specific target sectors within food processing and wood-based industries thorough analyses be undertaken with a view to identifying the most promising markets, the required product characteristics to serve these markets and organizational preconditions to be met by domestic industry.

13. In connection with export promotion instruments, the Government has expressed reservations against a strong reliance on export processing zones (EPZs) in the future. It remains, however, an important task to maximize the developmental impact of the currently existing four EPZs in which high amounts of capital have been invested. It is suggested by the Mission to immediately launch an action-oriented study which should (i) review the performance shortcomings of the country's operating EPZs and (ii) identify measures to improve their development contribution. In this context, the potential to combine EPZs with general industrial estates in order to increase the former's backward linkages should be looked into. The study should furthermore, on the basis of experience made in other Asian countries, closely analyze the bonded warehousing and bonded factory system as to its distinct advantages over the EPZ approach.

14. A closely related issue is the Government's concern about the high regional disparities of (industrial) development. Industrial dispersal policies have always figured prominently in past development plans. However, they have essentially remained ineffective both due to conceptual shortcomings and due to inadequate implementation. A thorough review of the whole system of region-oriented investment incentives, as currently planned by the Government, is strongly supported by the Mission. As a general guideline, direct measures (e.g. infrastructural facilities) should receive priority over indirect measures (e.g. fiscal/financial incentives). Furthermore, the Mission welcomes the Government's approach to pursue a strategy of selective dispersal. In view of the significance of economies of agglomeration a targeting of regional dispersal towards selected regional development centres indeed appears to be required.

15. The further promotion of cottage, small and medium industries (CSMIs) will be of great importance for regional dispersal policies in particular and for an economically sound and socially balanced industrial development in general. Roughly three-quarters of all manufacturing employment in the Philippines is generated by CSMIs, which is many industrial branches have proven to be more efficient and more flexible than large corporations. The following industrial policy areas have been identified by the Mission as being of particular importance for strengthening the performance of CSMIS:

rationalization of the institutional support framework (at present characterized by numerous agencies lacking efficient co-ordination); stronger participation of the private sector in relevant government institutions; further promotion of subcontracting arrangements (e.g. through widening of the Ministry of Trade and Industry's SUBCONNEX programme); reorientation of financial assistance towards working capital funds as well as a continuation of entrepreneurship development programmes.

16. In most of the issues outlined above, the research and development sector plays a primary and strategic role as integral element of the country's future industrial development. Among its basic objectives are the building up of R and D capacity at operational levels within the industrial sector and the attainment of increasing technological self-reliance in key development areas. Particular emphasis will be given to R and D efforts geared at improving technologies relevant for the utilization of local resources. The Mission welcomes plans to establish a Technology Development Centre as the central institution for promotion and commercialization of technological research, and a Technology Information Centre with the tasks of identifying internationally available technology of relevance to the country's industry, in particular to the small and medium industry sector. In these efforts, the Government is fully aware of the fact that effective dissemination of technical knowledge and expertise to the rural areas is called for. This in turn would require a strong regional representation of all institutions concerned to enhance their capability to identify and respond to the needs of rural communities.

INTRODUCTION

In May/June 1986, the new Philippine Government started the preparation of the country's medium-term development plan for the period 1987-92, which is to lay the framework for swift economic recovery in the short-term and for a sustainable growth process in the medium- to long-term.

Within the medium-term planning exercise, the industrial sector is given special attention particularly in its capacity to contribute to employment generation and foreign exchange earnings as well as to support and reinforce agricultural production and rural development.

In this context, the concerned Government authorities called upon UNIDO to field an Industry Sector Assessment Mission while the preparation of the medium-term plan was still ongoing. The Mission was asked to undertake a review of current structures and trends in the country's industrial sector with a view especially to (i) identify major constraints and bottlenecks in various industrial subsectors: (ii) advise on corresponding priority areas and objectives of industrial policy; and (iii) outline suitable policy measures at the national level as well as external inputs to be provided by multilateral/bilateral development co-operation agencies.

The Mission was fielded between 28 August and 10 September 1986, with the following team composition:

UNIDO Team

Bernardo Jamilla (Team leader)	Acting Head, Area Programme/Asia and the Pacific
Nils Ramm-Ericson	Senior Industrial Development Officer, Regional and Country Studies Branch
Horst Koenig	Senior Industrial Development Officer, Agro-Industries Branch
Camilo Antonio	Industrial Development Officer, Industrial Institutions and Services Branch
Wilfried Luetkenhorst	Industrial Development Officer, Regional and Country Studies Branch
Robert Williams	Industrial Development Officer, Chemical Industries Branch

Nils Ramm-Ericson and Wilfried Luetkenhorst carried out preparatory work one week before the main mission's arrival for the purpose of collecting and assessing most recent data on the Philippine manufacturing sector and related economic areas, in co-operation with a team of Philippine economists and officials from concerned Government authorities.

Before leaving Manila the Mission presented a brief interim report at wrap-up sessions with the Minister of Trade and Industry, and with senior officials of the National Economic and Development Authority (NEDA) and the Ministry of Trade and Industry.

The present final report of the Mission has been prepared at UNIDO headquarters by the Regional and Country Studies Branch on the basis of inputs from the Mission members.

While the Mission saw itself in broad concordance with the present industrial policy approach, at the same time it pointed out some specific areas where additional emphasis may be appropriate and/or where technical assistance may be required from external sources to supplement national industrial development efforts. These areas relate to selected industrial subsectors as well as to certain multi-sectoral issues which the Mission considers critical for the development of the country's industry: improvement of capacity utilization of existing industries, regional dispersal of industrial activities, support for small-scale industries; exports of manufactures; research and development in particular with reference to local raw materials utilization. In general, the Mission found that the projects included in the existing UNDP Country Programme were well in line with the objectives and main policy thrust. They should, however, be supplemented by additional technical co-operation inputs in identified key areas.

The members of the Mission wish to express their thanks to UNDP, to the 'Philippine team', and Government officials, responsible for organizing and co-ordinating the work and activities of the Mission. Without their co-operative spirit the tasks foreseen could not have been accomplished in such short time, considering the complexity of the exercise.

Finally it may be noted that the Mission Report - rather than presenting a comprehensive blueprint for the country's future economic development - concentrates on crucial industrial policy issues in general and focuses attention on selected industrial branches, largely reflecting the fields of specialization of the team members.

I. MACROECONOMIC FRAMEWORK AND BASIC ECONOMIC POLICY ORIENTATION

The new Philippine Government which came to power after the revolutionary events of early 1986 has inherited an economy which has in recent years been characterized by declining production, rising unemployment, a rapidly increasing level of foreign indebtedness, high budget deficits, large regional disparities in economic activity, highly interventionist Government economic policies, distorted markets, and productivity levels in many sectors of the economy which now are among the lowest in Southeast and East Asia. Accordingly, at this truely crucial stage of the country's development, the Government is faced with the demanding task of having to design and implement economic strategies and policies which are to tackle simulataneously all of these major issues - in a situation of severe financial resource constraints. The challenges and demands facing economic and industrial policy formulation and implementation in the short-run can hence hardly be overstressed. Indeed, time is of the essence: economic recovery is called for in the short run, with a view to paving the way for a sustainable growth process in the medium- to long-term.

The Philippine economy has just gone through two consecutive years of substantial decreases of real GDP which taken together have amounted to a real loss of domestic value added of almost 10 per cent (see Table 1). GDP per capita has even fallen back below its mid-seventies level. Data available for the first half of 1986 indicate that the pace of the economic downturn was reduced (decrease of real GPD by -2.6 per cent as compared to first half of 1985) but could not yet be reversed into positive growth again. There are, though, positive developments such as a decline of only 1.2 per cent of manufacturing value added in the first half of 1986, with an increase of almost 1 per cent in the year's second quarter. This means that the GDP decrease for the first half of 1986 was lower than expected fuelling hopes that the revised Government objective of a modest growth (0.5-0.9 per cent) for the whole year 1986 may be within reach.

Private consumption still is at a depressed level due to a lack of purchasing power, mainly in rural areas. The same applies to private investment. There is a widespread lack of willingess to invest due to underutilized capacities and because of prevailing uncertainities. The share of gross domestic capital formation in GDP was more than halved between 1980

Table 1. Basic macro-economic indicators, 1980-86

	1980	1981	1982	1983	1984	1985	1986 (first half)
GDP (million pesos)							
- at current prices	264,652	305,274	340,585	384,095	539,411	610,063	303,565
- at constant 1972 prices	92,637	96,207	98,999	99,920	94,214	90,469	45,319
- annual real growth		3.9	2.9	0.9	-5.7	-4.0	-2.6
GDP per capita (pesos)							
- at constant 1972 prices	1,917	1,943	1,949	1,918	1,764	1,654	818
- annual real growth	1.5	1.4	0.3	-1.6	-8.0	-6.2	-5.0
Gross domestic capital formation (million pesos)							
- at constant 1972 prices	26,609	27,220	26,267	24,923	15,851	12,565	6,120
- share in GDP	28.7	28.3	26.5	24.9	16.8	13.9	13.5
Export value (million US$)	5,788	5,722	5,021	5,005	5,391	4,629	2,310
Import value (million US$)	7,727	7,946	7,667	7,487	6,070	5,111	2,441
Current account balance (million US $)	-1,900	-2,100	-3,210	-2,760	-1,290	105	300 a/
Total external debt (billion US $)	17.4	20.5	25.0	26.0	25.4	26.2	
External debt/GDP ratio	49.4	53.1	62.7	75.2	78.6	80.2	
Debt service ratio b/	7.3	9.8	13.1	15.6	14.1		
Labour Force (in thousands)	17,300	18,250	18,585	19,865	20,416	21,001	21,773 c/
Unemployment rate (per cent)	8.1	9.1	9.6	10.4	10.4	12.5	12.4 c/
Inflation rate	18.2	13.1	10.2	10.0	50.4	23.1	-1.4 d/
Exchange rate (annual average)	7.51	7.90	8.54	11.11	16.70	18.61	20.47e/

a/ Estimate for whole year.
b/ Long-term public debt service as percentage of exports of goods and services.
c/ First quarter 1986.
d/ July 1986.
e/ August 1986.

Source: Data provided by NEDA; Philippine Statistical Yearbook 1985; Business Day, 4 September 1986; Lloyds Bank Group, The Philippines, Economic Report 1985.

and 1986 (first half) when it was down to 13.5 per cent. Unemployment has reached 12.4 per cent of the labour force with underemployment in addition being anywhere between 20 and 35 per cent and capacity utilization rates mostly in the 40-60 per cent range.

Monetary and fiscal austerity measures taken in 1983 on the basis of debt-induced IMF prescriptions had positive results in monetory terms: The rate of inflation was brought down from 50 per cent in 1984 to 23 per cent in 1985 and in July 1986 there was even a rate of deflation of 1.4 per cent. Equally impressive has been the performance on the current account balance which was turned from a US $3.2 billion deficit in 1982 into a surplus of US $105 million in 1985. But, as mentioned above, the price to be paid for these achievements has been a severe depression, declining real incomes and increasing levels of unemployment and poverty.

An emergency employment programme has been launched by the Government earmarking ₱8.7 billion for rural infrastructure investments (e.g. barangay feeder roads; schools, communal irrigiation schemes) which are to generate roughly one million jobs till the end of 1987.[1/] The Mission is of the opinon that, indeed, in the prevailing situation of excess productive capacity, demand stimulation ('pump-priming') would seem to be a precondition for a resurgence of investment capacity. With inflation rates down at record low levels (actually being negative now) this strategy is not likely to create serious inflationary pressures.

Mainly as a result of these additional expenditures the fiscal deficit for the whole year 1986 is projected to reach P 27.9 billion which is tantamount to 4.4 per cent of GNP (from 1 April to 31 December the budget deficit will be limited to P 17.9 billion or 3.6 per cent of GNP). This is considerably higher than in previous austerity years (1.6 per cent of GNP in 1984; 2.0 per cent of GNP in 1985) and also much higher than the originally stipulated IMF-goal of 1 per cent of GNP. Given, however, that P 12 billion of the fiscal deficit are directly induced by external debt service requirements and further considering that the Government has to assume a

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1/ Five pilot regions have been selected as target areas for this programme: Tarlac, Bulacan, Camarines Sur, Misamis Oriental and Pampanga.

certain lead role in demand stimulation, this target was quite unrealistic from the start. The Mission feels that, in the short run, the fiscal deficit should not be considered the major yardstick of policy evaluation. In the medium run, however, efforts at reducing the deficit should receive full attention.

Obviously, the budget situation is highly interlinked with the country's external debt problem (for detailed data see Table 1 and Table 2). The Philippines is among the most heavily indebted countries in the world both in absolute terms (fifth-ranking in the amount of total debt) and in relative terms (fifth-ranking in debt service ratio and ninth-ranking in debt-to-GDP-ratio). What is more important, is that major portions of the accumulated debt have been used in the past for unproductive purposes, be it directly consumptive or for financing unviable projects. In other words: Foreign debt has been built up without at the same time creating or enhancing a corresponding debt servicing capacity in terms of productive assets.

There seems to be a basic consensus among Philippine economists and policy makers that economic recovery should not be paralyzed by prioritizing the servicing and repayment of debt. However, the operational approach to be adopted - ranging from further debt rescheduling agreements[1/] to a selective repudiation of 'bad loans' - is subject to considerable controversy. An innovative proposal put forward recently by the Minister for Economic Planning suggests to link debt service to the country's current account balance. Under this scheme a mechanism would be established which in case of a deficit would automatically recapitalize the interest payments due within an overall approach of growth-oriented debt management.[2/]

The future development of exports will be of critical importance both for achieving economic recovery and for the approach to be taken towards debt management . Unless the recovery effort is to be suffocated by an aggravating

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1/ Current reschedulings provide debt relief only until the end of 1986, resulting in an even larger debt service from 1987 onwards.

2/ Under this so-called interest conversion scheme, unpaid interest would automatically be considered new loans. It is important to note, however, that the Philippines is not unilaterally limiting its foreign debt service but is trying to arrive at an agreement with its foreign creditors.

Table 2. Total external liabilities

(in US $ million)

Item	31 December 1984	31 December 1985
By type of debt	25,418	26,252
Medium and long-term	15,926	17,679
IMF	973	1,232
Others	14,953	16,447
Short-term	9,492	8,573
Trade	5,274	4,854
Non-trade	4,218	3,719
By borrower	25,418	26,252
Non-banking system	17,188	17,376
Public	12,341	12,358
Private	4,847	5,018
Banking system	8,230	8,876
Central Bank	4,113	5,923
Commercial banks	4,117	2,953
By creditor	25,418	26,252
Commercial banks	14,721	14,474
Other financial institutions	1,089	795
Suppliers	3,103	3,264
Multilateral	4,090	4,486
Bilateral	2,276	2,860
Export credit agencies	656	786
Others	1,620	2,074
Others	139	373

Source: Central Bank of the Philippines.

foreign exchange shortage, there will have to be an increase in exports to counter the import surge induced by a higher aggregate demand. Accordingly, the emphasis put by the Government on a domestic market oriented development strategy needs to be complemented by strong efforts at export promotion as well as efforts to reduce the industrial sector's high import dependence (for details see Chapter IV.2 of this report).

A further aspect warranting attention is the issue of 'redistribution versus/cum growth' which has a bearing also on the question of import dependence. The new Government has inherited a society characterized by glaring inequalities in the distribution of income and wealth. To reduce these prevailing income distribution disparities is more likely to be in harmony than in conflict with the growth objective. It is a variety of factors that come into play here among which are to be mentioned: increasing labour productivity (to the extent that absolute poverty is being reduced), higher labour-intensity of production, thus economizing on capital as the scarcest factor, and a lower import ratio because of changing patterns of aggregate demand. Indeed, it can be argued that the Philippines has in the past been caught in a 'growth trap' partly due to excessive inequalities and that the latter's removal could release additional hitherto untapped sources of growth.

The guiding principles of the new Government's economic programme are: respect for human rights, promotion of social justice, poverty alleviation, attainment of growth and greater efficiency, with minimum government intervention. Among the essentials is a strong reliance on market forces which are to be reasserted after the distortions that have developed in the past. Private initiative is particularly emphasized: "The private sector shall be the engine of growth."[1/] First steps to be taken in that direction include the dismantling of monpolies in major agricultural sectors as well as the privatization of Government-owned industrial corporations.

In general it is understood that the new Government will give high priority to forceful agricultural sector development, including promotion of agro-industries, in the country's provinces, the basic goal being to improve the purchasing power of the more than two-thirds of the population living in rural areas. The proposed emergency employment programme, as mentioned above, calls for the channelling of additional resources to rural infrastructure projects (e.g. farm-to-market roads, irrigation systems) as well as for policies promoting the agricultural sector (e.g. through credit extension to the rural poor tied to equity considerations rather than pure economic efficiency ratings). The programme also envisages the Government playing an active role

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1/ Policy Agenda for People-Powered Development, June 1986.

in improving marketing infrastructure and fostering competition in agricultural trading, rather than actively taking part in domestic and international marketing of farm output.

While it is understood that for the near future the Government has accorded priority to the agricultural sector, the Mission wishes to emphasize that industry, inter alia, has an important role to play in supporting agricultural and rural development. The close interactions and linkages between agriculture and industry (see in particular Chapter III.1 of this report) call for a balanced approach which takes into account the diverse functional relationships between the two sectors. The Philippine Government is well aware of this requirement which is reflected in the special emphasis given to agro-based industries, to small-scale industries as well as to a stronger regional dispersal of industrial development.

II. OVERVIEW OF THE MANUFACTURING SECTOR

1. Basic characteristics

The Philippine industrial development since independence has passed through different phases from import substitution, chiefly for consumer goods, in the 1950s and 1960s towards export-oriented development of labour-intensive industries, especially garments and electronics, in the 1970s. The shift towards export orientation during the 1970s was to some extent successful in bringing about rapid growth of exports of labour-intensive manufactures, but some of these industries proved vulnerable to overseas recession and protectionism and they did little to contribute through linkages to general industrial development. A heavy-industry programme, centered on eleven major projects, was launched in 1979 but soon financial constraints sharply curtailed the programme.

The present structure of the Philippine industry reflects a concentration either on industries processing agro-products or industries producing end-products for domestic consumption and export. The import content of these industries is relatively high, as capital goods and intermediate goods industries are still little developed and inter-industry linkages weak. In general, the situation of the sector, as a result of past policies, is characterized by:

- a general inefficiency of production.
- inadequate utilization of current comparative advantages, viz. labour-intensive processes and domestic raw material processing.
- import-dependent production processes.
- lack of technological innovation.

Although special attention was given, in the initiation of systematic industrial restructuring work in the early 1980's, to ways and means to diversify the industrial structure in order to effect a shift from consumer goods oriented industries to those producing more basic and strategic, intermediate and capital goods, the fact remains that much manufacturing continues to be limited to the end-product (often assembly) stage with heavy import contents. Little attention has been paid to materials research to foster the use of local raw materials or (semi-processed) intermediate

materials. The local know-how has often been limited to assembly of imported inputs and the technical capabilities have not been developed to meet the challenges of product development in general.

2. Structural analysis

Whereas a marked increase of the share of manufacturing in GDP is to be observed almost invariably in other developing countries of the Southeast and East Asian region, this does not apply to the recent economic history of the Philippines (see Table 3). Between 1970 and 1986 the share of manufacturing has remained almost constant at some 23-24 per cent of GDP; during the last 10 years it has even slightly declined. This implies that manufacturing has not been playing the role of a leading dynamic sector of the economy as the experience of many other countries would suggest it could have. In almost the same period (1970-third quarter 1983) manufacturing employment grew by only 2.6 per cent annually, i.e. at a rate significantly below the 4.1 per cent average annual growth of total employment. Hence the share of manufacturing employment in total employment went down by 2 percentage points to less than 10 per cent (see Table 4). This recent development plus the fact that the share of manufacturing in GDP is roughly 2.5 times higher than its employment share, is clearly indicative of the high overall capital-intensity of manufacturing production that needs to be corrected in the future. According

Table 3. GDP by industrial origin, 1970-86
(in constant prices of 1972; percentage share)

Sector	1970	1975	1980	1985	1986 (1st qtr.)
Agriculture	28.9	26.6	25.6	28.7	31.1
Industry	29.5	33.2	36.1	32.0	31.5
- of which manufacturing	23.2	24.2	25.0	23.9	23.6
Services	41.6	40.2	38.3	39.3	37.2

Source: Philippine Statistical Yearbook. 1985; Philippine Economic Indicators, June 1985.

Table 4. Manufacturing employment, 1970-83

(in thousands)

		1970	1975	1983 (3rd qtr.)
(1)	Total employment	11,358	14,517	19,212
(2)	Manufacturing employment	1,354	1,651	1,887
	(2) as per cent of (1)	11.9	11.4	9.8

Source: Philippine Statistical Yearbook, various issues.

to World Bank estimates the rapid GDP growth of the seventies was indeed achieved at a high cost: each additional unit of output required about 35 per cent more capital than in comparable Asian countries (cf. World Development Report 1986).

Turning now to trends relating to the manufacturing sector's internal structure, a number of further observations can be made (see Table 5 and Table A-4 for absolute figures):

- Food industries (including sugar as one of the major export products) have always been the country's dominant industrial branches. Their share has, however, increased very much between 1970 and 1986 (first quarter) to the extent that they now account for more than two-fifths of total MVA. This again is not what one would expect on the basis of development patterns in many comparable industrializing countries.

- Among the largest branches in terms of its MVA share is electrical machinery with 7.2 per cent. It has almost tripled its share within 16 years, as the Philippines has come to be used as an export platform for foreign enterprises which have redeployed labour-intensive segments of the production of light consumer electronics (largely EPZ based).

- The only other branch that has managed to substantially increase its MVA share (to 5.3 per cent now) is footwear and wearing apparel which is now ranking fourth. This development again is almost exclusively due to foreign investment, garment production being the second classical redeployment candidate.

- While basic metals, metal products, non-electrical machinery and leather and leather products have achieved slight increases in their MVA shares, all other branches, including in particular chemicals and chemical products (second ranking with 8.0 per cent) have been on the losing end of structural changes.

Table 5. Distribution of MVA by industrial branches, 1970-86

(in constant 1972 prices; percentage shares)

Branch	1970	1980	1984	1985	1986 (1st qtr.)
Food	27.0	36.2	40.1	40.0	43.4
Beverages	5.4	3.2	3.5	3.7	3.1
Tobacco	7.1	4.5	3.8	4.5	4.4
Textiles	6.0	4.5	4.1	3.4	3.5
Footwear, wearing apparel	3.2	4.4	5.6	6.0	5.3
Wood, cork	4.3	2.9	2.5	2.5	1.7
Furniture, fixtures	0.6	0.6	0.6	0.5	0.5
Paper, paper products	2.6	0.8	0.8	0.7	0.8
Publishing, printing	2.0	1.4	1.6	1.8	2.0
Leather, leather products	0.2	0.3	0.3	0.3	0.3
Rubber products	1.6	1.3	1.4	1.3	1.3
Chemicals, chemical products	13.5	10.2	7.7	7.9	8.0
Products of petroleum, coal	7.8	5.9	5.4	5.3	4.5
Non-metallic mineral products	3.3	2.5	2.1	1.7	1.7
Basic metals	3.1	5.7	4.8	5.0	4.5
Metal products	3.0	4.5	3.2	3.5	3.2
Machinery, except electrical	1.4	3.1	1.9	1.9	2.1
Electrical machinery	2.6	5.0	8.4	7.4	7.2
Transport equipment	3.9	3.8	0.5	0.6	0.7
Misc. manufactures	1.3	1.1	1.8	2.1	1.9
Total	100.0	100.0	100.0	100.0	100.0

Source: Philippine Statistical Yearbook 1985; Data provided to the Mission by NEDA.

In summarizing, a certain precariousness of the country's industrial structure is to be noted. On the one hand, food industries, as such subject to large and uncontrollable world market price fluctuations, have become ever more dominant. On the other hand, the recent drive in the promotion of non-traditional exports depends largely on a narrow range of garments and consumer electronics products which are increasingly facing a severe international competition and protectionist barriers in developed countries. These two product groups alone in 1985 accounted for almost 60 per cent of all non-traditional manufactured exports. In the same year, exports of electrical and electronic products - which until 1984 had been consistently on the increase - dropped drastically by 21 per cent due to the glut in international market (see also Chapter IV.2).

3. New industrial policy approach

While the operational details of the new Government's industrial policy are still largely under discussion, its leading guidelines have been formulated and adopted by the Cabinet. They include primarily the following principles:[1/]

- In order to reverse the prevailing pattern of urban-oriented, capital-intensive and large-scale industrialization, it is intended to primarily promote small-scale, labour-intensive enterprises in the rural areas. This strategy is aimed at reducing the degree of import dependence, contributing to a more equitable regional dispersal of industries and increasing employment and incomes, particularly in rural areas. This implies that industrial development is to a large extent seen as complementing agricultural development to which it is to be linked more strongly.

- In the short term, i.e. until economic recovery leads to rising investment activity, priority will be given to the effective utilization of industrial excess capacity. Attention will be given to the provision of training and information, the easing of bottlenecks in input supplies, improvement of infrastructure particularly in rural areas, easier access to credit and technical and marketing assistance services.

- Production and export of light consumer goods shall be continued; subcontracting arrangements between small, medium and large enterprises will be promoted.

- Far-reaching reforms are planned with regard to the present system and structure of protection. In order to make local industries more competitive, trade is to be liberalized. Before the end of 1988 all quantitative restrictions (except those imposed for health and safety reasons) are to be removed. Tariffs will then be the principal protective instrument. Temporary (and non-extendable) increases in tariff rates are foreseen to be granted to those industries requiring interim protection.

- Furthermore, the system of incentives is to be reformed, i.e., investment and export incentives are to be simplified with the final aim of totally phasing out export incentives until 1991. The role of the Board of Investments is to be reviewed. Import controls by bonded manufacturing warehouses and simplified duty drawback schemes are to be favoured over export processing zones as less costly alternatives for promoting exports.

1/ The following paragraphs basically summarize the trade and industry policy chapter of "Policy Agenda for People-Powered Development", adopted in principle in June 1986 by the Cabinet, from which they partly quote.

- Foreign investments shall be welcomed and encouraged but principally to complement domestic investments in areas where the latter is inadequate. Foreign investments shall be encouraged in high value added, export-oriented, and employment generating activities to maximize their contribution to the economy. The full repatriation of profits shall continue to be allowed for all investments registered with the Central Bank. Incentives to foreign investors shall put emphasis on facilitating entry and providing adequate infrastructure as well as a healthy business environment.

- Science and technology development in the industrial sector shall be geared towards increasing productivity and international competitiveness. The Government shall assist the private sector in research and development to meet the scientific and technological requirements of industries.

In a first move to strengthen the country's private sector and to reduce the degree of direct Government involvement, a programme of public divestment has been announced. The Presidential Commission on Government Reorganization (PCGR) has proposed the intended sale of 87 out of a total of 214 non-financial Government-owned organizations, including e.g. the Philippine National Oil Company and the National Steel Corporation. According to these plans, the Ministry of Trade and Industry would be the most heavily affected of all ministries and divested of 19 corporations. (For basic information on those corporations open for foreign investment see Annex III.)

III. REVIEW OF SELECTED INDUSTRIAL BRANCHES

1. Agro-industries[1/]

The agricultural sector (including livestock, poultry, fishing and forestry) has remained over the years the backbone of the Philippine economy. Its GDP contribution stands at roughly 30 per cent (29 per cent in 1985; 31 per cent in the first quarter of 1986) thus considerably surpassing that of manufacturing. Agricultural production generates more than 60 per cent of total export earnings and provides jobs to some 50 per cent of the total labour force. As can be seen from Table 6 total agricultural production is highly concentrated on a few major crops with paddy and corn accounting for 55 per cent of all food crop production and coconut and sugar cane for 82 per cent of all commercial crop production (in volume terms).

Table 6. Agricultural crop production and crop area harvested, 1971-85

	Production (Million tons)				Area harvested (Million hectares)			
	1971	1980	1984	1985a/	1971	1980	1984	1985a/
All crops	15.864	29.809	27.333	27.093	9.215	12.133	11.739	11.865
Food crops	11.016	21.837	20.859	21.092	6.463	8.222	7.731	7.890
thereof								
- paddy	5.578	7.836	7.841	8.200	3.195	3.637	3.141	3.222
- corn	2.012	3.123	3.346	3.439	2.428	3.201	3.270	3.315
Commercial crops	4.848	7.792	6.474	6.001	2.752	3.911	4.008	3.985
thereof								
- coconut	1.679	4.570	2.922	2.168	2.048	3.126	3.217	3.275
- sugar-cane	2.980	3.121	3.260	2.748	0.442	0.425	0.479	0.407

a/ Preliminary.

Source: Bureau of Agricultural Economics.

1/ This section relies to some extent on the draft report of the Inter-Agency Mission to the Philippines on Policies and Strategies on Agrarian Reform and Rural Development which was carried out with UNIDO participation concurrently with the Industry Sector Assessment Mission.

With the strong emphasis that the new Government has put on an agriculture-led development approach it is imperative that the resulting industrial potentials and prerequisites be carefully studied to ensure the attainment of a sectorally balanced development path. International cross-country data clearly indicate that for various reasons agricultural and industrial productivity are highly correlated.[1/] In general, the linkages between agriculture and industry are twofold: forward linkages lead to agro-based industries ('industries from agriculture') processing agricultural raw material whereas backward linkages point to the important role of agro-support industries ('industries for agriculture') providing essential inputs for the agricultural production cycle (machinery, fertilizers, preserving agents etc.).

1.1. Agro-based processing industries

1.1.1. General requirements

In attaching high priority to agricultural sector development the new Government is well aware of the fact that the development of agro-based industries is to receive equal importance. With the exception of fresh fruits and vegetables, agricultural outputs require industrial processing in order to become food items which have to be preserved, packed and stored for appropriate distribution. The same applies also to agricultural non-food products such as wood and natural fibres which have to be converted by relevant indutrial processing operations into consumer goods (furniture, textiles etc.). The agro-based industry, therefore, provides the immediate market for agricultural outputs and agriculture can only be developed with the support of agro-based processing industries in a well planned concerted action to be taken in close co-operation between the Government authorities in charge of agriculture, of industry and - as far as food is concerned - of health.

The agricultural sector is characterized by large monocultures, as for example coconuts and sugar-cane both of which presently cause considerable problems as they are strongly dependent on exports of semi-finished (copra)

1/ Cf. Linkages between Industry, Agriculture and Food Production, UNIDO/IS.140, 18 June 1985, p.2.

and finished products (sugar, coconut oil) and export prices are very low with little hope for immediate improvement. It might, therefore, be useful to diversify agricultural outputs for use as industrial raw materials for the production of a variety of food products for domestic and export marketing as well as consumer goods (wood). However, agro-product diversification - in the light of the present situation - will hardly show immediate results as not only production problems will have to be solved but also social problems call for satisfactory solutions as well as the problems of restructuring and retraining which normally take time.

Before discussing below selected important agro-processing industries in more detail, some rather general observations on food processing are in order. In the case of food processing industries and in particular to the extent that they are export-oriented, the requirements concerning product quality (including, first of all, hygienic standards) are very demanding indeed. This relates to the need to constantly produce a uniform product with regard to appearance, ingrediences, quality, packaging etc. which is able to meet international competition. This implies that, as far as food exports are concerned, small-scale production units may not (or only in exceptional cases) be in a position to meet these requirements of standardization and reliability as the corresponding technical facilities should be available at the plant level.

However, in spite of the excellent export potential of processed Philippine food there is no national body involved with ensuring that only those products actually leave the country which meet established quality criteria. The establishment of a National Quality Certification System together with the required laboratory facilities is thus urgently recommended, based on attempts being made to formulate standards by the Productivity and Development Centre of the Development Academy of the Philippines and the Food Development Centre.

Another important area of priority attention relates to potentials in developing new packaging materials based on available relevant natural resources. It may not generally be possible to develop natural packaging materials to replace the widely used synthetic products but special packaging materials may find uses in connexion with some food items and at the same time

make them more attractive in export and domestic markets. Such food products may be spices, dried fruits and/or special typical Philippino food items (ethnical food). Special development work carried out in the food packaging sector appears to be very promising and should be further strengthened on a priority basis.

A further essential requirement is an enhanced co-ordination between agricultural production and agro-industrial processing. In order to faciliate the production of the end-product (food and others) in demand, agricultural production has to be oriented towards the raw material requirements of the processing industry. If the raw material requirements of the agro (food) industry are not properly observed in agricultural production efficiency will suffer and market demand for the end-product cannot be met with regard to both quality and quantity. Indeed, the installed capacity of the food processing industry in developing countries in general is only utilized to approximately 50 per cent on an average. This unsatisfactory situation is predominantly caused by insufficient agricultural raw material supplies or lack of supplies due to inadequate planning/co-ordination.

The agricultural raw material requirements of the (food) processing industry have to be guaranteed by appropriate measures to be taken by industry and public authorities, such as:

- long-term contracts with price guarantees; or
- relevant production planning/co-ordination with all its implications; or
- the establishment of agro-industrial combines;

The creation of a "Policy Co-ordination Authority" under the chairmanship of the Ministry of Trade and Industry, would be required to inform, advise, control and - if required - instruct on all measures to help guarantee the agro-industrial production efficiency through adequate agricultural raw material supplies.

1.1.2. Coconut processing

Up to last year, the Philippines was the world's largest coconut producer and processor with an annual production of more than 20,000 million

nuts and 4.5 million tons of copra or a surplus of 2.3 million tons of coconut oil.

For many reasons, the Philippines today is only the second largest coconut producer after Indonesia and has lost its leading position in this particular sector. In the light of the present very unfavourable world market price situation of coconut oil and copra, this fact is not really alarming and might even turn out to be advantageous in the long run. However, the problems faced by the still very large coconut sector are serious as coconuts are the backbone of large rural communities traditionally engaged in coconut and copra production being their only source of income with hardly any practical alternative. Despite massive replanting programmes the bulk of coconut trees belong to the 60-year-old category, a factor that contributes to the fact that coconuts generate the lowest income per hectare of all leading Philippine commercial crops.

At present there are no signs of a world market price recovery and it appears that coconut oil and copra may not play again a leading role in the vegetable oil market. Vegetable oils have largely become interchangeable and soya oil and particularly palm oil play the dominating role in price regulations. Supplies will continue to exceed the demand in the foreseeable future which, therefore, does not look very bright for copra and coconut oil, the traditional coconut products of the Philippines. Hence, further promising areas for coconut-processing should be thoroughly analyzed, both in technical and economic terms.

Coconut food

Coconuts are not only a vegetable oil crop but also a raw material for (protein) food production. Again there are the traditional products like desiccated coconut and particularly coconut cream, the production of which only recently developed from household production to an industrial scale and for which a steadily increasing market demand exists.

However, the time is over-ripe for further structural changes away from copra crushing and towards the production of coconut food products which for a long time have been much neglected. The production of coconut cheese for

example might find a large market in Asia where cow milk is not easily acceptable by the population. There are some other coconut food products which are only made in households and which are hardly commonly known and there may be others to be developed for industrial production and local marketing as well as for exports.

It is, therefore, considered important to actively enter into coconut food product and process development work which may be carried out under UNIDO assistance by well established institutes (such as the Department of Food Science and Technology, UP-Los Banos) with or without outside expert assistance. The development work may be based on existing knowledge to be updated and it appears that results are likely to be achieved in the very near future.

Coco chemicals

Coco-chemicals appear to be another alternative to copra crushing and coconut oil production. It may, however, be difficult to find markets for products like fatty alcohols, fatty acids, esters etc. with the exception of C_{12} fatty acids or their derivatives which are in demand by the surfactant and similar industries. Efforts to enter this particular sector of coco-chemical production might thus only be successful in connexion with joint ventures or other forms of partnership with overseas importers/processors.

1.1.3. Sugar processing

Sugar production has recently suffered strongly from fluctuations in world market prices. In 1983 sugar prices declined to a record low since 1970, by late 1984 they were down even further to less than one half of the 1983 level. As a consequence of this extremely low price level numerous sugar farmers have stopped the cultivation of their fields resulting in serious social and economic problems. An estimated number of 700,000 workers have become unemployed in this process.

Crop diversification and crop substitution programmes are one possible response to the crisis. However, vegetable growing which could be a much more profitable alternative is largely excluded because of climatic and soil requirements whereas rice and corn growing, certainly a feasible alternative,

is facing a situation of domestic self-sufficiency while not being competitive at current world market prices.

A more promising option lies potentially in efforts at better utilizing sugar by-products. The main by-products are bagasse, molasses and filtercakes of which, depending upon the quality of cane crushed by the sugar mills, normally around 25-30 per cent, 4 per cent and 3-8 per cent are obtained, respectively. It is worthy of note that in some countries the industrial exploitation of these by-products has meanwhile become the major source of revenues from sugar manufacturing whereas in the Philippines their utilization leaves much scope for further intensification. Recently an increased demand in particular for molasses has been observed and accordingly, prices have soared from P300-400 per ton to P1,900 per ton within only two years. Despite a resulting shift of previously exported volumes to the domestic market, demand is now heavily in excess of supply (roughly 900,000 metric tons per year). The known downstream products of molasses include industrial alcohol, cattle feed, citric acid, bakers yeast, lactic acid, microbial fats, fodder yeast, acetate rayon yarn, liquid sugar and power alcohol. Bagasse can be used as fuel or for the production of papers of various grades (including newsprint), paper board, particle board and furfural. However, bagasse is a perishable commodity requiring specific storage techniques.

Some hope may be placed in the revival of the ethanol programme envisaging the eventual production of 600 million litres of alcohol annually from sugar cane which are to be substituted for tetraethyl, a gasoline additive. This programme could contribute substantially to saving foreign exchange while at the same time reducing sugar output by some 25 per cent as well as reducing the risks involved in a massive crops diversification programme (see also Chapter III.3 of this report).

Generally, it should be added that most of the production processes available for the commercial use of sugar by-products are technologically sophisticated, and highly capital-intensive requiring a selective choice of those suitable for the conditions prevailing in the Philippines. What is required above all at this stage is first complete knowledge about the range of internationally available technologies, second detailed market studies on the most promising downstream activities for the Philippines and third pre-feasibility studies concerning recommendable investment projects and their profitability.

1.1.4. Wood processing

Given the enormous timber and rattan resources of the Philippines there is a large yet only partly tapped potential for industrial wood-processing activities, mainly but not exclusively relating to furniture making. Currently the furniture industry comprises some 4,000 to 5,000 registered firms providing work to some 50,000 workers (with some 10,000 additional unregistered 'backyard' manufacturers). Furniture-making is a labour-intensive activity predominantly relying on locally sourced raw materials and suitable for small to medium scale production units.

The sector doubtlessly calls for modernization with regard to equipment and working methods and expert advice may be required in many forms. The decisive factor for development, however, certainly lies in specialization, product standardization and overall restructuring measures to be introduced and voluntarily implemented by the small and medium enterprises themselves. In case these principle efficiency requirements should not be met by the industry then only large scale enterprises will survive and the great number of traditional small enterprises will soon be out of business. Such unfortunate development would certainly very negatively influence rural and social development and would counteract the overall policy of the new Government.

Instead of manufacturing the complete piece of furniture from the beginning to the end in one small workshop, several workshops will have to participate in the manufacturing process, each specializing in the production of specific parts of the furniture item or specialized in assembling.

Both standardization and specialization are essential for the overall restructuring process to take place. In order to bring about the required restructuring, considerable work will have to be carried out by the authorities as well as relevant associations to inform and to convince particularly the small enterpreneurs as to the benefits to be obtained therefrom. Seminars may be organized along with expert advice to this effect and other relevant measures may be taken within the framework of an information campaign to be started with UNIDO assistance if considered appropriate.

The Chamber of Furniture Industries of the Philippines has recently suggested to establish 'woodworking villages' throughout the country in an attempt to enhance productivity and international competitiveness through specialization and complementation. Within this approach, specialized equipment could be economically used and as a further advantage, the combined requirements of many organized producers would provide a leverage in negotiating for reliable and cheap raw materials supplies. The latter aspect is particularly important as currently the industry suffers from the fact that the plywood and lumber mills are exporting most of their high quality timber. This in turn has resulted in problems of meeting delivery schedules and quality standards thus contributing to the low competitiveness of Philippine furniture in export markets.

The woodworking and furniture subsector is particularly strong in Central Visayas (Region VII) where it accounts for almost 40 per cent of total manufacturing employment and some 20 per cent of manufacturing firms. Rattan and buri furniture have emerged as particularly dynamic segment ranking third in the region's top export products and accounting for almost 70 per cent of the total value of Philippine rattan furniture exports (1980). At the same time, the industry has been suffering recently from the unavailability of high quality raw materials and from an increasingly fierce international competition. Modernization, technological improvements and adaption of technology to local conditions hence is called for. As both the Forest Products Research and Industries Development Commission and the Philippine Design Centre are Manila-based and provide insufficient specialized expertise for the needs of export-oriented furniture making, the establishment of a new Cebu Furniture Centre has been suggested. The Centre is to serve as a furniture research and development centre, a furniture industry training centre, a technical and market information centre and a testing centre. In view of the fact that the furniture industry is definitely among those best suited to the country's comparative advantage (see also Chapter IV.2), assistance to the proposed Centre should receive high priority from UNIDO.

Rattan working

Although the rattan working sector forms a special branch of the furniture production sector, the same requirements exist namely standardization, specialization and restructuring. In addition, particularly

finishing needs to be improved by applying modern methods of surface treatment, painting and last but not least the development of designs meeting with the demand patterns in specific markets.

Wood construction

Within the framework of rural and infrastructural development, the wood construction sector may play an important role. This applies to low cost housing and to wooden bridges and industrial/electrical support structures as well.

Improved construction designs will have to be introduced for example in the field of wooden bridges where UNIDO could be of special assistance. New designs may have to be developed and standardized for use in rural areas in the field of electrical supports and special pre-fabricated house structure designs may be developed based on practical usefulness and adequate costs. If appropriately approached, the wooden housing sector may have a good chance for domestic marketing thereby widening the production opportunities of the wood construction sector and this may also apply to wooden bridges of various sizes and designs.

Relevant information dissemination is needed in the form of seminars, workshops and other means, for instance, in the form of model construction designs to be displayed and discussed with producers and users.

1.1.5 Processing of natural fibres

Fibre crop production is a relatively important agricultural subsector in the Philippines supporting the livelihood of more than 1 million farmers and farm workers as well as more than 2 million workers in processing activities; be it into pulp as a semi-finished product or into simple end-products such as fibercrafts, cordage and yarn. Although most of the fibres are exported as raw materials, it is manufactures which due to their higher value account for more than two-thirds of natural fibre-related export earnings.

Wheras 39 fibres of economic value are known in the country, only some 10 of them are actually traded in the market (among them abaca, ramie, buri, kenaf, and coir, a coconut by-product). Some important development work

has already been carried out in the Philippines in the natural non-traditional fibre sector, in particular work referring to buri, banana, ramie and others. The fibres developed and already produced in limited quantities, however, have not so far been able to find the expected markets in quantities which permit industrial production. Development work has not only come to a stand-still but has been taken up and further developed abroad.

The textile sector (see also Chapter III.2 of this report) is dominated by the traditional fibres like wool, cotton, silk etc. which were modified to meet a great variety of uses. The modifications allowed them to be combined with synthetic fibres already largely available on the market. New traditional natural fibres such as coir and non-traditional fibres like buri, banana etc. necessarily require a longer and more complicated production process involving higher total production costs which make them non-competitive with the traditional textile fibres. Special quality criteria may be an advantage but these criteria must be outstanding and even then the cost factor will play a decisive role. The only newly developed non-traditional fibre which appears to be on the road to success is ramie with its very special quality characteristics and still reasonable price structure if industrially produced and used in the textile industry.

New non-traditional fibres already developed may find uses other than in the textile industry and may have to be modified for such non-textile uses which may perhaps be found in certain fields of the packaging sector. As always in industry, it is the market which dictates production. And research and development work need to be guided by market demands and economic considerations and not only by raw material availability and product property and/or quality.

Still, the natural fibre development sector in the Philippines deserves support and special assistance. The development work to be continued will have to be selective, concentrating on those products with the best chances for industrial production and marketing. In addition to the technical development work, economic evaluations should be carried out to guide the progressing applied research operations and to identify those production stages which need simplification and cost reductions in order to pave the way for later industrial uses.

The Fiber Development Authority (FiDA) which is the responsible agency for promoting research on as well as production and marketing of indigenous natural fibres has proposed the establishment of a Fibre Processing and Utilization Laboratory with UNIDO assistance.

1.2. Agro-support industries

There generally are a variety and diversity of industries which provide direct inputs to agriculture and agro-industries, having a strong influence on their productivitiy (see the overview given below). Because of their diversity, however, their economic effects have not been systematically and quantitatively assessed. The following comments are based on information received during the Mission:

Primary support industries related to agricultural development and food processing

Activity	Input needs	Primary support industries
Soil preparation and maintenance	implements/equipment	foundries/forges, engineering industries
	soil modifiers (water retention, pH controllers)	chemical industries (perlite, inorganic chemicals, fertilizers)
Planting	seed, implements/equipment	foundries/forges, engineering industries, fertilizer industries, chemical industries
Growing and cultivating	water/irrigation, implements/equipment, fertilizers, pesticides	foundries/forges, engineering industries, fertilizer industries chemical industries
Harvesting	implements/equipment transportation	foundries/forges, engineering industries
Storage and preservation	packaging materials, storage depots, chemicals	chemical/plastics industries, engineering industires, steel/ aluminium industries building materials inddustries
Processing	food processing, materials chemicals	capital goods industries, packaging industires, chemical industries
Distribution	warehouses, transportation equipment	building materials industries capital goods industries, engineering industries, foundries/forges

- Foundries, engineering industries (mechanical workshops and rural blacksmiths). Well functioning rural foundries, mechanical workshops and engineering industries are fundamental for rural and agricultural development. These are the providers of most implements and equipment for small farmers and provide spare parts and essential maintenance services. Opinion was unanimous that this is one of the weak links in rural agricultural development, urgently needing strengthening and upgrading.

- Fertilizers. With the exception of some phosphate fertilizers produced in the Philippines, all chemical fertilizers are imported. Biomass-based natural fertilizers are being produced, but the technology should be disseminated as fast as possible in all rural areas since abundant biomass resources are available. The technology to concurrently generate energy through biogas generation is also readily available.

- Pesticides and herbicides. The chemical industry is the weakest link in the country's industrial sector. Practically all specialty, proprietary and fine chemicals are imported, including pesticides and herbicides. Although establishing an indigenous industry will take a long time, a start could be made by starting with the production of chemicals used in largest quantities.

- Post-harvest storage facilities and shipping containers. The entire area of post-harvest handling of agricultural products, from rice and corn to fruits and vegetables is said to be one of the weakest parts of the country's agricultural system. An in-depth survey, crop-by-crop, should be made to identify shortcomings, based on which plans can be made to provide the required industrial inputs, be it controlled temperature or bulk storage facilities, shipping containers and crates for fruits and vegetables, or bulk handling facilities. Many of such support industries would be amenable for local production (e.g. storage buildings, crates).

- Industries providing inputs to food processing industries. The quality of cans made in the Philippines leaves much to be desired, as stated on numerous occasions. Since large quantities of canned goods are produced for export, improving the quality of cans is a primary requisite and the industry clearly needs technical help. As the first step, a detailed survey of the technological level of can making is strongly and urgently recommended, based on which corrective action can be started. Other packaging materials (plastic and laminated foils, bottles, paper containers, etc.) are well developed, but improvements are necessary particularly for products to be exported. Other chemicals (food colours, preservatives, printing inks, lacquers, etc.) are mainly imported and their local production will be difficult to start (except through licensing). The machinery used in food processing is mainly imported, although some local manufacturing is also undertaken. Production of food processing equipment and machinery should be generally accelerated as much as possible, if economically justified, also because servicing of locally made machines would be easier.

2. Textiles and garments industry

The textiles and garments industry, though accounting for only some 10 per cent of total manufacturing value added (9.4 per cent in 1985) is of outstanding importance as industrial employer with a combined employment share far exceeding that of the first-ranking food industries: In 1980 (the last year for which exact figures are available) garment industries generated 16 per cent and textiles industries 13 of manufacturing employment which testifies to their relatively high labour-intensity of production. In 1981, textile industry employment was drastically reduced, however, by 20 per cent.

The overall structure of the industry is characterized by a textiles industry that has remained largely domestic market oriented with direct and indirect (sales to garments exporters) exports accounting for less than 10 per cent of total production. Garments on the other hand, are highly export-oriented the standard practise being that imported fabrics are made up either in export processing zones or in factories with bonded warehouse facilities. The rapid increase of garments exports (from US $300 million in 1978 to almost US $600 million in 1984) has made the Philippines the largest ASEAN garments exporter but at the same time the second largest (after Singapore) yarn and fabric importer. Table 7 presents data on the 1985 garments and textiles exports which, however, largely reflect the structure of

Table 7. Export value of garments and textiles, 1985

(FOB value in thousand US dollars)

Importing country	Export value	Percentage share
Quota countries	578,674	87.6
USA	455,461	68.9
EEC	91,610	13.9
Canada	26,399	4.0
Sweden	3,237	0.5
Norway	1,080	0.2
Austria	886	0.1
Non-quota countries	82,322	12.4
Japan	17,009	2.6
Australia	8,442	1.3
Others	56,871	8.6
Total	660,996	100.0

Source: Garments and Textiles Export Board.

garments exports alone (the latter accounting for some 85 per cent of the total).

It is evident from Table 7 that the bulk of exports (87.6 per cent) were directed to quota markets with the US-market alone accounting for more than two thirds of the total. Hence, geographic market diversification is of the essence and it may be considered as an encouraging sign that exports to non-quota markets in general and to Japan in particular exhibited above-average growth in 1985 (4.4 per cent and 9.2 per cent respectively, as compared to an overall growth of 2.2 per cent).

The Philippine textile industry is currently in an extremely difficult position with internal shortcomings that have accumulated over time being compounded by adverse factors beyond the industry's control. As the growth of textiles consumption is closely related to income growth with an elasticity value that for most ASEAN countries has been around 1.2, the Philippine textiles industry was seriously affected by the recent recession. Total domestic consumption of textiles was reduced by close to 30 per cent between 1980 and 1984.

Perhaps the single most important constraint that the textiles industry is suffering from is the outdated equipment. The Philippines was the pioneer among ASEAN countries in the textiles field. After 1965, however, the introduction of new spindle capacity stagnated in contrast to rapid capacity increases and modernization in other ASEAN countries, encouraged by investment-related Government incentives. Between 1961 and 1984 the Philippine share in all spindles in ASEAN countries was reduced from 70 per cent to 19 per cent. It is not surprising, then, that a large proportion of aging and badly maintained equipment is to be found. As shown in Table 8, 36.4 per cent of all spindles and 48.3 per cent of all looms are more than 25 years old. This is one of the explanations for the low machine productivity achieved in the spinning sector which in the Philippines is roughly 25 per cent below that in, for instance, Thailand.

A further constraint to be mentioned is the low degree of specialization which together with a lack of competitive pressure due to high protection rates has kept productivity at low levels. In this context it is noteworthy that average per spindle productivity of the specialized firms is some 35 per cent higher than that of the integrated mills.

Table 8. Textiles industry: Age distribution of spindles and looms

		Pre-1950	1951-1960	1960-1975	Post 1976	Total
Spindles		53,600	370,200	523,100	249,800,	1,196,700
	(per cent)	(5.4)	(31.0)	(43.7)	(20.9)	(100.0)
		Pre-1960	1960-1970	1970-1981	Total	
Looms		9,454	5,500	4,600	19,554	
	(per cent)	(48.3)	(28.1)	(23.6)	(100.0)	

Source: Scope and Outline for ASEAN Regional Co-operation in the Textiles and Textile Products Industry (UNIDO/IS/R.17), 24 June 1985.

Moreover, there is a noticeable lack of trained textile engineers at the plant level. The country has more than 150 textile plants of significant size. There should be at least one fully qualified technologist in each of the plants other than knitting-only plants. For these latter, well qualified machine technicians may suffice in those plants which specialize in circular, or warp, or flat-bed knitting operations. A fully qualified knitting technologist as plant manager may be desirable in those of the large knitting-only plants which carry out different types of knitting operations. The respective manpower requirements of the industry therefore may be around 100 or so fully qualified technologists for spinning, weaving and finishing sectors and some 50-60 qualified technicians for the knitting sector.

As mentioned earlier, export-oriented garments manufacturing has been a major growth branch in the past with annual growth rates (in volume terms) of 33.6 per cent in 1965-70, and 13.2 per cent in 1970-80. In 1980-84 total garments exports declined whereas consigned exports (i.e. under special re-export arrangements) kept growing at 11.4 per cent (see Table 9). To some extent, this may be explained by the fact that the duty-free importation of fabrics for re-export (either for export processing zone production or under bond) has remained unaffected by the foreign exchange crisis ('no-dollar imports').

To maintain or increase their share in the highly competitive clothing world market, the garment manufacturers need raw materials on internationally

competitive terms. The vital elements are price, consistency of quality, fibre-mix, delivery performance, and ability to quote a fixed price per contract. So far the domestic textile mills have not been able to comply with these terms.1/

Imported woven fabrics are preferred to the domestically produced fabrics because the price is lower, the quality is higher and there are fewer problems in obtaining orders in small quantities. However, the main obstacle to the use of domestic woven fabrics is the price, with domestic fabrics up to 70 per cent more expensive than equivalent imported fabrics. This difference in prices can be illustrated (see Table 10) in the case of the main fabrics used by the export garment makers, namely (i) polyester/cotton woven fabrics (65/35) dyed used for infant wear, blouses, dresses, nightwear lingerie; (ii) denim (100 per cent cotton) used in jeans; (iii) nylon taffeta used in jackets, anoraks; and (iv) polyester/cotton yarn for knitting. Among the principal reasons explaining these differences one can mention:

- The high price of local polyester which is substantially above that prevailing on the world market;

- The lack of specialization of the textile industry which is predominantly vertically integrated;

1/ The Philippine Textile Research Institute (PTRI) in its R and D and training activities should focus on those of the current problems of the industry which are of structural and techno/operational nature. The priority areas as identified by the Philippine Council for Industry and Energy Research and Development (PCIERD) for the textile and garment sector are:

(i) Development of yarn technology from natural fibres;

(ii) Improvement of the finishing technology of natural fibre to promote certain characteristics, i.e. softness, etc.;

(iii) Establishment of experimental facilities similar to existing textile mills (e.g. high-speed looms, twisting machines, etc.) to provide the pilot plant facilities needed by industry for the development of new fabric design;

(iv) Development of processing methods for the production of high-tenacity fibre for cord rayon and viscose rayon for textile fibres, staple fibres for non-wovens from bamboo-cotton waste and residues, etc. (A proposal is being under consideration for UNIDO assistance to the PTRI for the utilization of indigenous fibres materials (such as silk, ramie, banana fibre, abaca and kenaf) for textile products.)

Table 9. Export volume of garments, 1965-1984

(in square yards equivalent)

Year	Total	Consigned	Unconsigned
1965	29,499.3		
1970	125,361.6	124,998.2	363.4
1971	147,364.3	146,410.3	954.0
1972	153,709.1	147,528.7	6,180.4
1973	154,100.9	131,247.5	22,853.4
1974	188,370.2	151,033.6	37,336.6
1975	201,952.4	152,728.4	49,227.6
1976	299,879.0	191,129.7	108,749.3
1977	281,876.8	164,863.4	117,013.4
1978	347,497.0	179,288.0	168,209.0
1979	368,788.1	181,881.6	186,906.5
1980	399,520.3	187,046.3	212,474.0
1981	468,072.1	204,145.7	263,926.4
1982	405,240.1	185,695.1	219,545.0
1983	427,255.5	173,071.0	233,284.5
1984	398,106.4	266,343.1	131,763.3
Average annual growth rates (Per cent)			
1965-1977	33.6		
1970-1980	13.2	4.9	115.1
1980-1984	-3.7	11.4	-6.3

Source: National Census and Statistics Office.

Table 10. Selling price comparisons of typical fabrics

Fabric	Local prices	International prices c.i.f.	Price difference	
P/C woven	19/m	9.81/m	9.19/m	94%
Denim	64/m	42.88/m	21.12/m	58%
Nylon taffeta lining	22/m	9.95/m	12.05/m	110%
P/C yarn for knitting	87/kg	45.60/kg	41.40/kg	90%

Source: Board of Investments.

- The high financial cost incurred by local textile mills;
- The price of electricity and oil which is currently higher than in other countries.

The resulting almost entire dependence of the export-oriented garments industry on imported fabrics has made the combined textiles, garments and leather sector the second most import-dependent segment of the country's industry (see also Table 15).

Generally, the strategy of first developing an export-oriented garments sector has been used by many developing countries. A crucial element for its success in the long term, however, is to promote after a first phase of import-dependent growth an increasing backward integration of garments production with the domestic textile industry. Such a transition to a more integrated pattern of textile/clothing development has been successfully implemented in the past by countries such as the Republic of Korea and Japan, and both the macro-economic situation of the economy of the Philippines and its level of development clearly call for increased efforts in that direction. An increase of the domestic textile industry's competitiveness which is required to achieve this objective would support from the supply side the efforts of the Government to revitalize domestic demand and at the same time pave the ground for the Government's programme of import liberalization (see Chapter IV.1).

An interesting and recommendable approach has recently been taken by the Government in connection with the issue of quota allocations. According to this concept the Garments and Textile Export Board (GTEB) will ban the sale of unfilled export quotas[1/], link future quota allocation more strongly to past performance and give particular weight to the utilization of local raw materials in this regard.

Finally, it should be mentioned that there is a need to give more attention to the issue of export financing. Appropriate schemes, including

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1/ Quota utilization in 1984 was highly unsatisfactory: 89 per cent for critical categories, 59 per cent for semi-critical categories and 21 per cent for non-critical categories.

preferential interest rates for export credits, should be developed with a view to making garments exports more competitive with other Asian producers.

Again, the crucial problem of the Philippine garments industry seems to lie with the insufficiencies, both in quantity and quality terms, of domestically obtainable inputs from the textiles industry. Export-oriented garments producers can of course substitute world market supplies for domestic inputs. However, low net foreign exchange earnings are the macroeconomic price to be paid. Hence, modernization and restructuring of the textiles industry is of the essence and may be the key to the sector's future development. The Philippine Government is currently discussing with the World Bank a revitalization of the textiles industry rehabilitation and modernization programme which is to provide technical assistance to that end. It would be highly desirable to complement these plant level technical assistance activities with an economic in-depth analysis of the industry's present status, its development prospects at the national and international level and the restructuring requirements resulting therefrom.[1/]

3. Chemical industries

The chemical industries in the Philippines are characterized by substantial involvement of the private sector, in particular in such industries as cement, pesticides, fertilizers, and pulp and paper.

With capacity utilization being at less than 50 per cent in many segments of chemical industries, the rehabilitation of existing plant capacity is essential and has indeed been assigned high priority by the new Government.

Under the former administration, certain industries were afforded considerable protection through import tariffs which the new Government is now in the process of liberalizing (see Chapter IV.1 of this report). Competition from imported products could, however, have a negative effect on domestic industry without substantial improvements in the latter's efficiency and productivity. UNIDO can provide advice to technical management in the

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1/ A related project proposal, based on UNIDO's Textile Industry Restructuring Programme, has been submitted to the Ministry of Trade and Industry.

chemical industries on how best to introduce measures for improvement so as to enable them to meet future competition from imports.

Considerable priority has been assigned to the utilization of indigenous resources. The development of chemical industries based on feedstocks from domestic agricultural products can help meet this objective. Furthermore, developing alternative uses for commodities such as sugar is essential in order to alleviate the poverty caused by the current depressed markets for this product (see Chapter III.1.1.3).

UNIDO technical assistance projects supporting the development of sucro-based chemicals (ethanol, butanol and citric acid and others) are currently underway with the National Science and Technology Authority (NSTA). A process development unit for the production of citric acid will be commissioned in 1987. These programmes form a sound basis on which to initiate larger projects to pilot the production of chemicals from sugar-cane. However, the market will require careful investigation before any substantial investment is made, and to ensure the success of future commercial ventures, it may be necessary for potentially interested parties to form joint ventures with overseas concerns. Both sucro- and coco-based chemicals are included in the 1986 investment priority plan of the Ministry of Trade and Industry. In addition to constituting an effective use of locally available raw material resources, a sucro-based chemical programme is in line with the Government's stated intentions to decentralize industrial activity.

Ethanol production

Although existing ethanol plants tend to be small, old and at an economic disadvantage due to the increasing prices of molasses, the long term potential for ethanol remains, as a solution to the crisis in the sugar industry and to the Philippines foreign trade deficit. The National Fuel Ethanol Programme now emphasizes the anti-lead pollution aspects and the need to solve the problem of poverty which has reached a critical state in the country's sugar producing areas.

Former technical assistance projects in ethanol production have dealt with expanding the raw material base by enzymatic hydrolysis of cellulosic materials. These cellulosic materials such as bagasse serve to supplement

molasses and can juice as feedstocks for ethanol production. Given the nature of the problems which currently face the ethanol industry, particularly the rise in production cost, which has brought about a suspension in programmes to encourage the use of gasoline/alcohol blends in transport fuels it would now be appropriate for UNIDO technical assistance to focus on the rehabilitation of existing distilleries and the design of new plants in order to improve their cost effectiveness. This could include advise on means of improving efficiency of existing plants, and the design of new, larger facilities capable of benefiting from economies of scale which exert considerable influence on production costs.

4. The energy sector

Having only limited domestic supplies of oil, which are expected to decline during the next decade, the Philippines has to consider the replacement of imported oil with alternative indigenous fuels. Two major tasks which face the new Government are, (a) to reduce dependency on imported oil by improving the efficiency in its consumption, particularly in the utility sector, and (b) to increase the contribution to the primary energy supply of indigenous energy resources including coal, hydro and geothermal and the non-conventional energy resources, such as biofuels (for details on the current structure of energy consumption see Table 11; Annex Table A-6 provides in addition projections up to 1992).

Coal

Coal is scheduled to play an increasingly important role in the supply of primary energy for the Philippines. From less than one million barrels of fuel oil equivalent (MMBFOE) coal consumption in 1980, the share of the total energy mix taken by coal has increased to 8.41 MMBFOE in 1985 or almost 9 per cent of the total energy supply. Roughly, half of this quantity of coal is currently imported and half domestically produced. Imported coal is scheduled to be phased to less than 1 per cent of the energy supply mix by 1992 and domestic supplies are scheduled to increase almost to 15 MMBFOE or 12 per cent of the total supply.

This proposed increase in coal consumption may require the introduction of new and innovative means for coal utilization. UNIDO can provide technical

Table 11. Energy consumption mix by source: Philippines, 1980 to 1985
(in million barrels-of-fuel oil equivalent)[a/]

Commodity group	1980	1981	1982	1983	1984	1985
Total energy consumption	96.9	93.6	95.8	98.5	93.8	93.8
Imported	65.5	67.2	65.4	64.5	54.7	51.2
Oil	69.5	67.2	65.4	63.5	52.6	47.0
Coal	-	-	-	0.9	2.0	4.2
Nuclear	-	-	-	-	-	-
Domestic	27.4	26.4	30.4	34.0	39.1	42.5
Oil	3.5	1.4	3.0	4.7	3.5	2.4
Coal	1.0	0.9	1.1	2.6	3.6	3.8
Hydro	5.9	6.4	6.7	5.1	9.1	9.6
Geothermal	3.5	4.8	6.3	7.0	7.8	8.5
Non-conventional b/	0.5	0.8	0.4	0.5	0.6	0.4
Bagasse	5.9	6.2	7.4	5.5	6.6	4.3
Agriwastes c/	7.1	5.9	5.5	8.6	7.8	13.4
Oil share (in per cent)	75.3	73.3	71.5	69.2	60.0	52.7
Imported oil share (in per cent)	71.7	71.9	68.4	64.5	56.1	50.2

a/ Based on fuel oil equivalent at 18,600 BTU/LB.

b/ Refers to other non-conventional sources.

c/ Includes coconut husk/shell, rice husk, wood/woodwaste (excluding dendrothermal).

Source: Ministry of Energy.

assistance in the fields of gasification, fluid-bed combustion and pulverized fuel combustion of coals difficult to burn in conventional combustion appliances.

Non-conventional energy

The share of the total energy mix currently taken by non-conventional energy sources amounts to about 19 MMBFOE or 20 per cent of the total. This percentage of the total energy mix is projected to remain constant through the next decade although this will require an increase in non-conventional energy supplies to about 26 MMBFOE by 1992.

Several research institutions and government agencies have already implemented successful programmes in the field of biomass energy development and utilization. Considerable experience has already been acquired with the gasification and combustion of agricultural residues, biogas development and alcohol production. UNIDO projects, executed by the Energy Development and Research Centre through the Bureau of Energy Development, have successfully demonstrated the conversion of agricultural residues, such as rice husks and coconut shell to low-Btu fuel gas for use as fuel boilers, furnaces and in engines driving irrigation pumps and generators to supply power in remote areas. The task now facing project authorities is to transfer the more successful processes and equipment developed by these programmes to the commercial sector and to promote their deployment nationwide.

Energy conservation

Significant savings in energy consumption, particularly with fuel oil, can be effected by the introduction of conservation measures. Frequently, such measures are easier to introduce and more immediate in their effect than substitution of oil with other fuels (particularly non-conventional). In the industrial sector, where both thermal and electrical energy is required, co-generation is one of the first means considered to improve the efficiency of energy utilization. While co-generation can offer substantial savings with fuel bills, the more obvious and simple areas of improvement, which includes the lagging of steamlines and repacking of leaking valves etc. should not be neglected. Training and education play an important role in this respect since informing workers of the need to be more careful with regard to energy use and providing sufficient motivation is of primary importance when implementing an energy savings programme.

The rehabilitation of existing oil fired capacity in the utility sector and the introduction of conservation measures in industry play a key role in the current policy thrust of the Bureau of Energy Development within the Office of Energy Affairs. UNIDO can provide technical assistance to authorities charged with the task of implementing these policies as a logical extension of current ongoing energy management projects.

IV. ANALYSIS OF CRUCIAL CROSS-SECTORAL ISSUES OF INDUSTRIAL DEVELOPMENT

1. Import liberalization[1/]

Since the early eighties the rationalization of the structure of (nominal and effective) protection has been a major issue of industrial policy in the Philippines. In 1981, the tariff reform programme (TRP) was launched which proceeded as scheduled until 1983 (except for a minor uniform additional import surcharge) when the balance of payments crisis caused a disruption of its implementation. The TRP, in order not to remain ineffective, was accompanied by an import liberalization programme aimed at the gradual removal of all quantitative restrictions, i.e. mainly import licensing requirements.

Tariff rate changes under the TRP were implemented in three areas:

- peak tariff rates imposed on non-essential consumer goods and unclassified consumer goods were reduced from a 100 per cent ceiling to one of 50 per cent (for details see Table 12);
- within 14 selected key industries[2/] tariff rates underwent a complete revision making them more uniform (for details see Table 13);
- tariff rates within some ten residual sectors were modified.

As a result of tariff revisions under the TRP the average statutory tariff rate for the manufacturing sector went down from 42 per cent in 1979 to 28 per cent in 1985. Furthermore, no rates remained above 50 per cent implying that considerable progress was made in achieving a greater uniformity in nominal tariff rates. As it was the finished goods category that experienced the greatest reductions, the cascading nature of the tariff structure (increase of rates according to degree of processing) and hence effective protection was also narrowed down. The average effective protection rate (EPR) for the manufacturing sector was reduced from 40 per cent in 1979

1/ For detailed analyses, including calculations of the likely economic impact of import liberalization, cf. Medalla, 1986 and Fabella, 1986. This chapter draws partly on their findings.

2/ Food processing, textiles and garments, leather and footwear, pulp and paper, cement, iron and steel, automative, wood and wood products, motorcycles and bicycles, glass and ceramics, furniture, domestic appliances, machinery and capital equipment, electrical goods.

Table 12. Frequency distribution of nominal tariffs, 1981 and 1985

Nominal Tariff levels	Number of items	
	1981	1985
Specific	2	2
Free	1	3
5 %	2	14
10%	319	334
20%	204	335
30%	218	284
40%	5	100
50%	203	331
60%	-	-
70%	119	-
75%	-	-
80%	-	-
90%	-	-
100%	228	-
Total number of items	1,301	1,403
Total tariff levels	10	8

Source: Medalla, 1986.

Table 13. Nominal tariffs for 14 key industrial sectors, 1980 and 1982

Sector	Raw materials		Intermediate goods		Finished goods	
	1980	1982	1980	1982	1980	1982
Food processing	5-100	5-50	Free-100	Free-50	50-100	10-50
Textiles and garments	10-50	10-30	50/70	40	30-100	40/50
Leather and footwear	10/50	5/10	50/70	30	100	40
Pulp and paper	10-50	10/20	30-100	20/30	30-100	20/50
Cement	10	10	100	40	50	50
Iron and steel	10	5	30	30	50	30
Automotives	-	-	10-100	25	30-100	40
Wood and wood products	10	10	35	20	70	35
Motorcycle and bicyle	-	-	35	30	70	45
Glass and ceramics	10	10	30	25	55	35
Furniture	40	30	50	40	100	50
Domestic appliances	25	20	50	30	70	50
Machineries/others						
Capital equipment	-	-	25	20	20	30
Electrical/electronics		-	35	25	35	30

Source: Medalla, 1986.

to 23 per cent in 1985 which can be considered relatively low when measured by developing country standards. At the same time, the basic features of the EPR structure remained the same, meaning that it is still export-oriented production (and agriculture) that are in general being penalized.

However, EPRs exclude the impact of all quantitative restrictions: "Reduction of tariffs in the continuing presence of import barriers .... would not only retain the old protection structure but also shift the foregone tariff revenue to private rents" (Medalla, 1986, p.11). As mentioned earlier, it was thus decided to implement an import liberalization programme which initially proceeded quite rapidly on schedule: 263 items in 1981 and 610 items in 1982 were removed from the list of banned imports. In 1983 the number was 48 before, in the second half of that year, the balance of payments crisis effectively stopped the programme leaving the import of the most sensitive items still restricted.

The current heated debate centres on the question if and when the remaining 383 restricted items should be liberalized. Whereas mainly the IMF (in connexion with the decision on a US $508 million standby credit facility) is insisting on adherence to the originally set schedule, within the Government various positions have to be reconciled. Most recently (in September 1986) a decision was taken to lift import restrictions on another 80 items from a total of 137 items that were originally scheduled to be liberalized in April 1986. They include:

- basic iron and steel products
- rubber-based products
- wood-based items
- new tires
- asbestos vinyl/vinyl asbestos files/sheets
- paper and paperboard products
- resin and synthetic resin materials for plastic manufacturing.

Further liberalization steps were announced to take place in December 1986 and June 1987 with some items continuing to enjoy import restrictions until April 1988.

No doubt that the liberalization issue is the crucial one within the ongoing economic policy debate. According to the view of José Concepción,

Minister of Trade and Industry, "the whole government economic programme hinges on the import liberalization programme". While not few organizations (notably the Philippine Chamber of Commerce and Industry) and concerned individuals fear a collapse of many domestic industries caused by imports flooding the country, it is the view of many economists that "liberalization is..... the decision to bite the bullet of short-run costs in exchange for greater long-run dynamism" (Fabella, 1986, p.3), i.e. it is interpreted as an investment in future efficiency and competitiveness. Furthermore - and this point has certainly remained under-exposed so far - it has to be taken into account that, of course, sectors which are dependent on using highly protected inputs in their production are suffering from import restrictions. In a pioneering empirical study, Fabella (1986) found that about as many sectors are penalized by non-tariff barriers as are benefited and that, accordingly, the total removal of quantitative import restrictions under certain assumptions might even result in rising aggregate supply, employment and income. However, this simulation exercise may underestimate the time needed for and the economic and social costs connected with the required restructuring. Experience gained in many developing countries, notably in Latin America, have shown that sudden liberalization shocks can have devastating effects on local industries. Accordingly, in the present circumstances in the Philippines, a compromise solution appears to be called for.

It is beyond any doubt that the Philippine manufacturing sector has in the past enjoyed an excessively high level of protection which has caused major distortions and inefficiencies which stand to be corrected. At the same time, it is essential that a balance now be sought between imposed adjustment requirements and existing adjustment capacities. The argument appears reasonable that the economy should be given time to recover and should not be burdened with drastic restructuring demands while operating at an average capacity utilization rate of 40-60 per cent. On the other hand, further liberalization measures should not be postponed indefinitely: "One possible way to prevent.... misallocation of resources is for the government to be completely clear and convincing to the private sector that it is committed to pursue in the near future the delayed import liberalization plans. As such, the private sector would not be tempted to venture into such activities made temporarily profitable only by import bans" (Medalla, 1986, p.21).

The time gained by postponing the further lifting of restrictions should be used to immediately undertake specific sectoral impact studies on which structural adjustment and modernization programmes could be based.[1/] These studies should put special emphasis on identifying industries which, albeit currently uncompetitive, have the potential for being viable and efficient producers in the long run. This includes attention to economies of scale which, where important, may require increased specialization and/or mergers to reduce production costs.

At a suitable later stage - following the immediate thrust of industry sector rehabilitation - consideration may be given to the preparation of a long-term perspective master plan for the country's industrial development providing a guiding framework to the policy-making process.

2. Promotion of manufactured exports

The Philippine export industry's current problems may provide an opportunity for the new Government to gradually correct basic defects in the country's trade profile. For decades, the Philippines has relied on a narrow base of commodity exports (sugar, coconuts, copper and forest products). Recently (1980-85) total earnings from traditional export goods have been more than halved, however, indicating that the traditional industries cannot be counted on to grow in line with the demands of the economy. Furthermore, the country's newer non-traditional export sectors, such as semiconductors and garments, have recently been hurt by the glut in international markets. The new Government thus faces the challenge of identifying additional industries able to sustain a longer term export drive.

1/ Reference is made in this regard to the "10-Year Sectoral Planning" programme currently carried out in respect of some 17 subsectors of industry as joint effort between the Government, i.e. the Board of Investments, and the private sector. The objective of this joint study is, in respect of each selected subsector, "to review the present status of the industry sector and determine the requirements to guide it towards a desired competitive position 10 years from now with respect to ASEAN, NICs and the world as a whole". A proposal for provision of UNIDO advisory services in this connexion was drafted by the Mission.

This 10-year Sectoral Planning programme may be expected, inter alia, to provide needed guidance for the establishment of the annual Investment Priorities Plan according to which preferred areas of economic activity are entitled to incentives under the 'Omnibus Investments Code'.

The performance of the Philippine export industry has been rather disappointing in the first half of the eighties with total exports having declined by 20 per cent between 1980-85. The only growing (and indeed fast growing) export segment in that period has been non-traditional manufactures with an overall increase of 36 per cent.

From Table 14 it can be seen that between 1980 and 1986

- the share of traditional products in total export value decreased from 48 to 28 per cent while that of non-traditional products, accordingly, now exceeds 70 per cent;
- within non-traditional exports manufactures were the most dynamic segment now accounting for 57 per cent of total export value and 81 per cent of the value of non-traditional exports;
- the lion's share of non-traditional manufactured exports was generated by electrical/electronic goods and garments (56 per cent in 1986).

Table 14. Distribution of export value by major commodity groups, 1980-86

(percentage shares)

Commodity group	1980	1983	1986a/
(1) Traditional products	48.4	36.4	27.7
- Coconut products	13.5	12.8	10.6
- Sugar products	10.2	5.6	2.3
- Forest products	7.3	6.5	3.7
- Mineral products	14.1	8.3	5.7
- Others	3.3	3.2	4.1
(2) Non-traditional products	50.4	61.8	70.6
(a) Non-manufactures	14.0	10.1	13.5
(b) Manufactures	36.4	51.7	57.1
(ba) Electrical/electronic goods	11.6	21.0	18.5
(bb) Garments	8.6	10.8	13.7
Share of (b) in (2)	72.2	83.6	80.9
Share of (ba) and (bb) in (b)	55.6	61.6	56.4

a/ January-June 1986.

Source: Calculated from NEDA data presented in Annex Table A-2.

Note: Shares do not add to 100 per cent because of non-inclusion of re-export and other special transactions'.

Obviously, the Philippines has achieved in the past a gradual restructuring of its exports towards new manufactured products with generally higher growth potentials than those of traditional raw materials. At the same time, certain shortcomings are to be noted. It has often and quite correctly been pointed out by many observers that manufactured export production in the Philippines has largely remained of an enclave character, certainly more so than in most other countries in Southeast and East Asia. The share of imports in total raw material requirements is estimated to reach almost 100 per cent in the case of electronics and some 80 per cent in the case of garments. Expectations regarding slowly increasing levels of local content have apparently not materialized meaning that the net foreign exchange earnings have remained rather low.

Table 15 shows that on an average slightly more than 30 per cent of all inputs for industrial production are being imported. Two qualifications are, however, in order: Firstly, this share refers to total industrial production whereas for export-oriented production alone it would presumably be much higher; secondly, it excludes production in export processing zones which contributes to underestimating the true significance of imported inputs.

Table 15. Regional structure of inputs by industrial branches, 1985

(percentage shares)

	Inputs from Metro-Manila	Inputs from other regions	Imported inputs
Food, beverages, tobacco	44.8	42.7	12.6
Textiles, garments, leather	39.8	13.5	46.7
Wood, wood products	12.3	83.7	4.0
Paper, paper products, printing	60.1	13.7	26.2
Chemical, coal, rubber plastics	22.7	13.1	26.2
Non-metallic mineral products	22.8	50.4	26.8
Basic metals	34.2	40.6	25.2
Fabricated metal, electrical products	50.3	12.7	37.1
Other manufacturing	25.2	10.1	64.7
Total	37.1	32.4	30.5

Source: NEDA/NIEP Industrial Dispersal Survey (published February 1986).

Note: Excluding export processing zones.

To judge industries by their gross foreign exchange earnings certainly gives a distorted picture of their development impact. In this context it is worth noting that the net foreign exchange contribution of furniture and handicraft exports taken together may be roughly of the same order as that of garments exports. Indeed, the greatest potential to the achievement of a more diversified export structure seems to lie in the development of domestic resource-based processing industries such as food processing (particularly fruit and fish), and wood-based industries (particularly plywood and furniture) for which rapidly expanding export markets have been identified. The fact that the aggregate export value of handicraft, furniture and processed food and beverages between 1980-85 has at best stagnated, is a clear indication, however, of the current underutilization of locally available natural resources in the country's non-traditional manufactured exports.

In general, special emphasis should thus be given to the development of technologies geared to producing high-quality exportable goods using as far as possible locally available raw materials. Inadequacies observed at the production level based on the work of the Centre for International Trade Exhibitions and Missions (CITEM) in its Product Specialist Programme confirm this need, e.g. in the field of quality control (while the results of the CITEM work relating to export market research, design and product development in respect of some selected products, such as leather goods, ceramics and crafts products, have been quite satisfactory).[1/] In order to deepen these efforts towards high quality manufactured exports it is further suggested that for specific target sectors within food processing and wood-based industries (see also section 1.1.4) thorough analyses be undertaken with a view to identify (i) the most promising markets both product-wise and region-wise; (ii) the required product characteristics and marketing strategies to secure these markets; and (iii) organizational pre-conditions to be met by the domestic industry in terms of specialization requirements, mergers etc. Again, as mentioned earlier, it is deemed essential that the firm interlinking

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1/ The Design Centre Philippines, which is a technical agency of MTI and is working closely with CITEM, deserves effective support in its efforts to improve the quality and competitiveness of Philippine manufactured products through innovative programmes and measures, including the use of a 'Product Clinic' and a 'Design Mobile'. The Centre encourages product R and D and package design and development. Product ideas in bamboo, rattan, wood, buri fibres, shells, stones and other materials are developed in close collaboration with manufacturers.

of export production and the domestic economy be considered an essential criterion for the identification of target areas. Unless export production is rooted more strongly than hitherto in the overall economy of the country, its enclave character will prevail and net foreign exchange earnings will tend to remain at their low levels.

This argument applies even stronger to export production undertaken in export processing zones (EPZs). The role played by EPZs in promoting industrialization in developing countries has long been a controversially discussed topic among both development economists and policy-makers. Experience gained in many developing countries, in particular in the East and South-east Asian region has shown that, on the one hand, they can contribute substantially to the generation and growth of manufactured exports and hence to the provision of productive employment opportunities. On the other hand, they have more often than not also been characterized by one-sided sectoral structures of production, by a relatively high share of footloose and thus vulnerable investments as well as by a widespread lack of backward linkages with the domestic economy.

The Philippines is among those Asian developing countries which embarked relatively early on the EPZ approach as a specific instrument to promote manufactured exports. The country's first and still by far largest zone, Bataan, became operational in 1972. Further zones were subsequently established in Mactan (1979), Baguio City (1980) and Cavite (1983). Meanwhile, it has become clear, however, that their developmental impact has not lived up to initial expectations. Occupancy rates have remained unsatisfactorily low (with a total of 49 operating firms in all zones),[1/] total direct employment creation has been fairly limited (at roughly 22,000), backward linkages with the domestic value added and net foreign exchange earnings have continued to be at low levels (for a summary of selective performance indicators see Table 16.). Accordingly, several cost-benefit analyses (see e.g. Warr 1985) have recently arrived at the conclusion that the net present value of e.g. the Bataan export processing zone is clearly negative due to the high public investment costs that went into its establishment.

1/ To be explained by administrative shortcomings, locational disadvantages and an incentives structure that has given a more favourable treatment to BOI-registered export-oriented firms outside the EPZs than to those within them.

Table 16. Selected performance indicators of export processing zones in the Philippines (as of end 1985)

	Bataan EPZ	Mactan EPZ	Baguio City EPZ	Cavite EPZ
Province	Bataan	Cebu	Benguet	Cavite
Initial year of operation	1972	1979	1980	1983
Number of operating firms	33	4	12	-
Employment	15,433	3,240	3,231	-
Exports (US$ million)	53.3	56.0	91.0	-
Imports (US$ million)	23.4	69.8	76.6	-
Local purchases (US$ million)	2.2	0.1	0.8	-
Share of occupied area in total developed investment area	52.2	29.5	92.6	-

Source: NEDA (Nationwide Industrial Estates Programme - NIEP).

Against this background, the new Government has expressed its intention of not pursuing previous plans to further expand the EPZ programme and of shifting the emphasis towards bonded factories as a less costly alternative. This policy shift, based on a realistic perception of EPZ development potentials, is certainly to be welcomed. At the same time, however, every effort should be undertaken to maximize the developmental impact of the four existing EPZs in which considerable public capital funds have been invested. Further to improvements in EPZ administration, available policy options to be explored would include:

- introduction of a more selective approach, i.e. establishment of specific sectoral profiles for different zones and diversification away from high import content industries;
- innovative institutional approaches, such as e.g. a combined export processing zones/industrial estates concept to encourage linkage creation via subcontracting arrangements;
- opening up of the zones for domestic investors in addition to foreign investors.

Furthermore, it would be very useful to carefully study the experience gained in other Asian countries with the bonded warehouses and bonded

factories system, with particular emphasis on its potential to contribute to a better regional dispersal of export-oriented industries.[1/]

3. Regional dispersal of industrial development[2/]

It is well known that industrial development in the Philippines has in the past been characterized by a pattern of high regional concentration. Over the past two decades or so, the degree of concentration has furthermore been increasing almost regardless of which indicator is being applied. There is no denying, however, that the Philippines has relatively early adopted a sophisticated set of industrial policies geared at reducing regional development disparities (as will be shown in detail below). The conclusion to be drawn is obvious. For reasons to be further analyzed below there has been a high gap between stated objectives and actual achievements: Industrial dispersal policies in the Philippines have so far remained ineffective.

Whereas in 1960 only 48 per cent of all industrial firms were located in the core region (National Capital Region, Central Luzon and Southern Tagalog), the same applied to 63 per cent in 1983, with a strong positive correlation between firm size on the one hand and degree of concentration on the other (see Table 17). Using output and employment as concentration indicators, the regional disparities appear even more pronounced. Between 1980-82 the core region accounted for roughly three quarters of total industrial production and some two thirds of manufacturing employment with the National Capital Region alone accounting for more than half of the country's industrial employment.

It was not only the ineffectiveness of dispersal policy (see below) that contributed to this development but also the more general industrial policy approach and the related structure of incentives, including in particular an overvalued exchange rate in connection with capital-oriented investment incentives, together resulting in a system of overly import-dependent production: "The fact that the new industries depended on undervalued inputs

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1/ Upon request of NEDA/NIEP, UNIDO has designed a project proposal "Study and Advisory Service on Policy Options vis-à-vis Export Processing Zones" which has meanwhile been submitted to the Government.

2/ This section draws on some of the findings of a recent advisory study carried out under the sponsorship of the Asian Development Bank (cf. NEDA/NIEP 1986).

Table 17. Regional distribution of industrial firms by size, 1983

Size of firm (number of employees)	Percentage of firms in		
	NCR a/	Core region b/	Other regions
Less than 10	35.4	59.9	40.1
10-19	49.1	65.9	34.2
20-49	54.2	70.7	29.3
More than 50	62.3	78.1	21.9
Total	40.0	62.6	37.4

a/ National Capital Region (NCR).

b/ NCR, Central Luzon (Region III), Southern Tagalog (Region IV).

Source: National Census and Statistics Office.

Table 18. Distribution of BOI-approved projects by regions, 1968-83

(percentage shares)

Region	1968-69	1970-80	1981-83	1968-83
NCR a/	30.7	58.2	52.3	55.5
Core region b/	54.4	77.8	73.8	75.8
Other regions	45.6	22.2	26.2	24.2
Total	100.0	100.0	100.0	100.0

a/ National Capital Region (NCR).

b/ NCR, Central Luzon (Region III), Southern Tagalog (Region IV).

Source: BOI Statistics Department.

from abroad rather than on materials from the agricultural, mining and forestry sectors biased location near the principal port. In addition, during the period of import controls there was an advantage in being close to the seat of Government, so that Manila was doubly favoured" (NEDA/NIEP 1986, ch.V., p.6).

As to specific regional dispersal policies, a number of programmes have been developed in the past the most important of which are briefly reviewed below (for details see NEDA/NIEP 1986, ch.V, pp.13ff):

- Fiscal incentives

Fiscal incentives with a specific regional dimension were first introduced in the amended Export Incentives Act in 1973. They applied to registered export producers granting them special tax deductions for local raw materials and labour costs up to 25 per cent of export revenues. This implied that the incentive to locate in the designated regions was largest for firms with relatively low backward linkages and relatively low labour intensity as for those above the 25 per cent ceiling the incentive does not apply. Consequently a perverse location effect was created tending to cause the relocation of just those firms least suitable for utilizing the regions' resource endowment.

In 1979, the Investment Promotions Act for Less Developed Areas was enacted extending fiscal incentives also to non-pioneer firms. However, with only a marginal net impact on the rate of return, it proved insufficient to effectively counteract the urban locational bias.

- Industrial estates/EPZs

Industrial estates development in the Philippines was officially initiated as early as 1969 with the creation of the Foreign Trade Zone Authority. Today the country has a total of 16 industrial estates of which 4 are EPZs. One of the stated objectives of the industrial estates programme was the promotion of regional industrial dispersal. In sharp contrast to this, however, is the fact that only 4 are operating outside the core region of which 2 are EPZs with limited linkage effects (see also Chapter III.2 of this report). Although EPZ enterprises could get tax credits on local purchases the administrative procedures and delays involved have made it a much less attractive alternative to sourcing through imports.

- Financial incentives

In the 1970s, a total of five new Government programmes were created with a specific focus on small, medium and regional industries: the Industrial Guarantee and Loan Fund (IGLF), the Development Bank of the Philippines Small and Medium Scale Lending Department (DBP-SMILE), the Cottage Industry Guarantee and Loan Fund (CIGLF), the Export Industry Modernization Programme (EIMP) managed by the Technology Resource Center (TRC) and the Venture Capital Corporation (VCC) of the National Development Company. Again, the ahievements have been disappointing. In 1982-83, almost one half (46 per cent) of the aggregate lending of these 5 institutions stayed in the NCR and 70 per cent were allocated to firms in the core region.

- Expenditure on infrastructure

It is well known that generally public infrastructure investment is the most effective instrument in achieving a more balanced regional development pattern, i.e. the availability of basic infrastructural facilities is a precondition for making fiscal/financial incentives work. Therefore the high concentration of infrastructural investments in a few of the country's regions may in fact be the root cause of the ineffectiveness of dispersal policies in general. Indeed, between

1974-84 one-third of investments in infrastructure went to NCR where some 12 per cent of the population are living whereas Cebu and Davao with 15 per cent of the population received only 2.8 per cent of the total.

- Zoning regulations

In 1973, a Government directive was issued banning the establishment of new industrial plants within a 50 km radius of Manila. However, this instrument again has proven to be uneffective, respectively has been uneffectively applied. Not surprisingly, it has led to a large number of new establishments exactly at the borderline. Furthermore, the zoning regulation provided for so many exemptions of either a permanent or temporary nature that actually exceptions became the rule. Hence, within one year of its introduction the regulation was essentially revoked.

In summarizing, the overall conclusion appears inevitable that the Philippines has represented so far a clear case not of policy neglect but of policy failure as far as regional development is concerned. The tasks lying ahead now are obvious and follow directly from the shortcomings of previous policies identified above.

First of all, as a general guideline, direct measures (infrastructure building) should receive priority over indirect measures (fiscal/financial incentives). Accordingly, the whole system of regional development oriented incentives requires a thorough review. This will probably lead to the conclusion that there is considerable scope for simplifying the system and for reducing the distortions created. To give just one example: Fiscal incentives for enterprises locating in certain specified areas should be equally attractive for pioneer enterprises as for non-pioneer enterprises. The crucial role to be played by improvements in infrastructural facilities will furthermore require a close co-operation between the Government agencies responsible for public utilities (energy), transport, communication and directly industry-related infrastructure, such as industrial estates.

Industrial estates, as mentioned above, so far have failed to contribute significantly to regional dispersal. An innovative approach is now being initiated by the Nationwide Industrial Estates Programme (NIEP). This concept, to be implemented by the National Housing Authority, is aimed at establishing Mini Industrial Estates with cottage, small and medium enterprises as specific target group and with a strong involvement of local institutions, including local banks (40 per cent to be financed by local

government institutions). A pilot project is currently in the planning stage (Davao Mini Industrial Estate Project, financed by the World Bank).

The regional dispersal policies of the new Government - unless they are to repeat the failure of their predecessors - should be integrated in o an overall regional development strategy based on the individual region'. endowment with natural, capital and human resources from which a realistic assessment of their development potential is to be derived.[1/] In this context, the new Government's approach to pursue a strategy of selective dispersal is highly appropriate. In view of the significance of economies of agglomeration a targeting of regional dispersal towards selected regional development centres indeed appears to be required. Furthermore, the creation of a limited number of such development nuclei may at the same time be the best approach to promote small- and medium-scale industries by emerging spillover effects. It will be essential, however, that the intended stronger-regional dispersal of industries be accompanied by a decentralization of areas of activity which are crucial for industrial development (finance, research and development, vocational training and skills upgrading, external assistance etc.).

4. Cottage, small- and medium-scale industries[2/]

As mentioned earlier the thrust of the new Government's economic policy is to promote and strengthen cottage, small and medium industries (CSMIs), in particular those located in rural areas and involved in the processing of agricultural products. This emphasis is in line with the increasing recognition - in both developed and developing countries alike - of the significant development potential of CSMIs which are to contribute to reducing

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1/ In this context it may be noteworthy that the new Philippine Development Plan will constitute the framework for 13 'regional development plans' which are now being prepared concurrently.

In addition, the set of surveys on "Agriculture and Agribusiness Opportunities" prepared by UP-ISSI for all the country's 12 regions (excepting NCR) may be referred to as source of valuable information on each region's natural and human resources and infrastructure.

2/ Cottage industries are those with assets between between ₱50,000, and ₱500,000, small-scale industries those with assets between ₱500,000 and ₱5 million and medium scale industries those with assets between ₱5 million and ₱20 million.

an overly strong reliance on large-scale firms and to increasing the flexibility and diversification of industrial production. Indeed, the Philippine Government considers the viability and performance of CSMIs to be of crucial importance for any economically sound and socially balanced industrialization process as they have been shown to possess particularly positive developmental features. In development plans of the last decade, support to the SMIs ranged from the financing and marketing aspects to the development of managerial skills and stimulating the entrepreneurial spirit through start-up enterprises. Services and facilities came from a variety of specialized agencies which were co-ordinated, up until 1981, by a Commission on Small and Medium Industries established in the MTI. The nature of financial assistance was such that it stressed fixed assets (over working capital) and was not particularly effective outside the Metro-Manila area where the needs were great largely owing to information gaps and inadequate mechanisms for assessing absorption capacities of borrowers and post-investment follow-up activities. Multi- and bi-lateral aid has been channeled towards improving institutional capacity and systematizing methods of identifying entrepreneurship and enterprise potential as well as enhancing various consultancy and extension services. In co-operation with educational establishments, special programmes have been designed and implemented to foster entrepreneurship and to upgrade business and managerial skills.

Following the 1983 economic crisis, it has been observed that small-scale industries (SSIs) were not as negatively affected as large enterprises both in terms of employment and output. In fact, SSIs have played an important economic and social role. In view of their demonstrated ability to respond to change, their creativity and vitality even in depressed periods, SSIs are expected to continue to make a positive impact on economic growth and towards improving people's standards of living.

Firstly, the significant employment contribution of CSMIs is to be noted. In 1983, three quarters (75.1 per cent) of all manufacturing employemnt in the Philippines was generated by CSMIs (see Table 19). Since 1967 small-scale industries (SSIs) alone have almost doubled their employment share using, as they do, particularly labour-intensive technologies. What is more important, however, than job creation as such, is the fact that in many industrial branches SSIs have proved to be highly efficient and competitive both on the local and on export markets. Looking at both labour inputs and

Table 19. Structure of manufacturing establishments and value added by size, 1967-83

	Cottage industries		Small-scale industries		Medium-scale industries		Large-scale industries		Total	
	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent
Number of establishments										
1967	34,843	77.4	9,513	21.1	270	0.6	382	0.9	45,009	100.0
1972	48,089	71.2	18,697	27.7	310	0.5	434	0.6	67,530	100.0
1975	58,663	75.9	17,717	22.9	401	0.5	481	0.6	77,262	100.0
1978	62,534	74.9	19,584	23.5	581	0.7	800	0.9	83,499	100.0
1983 a/	81,730	73.7	27,211	24.6	822	0.7	1,122	1.0	110,885	100.0
Employment (in thousands)										
1967	83	16.6	131	26.3	37	7.5	246	49.6	497	100.0
1972	108	17.0	192	30.4	43	6.8	290	45.8	632	100.0
1975	119	16.1	214	30.0	56	7.9	323	45.3	712	100.0
1978	204	16.1	556	44.0	108	8.6	395	31.3	1,263	100.0
1983 a/	307	15.0	1,076	52.5	176	8.6	490	23.9	2,050	100.0
Value added (in ₱ million)										
1967	108	1.7	1,703	26.2	551	8.5	4,131	63.6	6,493	100.0
1972	150	1.6	1,544	16.0	1,033	10.7	6,928	71.7	9,654	100.0
1975	559	2.5	3,032	13.6	3,212	14.4	15,568	69.6	22,371	100.0
1978	805	2.3	13,818	40.0	4,026	11.6	15,929	46.1	34,577	100.0
1983 a/	2,003	2.6	35,840	46.4	9,934	12.9	29,479	38.1	77,255	100.0

a/ Estimate based on growth rates of the different size segments.

Source: National Census and Statistics Office.

capital inputs (the latter being more important due to the higher opportunity cost involved) and further assuming a very unfavourable factor price ratio, still three industrial branches (leather products, plastic products, professional goods) could be identified in the Philippines as producing more efficiently than any other size segment (Hiemenz, 1983). When only looking at capital productivity, SSIs were found to be performing better in the vast majority of industrial branches, with the notable exception of clothing and electrical machinery (due to the use of large-scale labour-intensive production process) and of industrial chemicals and transport equipment (due to economies of scale).

Secondly, the CSMI sector exerts a positive influence on the distribution of income, both in functional terms (wages/profits) and in regional terms. The growth path followed in the Philippines in the past implies that urban centres grew at the expense of rural areas, resulting in glaring regional income disparities. Since a large proportion of CSMIs are located in rural areas, their active promotion would serve as a means of decentralizing industry, thereby not only accelerating rural development but especially stemming urban immigration and the consequent problems of congestion in the cities. While according to UP-ISSI estimates, in the early eighties 71 per cent of all large-scale enterprises and almost 80 per cent of all medium-scale enterprises were located in Metro Manila and the neighbouring regions of Central Luzon and Southern Luzon, the same applied to only 56 per cent of small-scale enterprises.

Thirdly, CSMIs have been demonstrating a strong potential to establish links between agricultural and industrial production. They figure prominently both in the processing of agricultural goods and in the production of machines and equipment for use in agriculture. It has also been shown that the demand elasticity for goods produced by SSIs is particularly high in rural areas and among workers employed in SSIs.

Furthermore, in view of the shortage of capital resources and the foreign debt crisis that the Philippines faces at present it is of particular significance that small-scale entrepreneurs are a major source of mobilizing private savings for productive purposes. Furthermore, CSMIs are known to require relatively little infrastructural investment (partly because of their proximity to consumers), to utilize locally available raw materials (instead

of relying on imports) and to enhance the flexibility and diversification of industrial production (as their output may be more easily adapted to changing market conditions and because they are often able to operate profitably even in very narrow markets with low purchasing power).

Finally, the long-term advantages of CSMIs in the Philippines must also recognize their tremendous impact on human resource development. As Table 19 shows, cottage and small enterprises together have consistently accounted for almost the total number of manufacturing establishments i.e. about 90 per cent from 1967-1983. Indeed, CSMIs have been providing a rich source for the country's creation of indigenous entrepreneurs and an effective training ground in various skills, e.g. managerial, marketing and technical know-how.

In recognition of the new Government's strong emphasis on enhancing the role of CSMIs the following focal points for an industrial policy aimed at improving their effectiveness deserve particular attention.

Rationalization of institutional support framework

An issue of paramount importance is the need for a rationalized, balanced and well co-ordinated framework of promotional and developmental assistance. Assisting small enterprises is a controversial subject for one major, over-riding reason. The fundamental essence of the small enterprise is its ability to innovate, search out and meet the needs of the market at lowest cost. The entrepreneurial response is the key to its usefulness to the economy and to society. But assistance mounted too enthusiastically, without a balance of restraint, often has the reverse effect, of diminishing or killing the entrepreneurship of the small enterprise, ultimately rendering it uncompetitive and sometimes even destroying it in the process. Thus, minimal government interference would seem to be a correct stance. On the other hand, the CSMIs could benefit from a more conducive and actively facilitative environment, especially in terms of legislative measures and a rationalized incentive schemes.

This rationalization effort would entail (a) a thorough comparative analysis of the impact of past approaches and programmes directed towards helping CSMIs, (b) an assessment of capacities, resource possibilities and constraints in various institutions and (c) the establishment of an efficient network and an effective system of co-operation among them.

A corollary issue requiring immediate attention to support the above effort is the need for an organizational unit with overall planning and co-ordinating responsibilities. Currently, numerous institutions provide support to CSMIs (14 financial programmes, 9 technical assistance and 7 marketing services) without a single co-ordinating agency since the Commission on Small and Medium Industries was abolished five years ago. There is clear evidence that a great amount of resources are spent in underground economic activity to circumvent what is perceived as excessive government regulations. The creation of a new unit should take into consideration the optimization of concrete support and resources already available and that it might play a more effective role if limited to providing directives and acting as a clearing house of information both for policy and infrastructural support.

Private sector participation

To improve or reduce governmental interventions in the private sector, there would be a need for ensuring adequate representation and effective participation by the latter in formally established mechanisms or structures. As part of this effort, the organization of CSMIs at the enterprise level on an industry sector basis would have to be furthered. Representatives of such associations could be called upon to sit in advisory councils and boards of relevant Government institutions.

This approach could build on an initiative undertaken by the Philippine Productivity and Development Centre (PDC) which is seeking to establish sectoral production associations in specific geographical areas (e.g. rattan furniture makers in the same locality). These sectoral associations are supported by the PDC e.g. in order to set production and quality control standards, to improve production and marketing management or to organize common purchasing of raw materials and equipment (for details see Promoting Small-scale Industry in Southeast Asia: Selected Support Schemes in the Philippines, Thailand and Malaysia, UNIDO/IS.618, 19 March 1986).

Role of subcontracting

The encouragement of subcontracting relationships between SSIs and medium- and large-scale firms should receive due attention. Subcontracting,

as experienced by other countries, can largely contribute to increasing the awareness of small firms for quality control requirements and adherence to delivery schedules and may generally enhance their technological standards provided certain advisory and back-up technical services are extended by the contractors. Currently, the share of SSI firms engaged in subcontracting activities is only 16 per cent, exactly the same as in the mid-seventies. The subcontracting exchange programme (SUBCONNEX), launched under the Ministry of Trade and Industry in July 1985, may be expected to result in increasing this share in the near future.[1/] To a considerable extent, the establishment of subcontracting linkages is a problem of a simple lack of information.[2/] Once small enterprises know the particular items that are in demand by large companies, industrial relationships "can be achieved mainly through their own initiative and efforts rather than through external influences or environmental factors" (UP-ISSI study, 1986).[3/]

Dissemination of information

Dissemination of information is crucial now that promotional institutions are being urged to decentralize their activities as part of the Government's thrust towards regionalization. It is indispensable that the increasing allocation of funds to the regions and provinces be accompanied by a corresponding provision of the required technical expertise, adequate administrative staffing, and the installation of information systems with appropriate communication flows. This also entails developing a cadre of information and change-agents able to communicate effectively with local clients and to establish such confidence that furthers a mutually beneficial exchange of information. Finally, this effort must be linked to efforts towards the development and transfer of appropriate technologies (see section IV.5 of this report).

1/ Currently the programme is restricted to the garment industry in the National Capital Region. The next target area to be covered is Cebu.

2/ Indeed, in view of the dynamic changes in technology and demand patterns, the Government's most effective assistance to the SSI sector as a whole, may be in providing the right information at the right time. This should take into account the characteristics of the local situations and socio-cultural environments in which SSIs are operating.

3/ It is noteworthy that subcontracting may get a boost from increasing import liberalization (reduced protection causing a profit squeeze which in turn enhances the need to reduce costs and increase efficiency by stronger specialization).

Export orientation

In recognizing the possibilities of CSMIs for export promotion several constraints which entail a link with a completely different economic environment cannot be overstressed. High, constant product quality and reliable delivery schedules - weak points of CSMIs - are crucial to success in the international market. Identifying export opportunities is often a problem for the small entrepreneur which cannot be solved by just ensuring access to data banks. Operating in this highly unstable environment demands an intimate knowledge of market behaviour and opportunities on the part of the small entrepreneur who would need assistance for the required exposure to contemporary and future trends.

- Priority should be given towards supporting those enterprises with proven comparative advantages, e.g. high-quality handicraft items. However, comparative advantage is a dynamic concept and therefore, entrepreneurs must be assisted to learn to constantly adapt their production to retain established advantages in a highly competitive international environment.

- Export credit guarantees and schemes have been established in a number of countries in the Asian region, but there is scope for improvement through special concessions that derive from built-in constraints of CSMIs, whose financial resources are put under severe strain in case of delayed or non-payment of loans.

- Infrastructural support could be better integrated and focused on key areas of immediate need, e.g. quality control and testing facilities, introduction of new materials and technologies, product development and adaptation, finishing techniques and packaging design. These should be spread out in provinces and rural areas enabling access to producers most in need of assistance. These efforts should be based on improved market information flows and export facilities.

1/ As regards handicrafts, it may be necessary to provide help in understanding the subtle trends and current demands abroad for handicrafted goods amid the back-to-nature or the exotic-orientation of buyers. International markets are saturated with low quality souvenir and gift items which have been produced largely by indiscriminate imitation and illegitimate copying. Handicraft producers may be better assisted in tapping up-markets and special groups of tourist buyers by understanding what it is they are really selling, i.e. the image and cultural identity of the Philippines. Indeed, a promising start has been made in this respect through the work of CITEM.

Stimulating international performance on the part of CSMIs can be most effectively pursued if based on policies that are designed to strengthen small businesses in domestic markets. As discussed above, the new Government has indicated plans to give special attention to domestic markets geared towards creating more jobs and increasing the use of local resources and materials. Such expansion could definitely spur the development of CSMIs. Policy measures may need to consider three critical environmental factors:

- In the "traditional" field of financial assistance it is suggested to shift emphasis from fixed capital to working capital funds and to respond more strongly to the special characteristics and nature of small firms, including e.g. their widespread lack of collaterals and their tendency to avoid seeking assistance connected with bureaucratic procedures which strain their resources especially in terms of time.1/

- CSMIs which to a relatively large degree are located in rural areas and process agricultural products, are highly dependent in their development potential on adequate transport, communication and storage facilities. To remove existing bottelnecks in these areas may, in many cases, be a more important policy measure than the provision of financial subsidies.

- The Philippines has been a poineer among a few countries since the early 60's which embarked on programmes to demonstrate that developing entrepreneurship is a process that can be stimulated, thus dispelling the notion that entrepreneurs are born. Indeed, entrepreneurship is now seen as a cultural/educational phenomenon but much still remains to be done to improve and sustain entrepreneurship development in the Philippines. In the long term, the most important policies required are those that influence the educational system and the larger social environemnt. Much more needs to be done to make small industry entrepreneurship a credible and satisfying career option. Young people are a rich potential source of entrepreneurship that could be tapped if appropriate changes are made at all levels of the education system. Public recognition could also be given to successful entrepreneurs with whom various population groups, e.g. women, out-of-school youth, and rural folk could identify. The Government could also act as a catalyst and a leading advocate in fostering innovative approaches and non-institutional experimentation to reach, educate and activate individuals as well as community groups at local levels so that together, they can generate the proper eco-system in which productive entrepreneurship can flourish.

5. Industry-related research and development

The research and development sector plays a primary and strategic role as integral support to the country's economic recovery and development. The

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1/ In addition, venture capital schemes and equity participation in competitive and innovative CSMIs could be considered.

primary aims are the building up of research and technology capacity at operational levels in the economic system of the country, in particular providing an appropriate technological base for rural development. Related efforts in research and technology are geared towards the attainment of increasing technological self-reliance in key development areas (e.g. energy supply).

Technological dependency on external sources especially in the modern industrial sector has remained heavy during the last decades (although, since the consolidation of the national infrastructure for research and development in 1958, the country has witnessed substantial achievements in a number of technological areas). There is strong evidence that a large number of exogenous technologies acquired over the years have not been sufficiently mastered nor properly absorbed and improved. Moreover, financial strains during the last few years have seriously hampered the research activities, including those related to key emerging technologies which are changing the character of economic production itself.

In 1982 a Science and Technology Council System was established with the National Science and Technology Authority (NSTA) as the primary Government agency providing central direction and co-ordination of scientific and technological research and development in the country. The Council System provides a mechanism for addressing national science and technology problems in a more focused way bringing together the public and private sector viewpoints in the commercialization of research and technology utilization efforts. This is achieved through a continuing dialogue with the private sector to determine needs; effective private sector representation in science and technology planning bodies; reorientation of research and development activities in Government research institutes to meet the technological requirements of industry; and technology transfer to the provincial areas through regional structures.

Under the umbrella of the National Science and Technology Authority (NSTA) there are a number of important line agencies, such as the National Institute of Science and Technology (NIST) which renders technical services such as calibration and repair of scientific instruments and testing/analysis of materials, products and commodities; the Food and Nutrition Research

Institute (FNRI); the Forest Products Research and Development Institute (FPRDI); and the Materials Science Research Institute (MSRI) which has assumed the research functions of the Metals Industry Research and Development Centre (MIRDC). The latter, as well as the Philippine Textile Research Institute (PTRI) are under the Ministry of Trade and Industry.

The MIRDC has been transformed into a service institution, providing technical assistance in upgrading and strengthening the capabilities and competitivenss of the metalworking industries. This new orientation is aimed particularly at helping the small and medium scale enterprises. The MIRDC's plans for expanding its capability to provide technical advisory services in the context of the regional industrial dispersal programme deserve particular support. Within these plans MIRDC intends to establish a pool of technical and managerial experts as well as to conduct a study on the import substitution potential in the metalworking sector.

Under the Science and Technology Council System the most relevant council is the Philippine Council for Industry and Energy Research and Development (PCIERD). A number of priority areas for research have been identified by PCIERD within the framework of the preparation of a National Science and Technology Development Priorities Plan. (For a listing of 35 R and D programme areas or programmes in the industry and energy fields see Annex IV).

Although during the last few years local technological research and development efforts, e.g. in food industries and in raw material development for cottage and small scale industries have started yielding economic returns, still greater emphasis is expected to be given to the dissemination and commercialization of developed technologies in the countryside and the industry sector.

Above all, the efforts in the area of science and technology during the next years are expected to be geared towards

(a) employing an appropriate mix of locally-generated and imported technologies in meeting the requirements for economic recovery and growth; and

(b) building up an indigenous capacity for science and technology towards technological self-reliance.

Particular attention from the point of view of employment generation, is to be given to the introduction and wider utilization of low-cost low-import technologies which are expected to be generated by the science and technology sector and commercialized by the production sector. Focus should also be given to improving the technological requirements of those industries involved in the utilization of local resources. Moreover, particular attention will be given to efforts of export-oriented industries to enhance product competitiveness through better production technology and improved product quality.

The most urgent concern for the next years is, therefore, the proper selection of these essential technologies backed by a well-developed information base and technology assessment capability, the acquisition of technologies at terms most favourable to the country, and their assimilation through a learning-absorption process. These efforts require close co-operation between the industry itself and the Government agencies involved with industrial and technological development.

Plans are underway for the establishment, as Government Corporations, of a Technology Development Centre as the central institution for promotion and commercialization of technological research and a Technology Information Centre with the tasks of identification of technology available internationally of relevance to the country's industry, in particular the small and medium industry sector, and dissemination of such information. In these endeavours the Government would need international assistance.

One of the key areas where local scientific and technological efforts can be directed to is the production of local raw materials that can substitute for those which are imported. This search for local raw materials includes the task of developing appropriate processing technologies to make them suitable for large scale use in industrial production, above all where comparative advantages can lead to exportable products.

In line with overall development strategies immediate R and D efforts may also focus on upgrading the level of indigenous technology in areas such as agricultural implements production. The small producers should be encouraged to adapt, innovate and upgrade technology through their own

experience coupled with easy access to the R and D system. To this end, basic technological services are to be provided through a network of centres for testing, standards setting and technical services.

As effective dissemination of technical knowledge and expertise to the rural areas cannot be organized from Metro Manila the links to the rural technology users are provided through NSTA's Regional Offices. They can define the problems, identify and appraise the resources and capabilities and assess the needs of the rural community.

The NSTA Regional Offices have pursued a number of technology transfer projects that are income as well as employment generating. Their activities are consolidated in a NSTA Regional Technology Development Program with seven programme areas:

- Forest products - furniture processing for cottage, small and medium scale industries; utilization and processing of coconut trunks for construction materials; production of pandan cocooning frames for the sericulture industry; charcoal production and briquetting technologies.

- Agro-industries machineries and equipment - soap mixers; essential oil extractor, oil expeller, can seamer.

- Non-conventional energy - stoves for biomass fuel, charcoaling devices, briquettors, biogas digesters, solar dryer, gasifier.

- Materials - ceramics, kiln construction, brick-making.

- Industrial chemicals - accelerated vinegar production project, bodegradable laundry soap, industrial salt production.

- Food processing - cereal and legume processing, fruit and vegetable processing, meat and marine resource-based products.

- Pharmaceuticals - drugs from plants, cosmetics and drug preparations.

Finally, seen in a longer perspective attention should be given to the emerging challenge of a progressive shift from resource-based to technology-based production to be able to effectively, in the longer term, meet competition in the world market.

REFERENCES

Fabella, R.V., The Liberalization of Non-Transparent Distortions in the Philippines: Short-Run Impact Effects, (UP-School of Economics) 1986 (mimeo).

FAO, Draft Report of the Inter-Agency Mission to the Philippines on Policies and Strategies on Agrarian Reform and Rural Development, September 1986.

Hiemenz, U., Growth and Efficiency of Small and Medium Industries in ASEAN Countries, Asian Development Review, Vol.I (1983), No.1.

Institute of Developing Economies (ed.), Changes in the Industrial Structure and the Role of Small and Medium Industries in Asian Countries: The Case of the Philippines (Report prepared by the Institute for Small-Scale Industries, University of the Philippines (UP-ISSI)), Tokyo, February 1986.

Icamina, B.N./Alonzo, R.P., Non-Tariff Measures and the Philippine Textile Industry, (UP-School of Economics) 1986 (mimeo).

Medalla, E., Assessment of the Tariff Reform Programme and Trade Liberalization, (UP-School of Economics) 1986 (mimeo).

NEDA, Philippine Statistical Yearbook 1985.

NEDA/NIEP (Nationwide Industrial Estate Programme), Industrial Dispersal in the Philippines. A Policy and Institutional Review of Planning and Management of Industrial Estates and Export Processing Zones (2 Vol.), February 1986.

NEDA/NCSO, Philippine Yearbook 1985.

Philippine Institute of Development Studies, Economic Recovery and Long-Run Growth: Agenda for Reforms, Vol.I, May 1986.

Policy Agenda for People-Powered Development, (adopted in principle by the Cabinet, June 1986).

UNIDO, Industrial Development Review Series, The Philippines, UNIDO/IS.552, 10 April 1985.

UNIDO, Linkages between Industry, Agriculture and Food Production, UNIDO/OED.140, 18 June 1985.

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

UNIDO, Promoting Small-Scale Industry in Southeast Asia: Selected Support Schemes in the Philippines, Thailand and Malaysia, UNIDO/IS.618, 19 March 1986.

UP-ISSI, Agriculture and Agribusiness Opportunities (12 Vol.), Manila 1985.

Warr, P.G., Export Processing Zones in the Philippines, (ASEAN-Australia Economic Paper No.20), Kuala Lumpur/Canberra 1985

World Bank, World Development Report 1986.

Annex I

LIST OF PERSONS MET DURING MISSION

UNDP Manila

Mr. T.K. Mangun, Resident Representative
Ms. Elizabeth Fong, Deputy Resident Representative
Mr. Erik Bos, JPO (UNIDO)

National Economic and Development Authority (NEDA)

Mr. Romeo A. Reyes, Assistant Director-General
Mr. Vicente P. Salazar, Jr., Director, External Assistance Staff
Ms. Josefina Ramos, Director, Regional Development Staff
Mr. Remedios de Leon, Director, Industry and Utilities Staff
Ms. Julieta Legaspi, Director, Economic and Development Research Staff
Mr. Rolando G. Tungpalan, Program Director, Nationwide Industrial Estates Program (NIEP)
Ms. Flordeliza Dizon, Supervising Economic Development Specialist, External Planning and Research Staff
Ms. Socorro Miranda, Supervising Economic Development Specialist, Industry and Utilities Staff
Ms. C. Arriola, Economic Planning and Research Staff
Ms. Ascension Baile, Regional Development Staff
Ms. Linda Ortega

Ministry of Trade and Industry

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Mr. Antonio A. Henson, Deputy Minister (Domestic Trade and SMI sector)
Mr. Tomas I. Alcantara, Deputy Minister (Industry and Investments)
Ms. Lilia R. Bautista, Deputy Minister (Industry and Investments)
Mr. Raul A. Boncan, Deputy Minister (International Trade)
Mr. Ceferino L. Follosco, Deputy Minister (Regional Operations)
Mr. Wilhelm G. Ortaliz, Assistant Minister and Director of Bureau of Industrial Development
Ms. Gloria M. Arroyo, Assistant Minister
Ms. Tess Villena, Staff Development Unit
Ms. Marlene Saberano, Staff Development Unit
Mr. Raul Debuque, Regional Operations Head Office
Ms. Merissa Roberto, Chief Industry Development Specialist, Burea of Industrial Development

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Ms. Ramona Miguel, Director, Agro-industries Department
Ms. Ofelia V. Bulaong, Director, Inorganic Chemical Industries Department
Ms. Nelma Natividad, Office of Deputy Minister Alcantara
Ms. Meinard Orbeta, Director, Economic Research and Statistics Department
Mr. Agapito Kalingking, Jr., Director, Metals and Mining Department

National Science and Technology Authority (NSTA)

Mr. Antonio V. Arizabal, Minister for Science and Technology and Director-General of NSTA
Mr. Quintin L. Kintanar, Deputy Director-General

Ms. Luciana T. Hagad, Philippine Council for Industry and Energy Research and Development (PCIERD)
Ms. Mercy Soriano National Institute of Science and Technology (NIST)
Ms. Guillema Manalac, Materials Science Research Institute (MSRI)

Ministry of Social Services and Development

Ms. Karina Constantino-David, Deputy Minister

Bureau of Broadcast

Mr. Jose-mari Gonzalez, Director

Energy Research and Development Centre (ERDC)

Mr. de la Paz, Head, Bureau of Energy Development

Export Processing Zone Authority (EPZA)

Mr. Jaime L. Guerrero, Chairman/Administrator
Ms. E. Veronica Lumauig, Manager, Information and Promotion Department
Ms. Elvira Y. Ocampo-Adorable, Acting Manager, Project Evaluation and Review Department

Center for Research and Communication (CRC)

Mr. Manuel T. Lim, Head, Industry Monitoring Unit, Institute of Industrial Economics

Bureau of Small and Medium Industries (BSMI)

Mr. Zafrullah Masahud, Director of BSMI and NACIDA
Ms. Alice M. Opena
Ms. Leesa May Barrido
Ms. T. Madarang

Products Standards Agency (PSA)

Mr. Ignacio G. Salcedo, Jr., Director

Small and Medium Enterprises Development (SMED) Programme

Ms. Z. Maglaya

Bureau of Domestic Trade (BDT)

Mr. R Bandera

Philippine Patents Office

Mr. L. Dak, Jr.

Bureau of Foreign Trade

Ms. Rosario Q. Franco, Director

Philippine International Trading Corporation (PITC)

Mr. Jaime C. Gonzalez, President
Ms. Meree de Rosario

Design Center Philippines (DCP)

Mr. Arturo, R. Luz, Executive Director

Center for Industrial and Trade Exposition Missions, Inc. (CITEM)

Ms. Roseni Alvero

National Manpower and Youth Council, Ministry of Labour and Employment

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Mr. Jose D. Lacson, Director, Institute of Vocational Training and Development (IVTD)
Mr. Antonio Li Pacificador, Entrepreneurship Development
Mr. Loreto P. Purisima, Director, Rural Vocation Training Centre
Ms. Luzminda Santos, Chief, Industry Services Division, Industry Manpower Office (IMO)
Mr. Alfredo Regondola, Chief, Footwear and Leathergoods Training and Demonstration Centre (FLTDC), Project Management Group
Ms. Carmela Torres, Chief, Training Development Department, Institute of Vocational Training and Development (IVTD)

Productivity and Development Centre, Development Academy of the Philippines

Mr. Roberto A. Vasquez, Managing Director
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Ms. Caridad F. Aspiras, Head, Productivity for Agro-Industrial Development

Fiber Development Authority (FiDA)

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Ms. Cecilia Gloria J. Soriano, Chief, Marketing Division
Ms. Amelia A. Ramos, Section Chief, Utilization Division

Philippine Textile Research Institute (PTRI)

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Mr. Alfredo J. Alcantara, Textile Engineer (testing laboratories)

Garments and Textile Export Board, Ministry of Trade and Industry

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Ms. Ana Tay

Garments Business Association of the Philippines

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Mr. Robert Sehwani, First Vice-President
Mr. Joven Uy, Second Vice-President (Eastwind Garments Mfg.)
Mr. Leticia P. Ligon, Director (Gen. Mgr. Everfit Mfg. Corp.)

Mr. D.T. Uttamchandani, Director (President, D.T. Industries)
Ms. Diana H. Santos, Director (President, Ossa International Inc.)
Mr. Solomon Ko, Director (Asst. Gen. Mgr., Elite Garments International)
Mr. Antonio A. Yulo, Director (Gen. Mgr., Norgate Apparel Manaufacturers Inc.)

Textile Manufacturers Association of the Philippines Inc.

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Mr. Arsenic Tanco, President and General Manager, (Manila Bay Spinning Mills, Inc.)

Metals Industry Research Development Centre (MIRDC)

Mr. Constante V. Ventura, Executive Director
Atty Jose G. Bautista, Jr., Asst. Executive Director

Metal Industries Council

Mr. Raul T. Concepcion, Chairman

Chamber of Furniture Industries of the Philippines

Mr. Al de Lange, Jr., President
Mr. Toni C. Lo, Vice-President (Luzon Rattan Industries Inc.)

Food Development Center

Ms. Alicia D. Lustre, Director

Philippine Chamber of Food Manufacturers

Mr. Vicente Lim, Jr., President

National Council on Integrated Area Development

Mr. J. Andres A. Limcaoco, Executive Director

Technology Resource Centre (TRC), Ministry of Human Settlements

Mr. Jose M. Kalaw, Director-General (Office-in-Charge of TRC)
Mr. Benjamin H. Milano, Managing Director
Ms. Sylvia Ordonez, Managing Director, Technology Dissemination Department
Ms. Amelia Torrenti, Program Manager, Information Systems Services Department
Atty (Ms) Gladys Dacanay

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Ms. E. Medalla, Research Fellow

University of the Philippines (UP)

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Mr. Agustin Kintanar, Vice President for Planning
Mr. Jose Mananzan, Vice President for Public Affairs

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UP School of Economics

Mr. Raul Fabella
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Ms. Angelita V. Salanio, Head, Publications Group

Philippine Coconut Authority

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Philippine Chamber of Commerce and Industry (PCCI)

Ms. Chit Arce, Head, Research and Publication

Private Development Corporation of the Philippines (PDCP)

Mr. Dante M. Liwanes, Manager, Economic and Corporate Research Office

The SGV Group (consultant firm)

Mr. Antonio G. Lim, Principal
Mr. Emmanuel T. Velasco, Principal (economist)

Asian Development Bank (AsDB)

Mr. Guenther Schulz, Vice President
Mr. Gerhard Kahl, Senior Country Officer
Mr. Morimitsu Inaba, Senior Project Economist
Mr. Dieter Bucher, Development Policy Officer
Mr. H.L. Durland, Manager, Private Sector Division

World Bank

Mr. Rakesh Mohan, Leader of World Bank Mission on Industry Sector
Mr. Peter Petri, Consultant, Industry Strategies and Policy Division,

PERSONS MET AND FACTORIES VISITED IN CEBU

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Mr. Rogelio B. Balajadia, Zone Manager

Small Business Assistance Centre (SBAC), Ministry of Trade and Industry

Mr. Joel Mari S. Yu, MTI Representative, SBAC Regional Office

Industry Sector Task Force

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Mr. Vivencio F. Mallari - Central Bank, Chief Loans Examiner
Mr. Romeo Escandor - NACIDA, Officer-in-Charge
Mr. Efren S. Herrero - Philippine National Bank
Ms. Rosalio A. Lofranco - Product Standard Agency, Officer-in-Charge
Ms. Madelyn Escandor - NEDA, Supervising Economic Development Specialist
Ms. Rosa Edna L. Hubahib - NEDA, Economic Development Specialist
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Cebu Chamber of Commerce and Industry

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Mehitabel Furniture Co. Inc.

Ms. Josephine A. Booth, Managing Director

Mango Processing Co.

TMX

Mr. Rogelio Q. Lim, General Manager

Cenapro Chemical Corporation

Mr. Amado O. Go, President
Mr. Go Sing Chan, Managing Director
Mr. Hiroyasu Tamoto, Director-Treasurer
Mr. Soichi Kadama, Asst. Vice President, Director - Plant Manager

MEMBERS OF THE PHILIPPINE TEAM IN MANILA

Ms. Tess Villena, Staff Development Unit, MTI;
Ms. Marlene Saberano, Staff Development Unit, MTI;
Mr. Gerry Anigan, Chief Planning Officer, Planning Service;
Mr. Raul Debuque, Regional Operations Head Office, MTI;
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Ms. Alice M. Opena, Bureau of Small and Medium Industries, MTI.

Table A-1: Distribution of GDP by industrial origin, 1980 to 1986
(at constant 1972 prices, million pesos)

	1980	1981	1982	1983	1984	1985	1st qtr 1986
Agriculture, fishery & forestry	23,732	24,608	25,378	24,845	25,409	26,010	7,008
Industrial sector	33,471	34,963	35,714	35,955	32,159	28,880	7,096
Mining and quarring	2,236	2,175	2,016	1,966	1,755	1,764	416
Manufacturing	23,175	23,959	24,535	25,108	23,319	21,625	5,321
Construction	7,139	7,830	8,079	7,689	5,866	4,248	1,061
Service sector	35,434	36,636	37,907	39,120	36,646	35,579	8,368
Transport, communication, and storage	4,827	5,040	5,165	5,266	5,032	4,953	1,221
Commerce, finance & housing	19,345	19,695	20,355	21,508	19,617	18,921	4,271
Other services	11,262	11,901	12,387	12,346	11,997	11,705	2,876
Gross domestic product	92,637	96,207	98,999	99,920	94,214	90,469	22,472

Source: NEDA.

Table A-2. Value of exports by major commodity groups, 1980 to 1986
(million US $)

Commodity group	1980	1981	1982	1983	1984	1985	1986a/b/
1. Traditional products	2,800	2,398	1,949	1,820	1,628	1,138	639
Coconut products	781	718	563	639	690	440	244
Copra	47	34	49	4	n.a.	n.a.	2
Coconut oil, crude	537	501	374	475	543	328	186
Desiccated coconut	116	102	68	88	106	76	21
Copra meal/cake	81	81	72	72	41	36	35
Sugar and products	590	454	396	282	272	161	53
Sugar, centrifugal	557	416	371	265	239	145	41
Molasses	33	38	25	17	33	16	12
Forest products	420	344	289	327	265	193	85
Logs	92	76	78	74	88	39	15
Lumber	181	126	124	149	107	91	39
Plywood	111	111	67	76	56	51	22
Veneer	36	31	20	28	14	12	5
Mineral products	817	669	497	413	238	196	132
Copper concentrates	545	429	313	249	115	84	48
Gold	239	215	168	154	104	100	60
Crome ore	33	25	16	10	19	12	4
Canned pineapple	82	89	88	74	87	89	41
Abaca fibres	27	19	20	18	30	16	7
Tobacco unmanufactured	29	48	47	33	28	24	16
Gas oil for international delivery	54	57	49	34	18	19	30
2. Non-traditional products							
Non-traditional manufactures	2,108	2,566	2,456	2,588	3,136	2,857	1,318
Electrical & electronic equipment & component	671	838	1,000	1,053	1,329	1,056	427
Garments	500	617	539	542	600	619	316

Table A-2 (continued)

Commodity group	1980	1981	1982	1983	1984	1985	1986a/b/
Chemicals & related products	89	105	96	86	104	150	122
Machinery & transport eqpt.	47	47	48	35	36	30	14
Handicrafts	139	134	122	140	137	138	n.a.
Furniture & parts	77	88	72	84	88	84	41
Footwear	67	73	62	55	46	39	17
Textile yarns/fabrics	50	43	39	29	24	25	18
Processed food & beverages	170	310	214	175	134	151	55
Nor metallic mineral manufs.	59	49	40	26	21	23	9
Builders woodwork	24	39	31	39	41	35	21
Copper metal	n.a.	n.a.	n.a.	26	111	167	83
Others	215	223	193	298	465	340	195
Non-traditional non-manufactures	810	702	563	506	494	582	312
Iron ore agglomerates	118	117	106	114	105	95	42
Bananas	115	124	147	105	122	114	69
Nickel	138	104	49	54	12	64	14
Coffee, raw, not roasted	45	39	49	47	76	70	82
Fish, fresh or preserved	107	90	71	77	68	99	64
Rice	76	32	n.a.	n.a.	n.a.	n.a.	n.a.
Others	211	196	141	109	111	140	41
Re-export and other special trans.	70	56	53	91	133	52	41
Total	5,788	5,722	5,021	5,005	5,391	4,629	2,310

a/ January-June 1986.
b/ As per Central Bank classification:
- Traditional includes fruits and vegetables.
- Sugar products includes refined.
- Forest products includes other forest products.
- Mineral proudcts includes other mineral products.
- Gas, oil for international delivery is petroleum products as classified by the Central Bank.
- Garments, footwear, textile yarns/fabrics, and builders woodwork include items classified under gifts and housewares.
- Gifts and housewares included under others.

n.a. - not available.

Source: NEDA.

Table A-3. Value of imports by major commodity groups, 1980to 1986
(million US $)

Commodity group	1980	1981	1982	1983	1984	1985	1986a/
1. Capital goods	1,986	1,925	1,786	1,698	1,150	788	357
Non-electrical machinery	1,015	945	988	902	420	366	161
Electrical machinery	312	392	385	404	427	293	130
Transport equipment	288	272	241	208	98	48	25
Aircraft, ships and boats	245	188	54	78	141	20	15
Professional, scientific, & cont. instruments	126	128	118	106	64	61	26
2. Raw materials and intermediate goods	2,855	2,886	3,042	3,017	2,636	2,198	1,236
Wheat	149	151	158	135	121	106	60
Crude materials, inedible	195	196	193	184	139	150	113
Cotton	44	34	20	29	20	25	15
Synthetic & artificial fibres	62	79	78	66	47	50	29
Others	89	83	95	89	72	75	69
Animal & vegetable oils & fats	19	18	16	25	33	13	6
Chemicals	741	765	743	771	617	584	328
Chemical compounds	267	298	259	267	238	219	132
Medicinal & pharm. products	69	72	82	76	61	52	36
Urea	89	57	59	45	43	62	26
Fertilizer excluding urea	50	48	49	46	45	44	17
Others	266	290	294	337	230	207	117
Manufactures	986	882	1,031	931	579	508	291
Paper and paper products	67	64	67	65	66	65	35
Textile yarn, fabrics, etc.	144	158	150	183	158	140	88
Iron and steel	399	325	423	356	186	135	94
Metal products	133	148	172	147	55	75	27
Others	244	187	219	180	114	93	47

Table A-3. (continued)

Commodity group	1980	1981	1982	1983	1984	1985	1986a/
Embroideries	142	188	150	140	226	196	106
Material/acc. for manufacture of electrical equipment	549	626	677	765	803	585	308
Iron ore, not agglomerated	74	60	74	49	62	56	24
Centrifugal sugar for refining	n.a.	n.a.	n.a.	17	46	n.a.	n.a
3. Mineral fuels and lubricants	2,248	2,458	2,105	2,123	1,649	1,452	505
Coal, coke and briquettes	22	19	26	16	41	50	25
Petroleum crude	1,857	2,081	1,784	1,741	1,472	1,277	419
Others	369	358	295	366	136	125	61
4. Consumer goods	466	537	635	538	367	441	214
Food and live animals	344	412	492	393	294	320	153
Dairy products	113	135	167	128	66	72	51
Fish and fish preparations	26	30	38	7	1	1	1
Rice	n.a.	n.a.	n.a.	n.a.	42	110	n.a
Corn	35	42	43	71	29	33	n.a.
Others	170	205	244	187	156	104	101
Beverages and tobacco	48	53	66	73	35	76	37
Miscellaneous instruments	74	72	77	72	38	45	24
5. Special transactions	171	140	99	111	268	232	129
Total imports	7,727	7,946	7,667	7,487	6,070	5,111	2,441

a/ January-June 1986.
n.a. not available.

Source: NEDA.

Table A-4. Gross value added in manufacturing 1980 to 1986
(at constant 1972 prices, million pesos)

	1980	1981	1982	1983	1984	1985	1st qtr. 1986
Total manufacturing	23,175	23,959	24,535	25,108	23,319	21,625	5,321
Food manufactures	8,419	8,803	9,099	9,246	9,344	8,646	2,310
Beverages industries	732	730	747	763	805	796	165
Tobacco manufactures	1,039	1,100	1,114	1,117	890	970	236
Textiles manufactures	1,049	1,095	1,053	1,050	949	734	184
Footwear/wearing apparel	1,019	1,189	1,224	1,247	1,299	1,297	282
Wood and cork products	665	707	704	716	588	536	92
Furniture and fixtures	132	139	140	142	142	109	28
Paper and paper products	191	188	172	196	182	158	43
Publishing and printing	324	344	359	368	370	389	105
Leather and leather products	68	70	71	66	63	69	15
Rubber products	302	311	324	316	334	281	68
Chemicals and chemical products	2,365	2,317	2,273	2,315	1,797	1,704	423
Products of petroleum, coal	1,373	1,287	1,313	1,351	1,259	1,153	242
Non-metallic mineral	574	540	569	587	481	375	88
Basic metals industries	853	791	856	947	1,121	1,070	237
Metal products	1,041	977	1,052	1,091	740	746	170
Machinery, except electrical	726	764	787	797	442	409	112
Electrical machinery	1,153	1,401	1,475	1,717	1,964	1,600	385
Transport equipment	885	910	883	742	124	136	36
Miscellaneous manufactures	265	296	320	334	425	447	100

Source: NEDA.

Table A-5. Production of major agricultural crops/commodities, 1983-1986
(thousand metric tons)

	1983	1984	1985	1986 (Jan.-June)
Food crops				
Palay	7,295	7,825	3,800	3,807
Corn	3,134	3,250	3,862	1,032
Coffee a/	69	117	133	n.a.
Cacao a/	6	5	5	n.a.
Sorghum a/	6	1	b/	n.a.
Beans, seeds and nuts a/	73	82	90	n.a.
Fruits a/	3,886	6,237	5,831	n.a.
Vegetables a/	713	357	342	n.a.
Rootcrops a/	1,169	2,286	2,453	n.a.
Commercial crops				
Sugar	2,000	1,997	1,300	n.a.
Coconut	2,148	1,400	1,800	n.a.
Tobacco a/	45	66	47	n.a.
Rubber a/	123	123	146	n.a.
Abaca a/	89	89	84	n.a.
Cotton a/	7	8	6	n.a.
Ramie a/	2	b/	1	n.a.
Livestock	1,033	653	685	n.a.
Poultry	288	327	343	n.a.
Fishery	2,110	7050	2,135	n.a.

a/ Cropyear Basis (July-June).
b/ Less than one (1) MT.
n.a. not available.

Source: Bureau of Agricultural Economics - Ministry of Agriculture and Food.

Table A-6. Energy supply mix, 1985-92
(in million barrels of fuel oil equivalen)

	1985		1987		1992	
	Volume	Per cent	Volume	Per cent	Volume	Per cent
OIL	49.27	52.18	51.58	51.50	59.11	47.78
Imported	46.67	49.43	49.91	49.84	58.45	47.25
Domestic	2.60	2.75	1.67	1.67	0.66	0.53
Coal	8.41	8.91	9.14	9.13	16.17	13.07
Imported	4.57	4.84	1.33	1.33	1.23	0.99
Domestic	3.84	4.07	7.81	7.80	14.94	12.08
Hydro	9.60	10.17	11.05	11.03	12.14	9.81
Geothermal	8.53	9.03	8.18	8.17	10.40	8.41
Non-conventional	18.61	19.71	20.20	20.17	25.89	20.93
Total	94.42	100.00	100.15	100.00	123.71	100.00

Source: Bureau of Energy Development.

Table A-7. Pattern of regional industrial specialization, 1980

Region	Dominant sectors	Specialization	Share of National Output
Region I	Food (35%), tobacco (19%) and beverages (10%)	Textiles and wood	0.7%
Region II	Wood (43%) and food (33%)	Beverage, ceramics, and clay products	0.5%
Region III	Food (36%), tobacco (19%), and beverages (10%)	Textiles, clothing, and some chemical sectors, and printing	7.2%
Region IV	Food (42%), tobacco (19%), and transport equipment (9%)	Transport equipment, cement, some chemicals, clothing	13.0%
Region V	Food (68%) and textiles (17%)	Beverages and wood products	1.0%
Region VI	Food (83%)	Beverages and some metal fabricating	4.5%
Region VII	Food (48%) and beverages (14%)	Transport equipment, some chemicals, wood products	5.9%
Region VIII	Food (56%) and beverages (31%)	Clothing, wood products	0.3%
Region IX	Food (84%)	Rubber and tire products	0.9%
Region X	Food (44%), wood (22%), and basic metals (11%)	Metal products, chemical Products	3.3%
Region XI	Food (54%) and wood (30%)	Paper products	4.0%
Region XII	Food (70%) and chemicals (petroleum and coal) (20%)	Wood products	2.3%

Source: NCSO Survey of Establishments, 1980.

Annex III

LIST OF NATIONAL DEVELOPMENT COMPANY (NDC) SUBSIDIARIES OPEN FOR FOREIGN INVESTMENTS

National Alcohol Corporation

Presidential Decree No.2001 called for the implementation of a National Alcohol Program. The National Alcohol Corporation (NAC) was organized as the vehicle to undertake the investments of the Philippine Government in the Program, and is called upon to establish, develop, invest in, and operate distilleries, plants and laboratories for the manufacture of alcohol. Although initially organized as a wholly-owned government corporation, equity participation in NAC from the private sector of up to 60 per cent will be welcome in the future. The National Development Company (NDC) has been nominated as the government arm for the organization of the NAC, with an authorized capital stock of P100 million, divided into one million shares with a par value of P100 per share.

National Transport Group

The National Transport Group (NTG) is wholly owned by NDC and is made up of the various operating entities formerly known as the LUSTEVECO Group of Companies. Originally acquired from the Construction Development Corporation of the Philippines in 1982, the Group now consists of the following companies: National Marine Corporation, National Stevedoring and Lighterage Corporation, National Trucking and Forwarding Corporation, and National Slipways Corporation. Among the services provided by the Group are stevedoring, lighterage, trucking/heavylift operations, household goods moving, air cargo forwarding, interisland shipping, ship repair and warehousing.

National Precision Cutting Tools, Inc.

The National Precision Cutting Tools, Inc. (NPCT) is a BOI-registered pioneer non-traditional export-oriented enterprise engaged in the manufacture and sale of industrial quality basic cutting tools (drill bits, taps, lathe bits and end mills) extensively used in the metal-working, automotive,

aircraft, electronics and woodworking industries as well as all maintenance and repair shops. It was established as a joint venture between NDC and an American based company to support the country's industrialization programme and to earn foreign exchange. The American partner supplied the technical know-how in putting the project together, while NDC provided the financing.

The Company's manufacturing and metallurgical laboratory facilitiates are located on a leased 3,000 sq.m. warehouse type structure in Bagumbayan, Taguig, Metro Manila. The Company's production machineries are the latest supplied by well known manufacturers in the cutting tool industry. The drill line, operating on a partial 3-shift basis, is capable of producing four million drills per year in sizes 1/16" to 1/2". The tap line, on the other hand, has a capacity of 400,000 pieces per year for sizes 1/8" to 3/4". Since NPCT is one of only two local firms with high speed steel heat treat facilities, it was natural for the company to develop other cutting tools such as end mills, lathe bits, reamers, a gear cutters and even semi-conductor and pharmaceutical toolings required by the domestic market.

National Shipping Corporation of the Philippines

The National Shipping Corporation of the Philippines (NSCP) was the former National Steel Shipping Corportion (NSSC), subsidiary of the National Steel Corporation (NSC). Conceived to service the shipping requirements of NSC's raw material imports, NSSC has owned and operated one 12,000 DWT bulkcarrier. In 1983, ownership of NSSC was transferred to NDC, with the view of consolidating the NDC subsidiaries' shipping requirements.

In September 1984, NSSC was renamed National Shipping Corporation of the Philippines. At the same time, NDC finalized negotiations for the purchase of five vessels foreclosed by the Development Bank of the Philippines (DBP) from Galleon Shipping Corporation (GSC). These multi-purpose (breakbulk and container) cargo ships of around 20,000 DWT each were subsequently bareboat chartered to NSCP.

Having noted GSC's developed container liner service from the Far East to the USA West Coast, NSCP planned its effort to maintain this service. Today NSCP deploys its 12,000 DWT ship on continuing time charter and the five former Galleon vessels on a regular container service from the Far East to the

US West Coast with a voyage charter on the return trip. Sailings are provided at least twice a month with the following ports of call in the Far East-West Coast route - Hong Kong, Kaoshiung/Keelung (Taiwan Province of China), Busan (Republic of Korea), Tokyo/Kobe (Japan), and Los Angeles/San Francisco (USA).

National Steel Corporation

National Steel Corporation (NSC), a wholly-owned NDC subsidiary, is the country's leading steel manufacturing firm. The existing capacities of NSC's steel mills at Iligan (Northern Mindanao) and Pasig (Metro Manila) cover an optimum range of 650,000 MT to 850,00 MT per annum depending on the product mix. For the flat steel market, NSC manufactures hot-rolled, cold-rolled and tinplate products. For the long products market, NSC has billets, bars and rods.

Refactories Corporation of the Philippines

Refractories Corporation of the Philippines (RCP) is a BOI-registered preferred-pioneer enterprise engaged in the manufacture of basic refractories used in industrial furnaces, kilns, and other heat-using equipment. Catering mostly to the domestic market, RCP's principal customers are the cement, steel, copper smelting and the foundry industries.

RCP is a joint venture among NDC, NSC, Toyo Monka, Mino Yogyo and the Alcantara Group. Its manufacturing complex is located in Iligan City.

Semirara Coal Corporation

Semirara Coal Corporation (SCC) is the operator of the country's largest proven coal reserves located in Semirara Island, Antique. The company was acquired by NDC in 1982 at the time when financial constraints were threatening the ability to develop its Unong field (mineable reserves: 17 million MT) into full commercial operations.

Construction and installation of a continuous mining system were completed in the first quarter of 1984 and the system has been undergoing trial operations and performance tests.

Briefly, the system is designed to produce one million MT of coal per annum, and includes:

1. Four (4) bucketwheel excavators to extract coal and overburden, each rated at 1,000 MT/hour;
2. A spreader for dumping waste material rated at 9,700 MT/hour;
3. A conveyor belt system of about 14 kilometers in length to transport material from the mining pit to the stockpile area and to the pier;
4. A shiploader rated at 1,000 MT/hour; and
5. A captive power plant using Semirara coal for its boilers with a rated capacity of 15 MW.

Manila Gas Corporation

Manila Gas Corporation (MGC) is involved in the manufacture and distribution of piped gas and the sale of liquified petroleum gas (LPG) to dealers and endusers. The Company is also the sole distributor of the Ansul brand of fire fighting chemicals in the Philippines.

MGC was founded in 1912 and was granted a franchise to operate City Gas for the distribution of piped gas. It presently operates the only network of underground piped lines for gas distribution in the Philippines.

NGC has four subsidiaries namely:

1. Inter-island Gas Service, Inc. (IIGSI)
2. Pagkakalsa Gas Storage Corporation (PAGASCOR)
3. Liquid Gas Philippines, Inc. (LGPI)
4. The Borromeo Corporation (TBC).

IIGSI distributes LPG under the brand name Rock-gas while PAGASCOR operates two ships for bulk LPG sales. LGPI and TBC are presently non-operational. MGC itself markets LPG under the M Gas brand name, operates the piped gas system and distributes Ansul.

NDC-Guthrie Joint Ventures

NDC-Guthrie Plantations, Inc. (NGPI) and NDC-Guthrie Estates, Inc. (NGEI) are the first two of NDC's integrated oil pulp plantation projects in joint

venture with Kumpulan Guthrie Sendirian Berhad (KGSB) of Malaysia. Both are located in Agusan del Sur, Mindanao and have a combined plantation area of 8,119 hectares.

The original intention was for NGPI to undertake the development of 8,000 hectares plantation area. The project was restructured in 1982 into a two-phase development of 4,000 hectares each to be undertaken by two separate companies, NGPI and NGEI.

NGPI and NGEI each have a 25-year Lease Agreement with NDC covering approximately 4,000 hectares each of plantation site. Both companies have a separate 10-year Technical Co-operation Agreement with KGSB for specialized services required in the development and maintenance of the plantations.

NGPI and NGEI are geared towards the production of palm oil and palm kernels for export and domestic sales. NGPI operates an oil mill with a rated capacity of 36 MT/hour of fresh fruit bunches (FFB). NGPI began commercial operations in January 1986 while NGEI is schedule to begin commercial operations in 1990.

NGPI and NGEI are registered with the Board of Investments (BOI) as preferred, non-pioneer integrated oil palm projects. They are also registered with the BOI under the Investments Promotion Act for Less Developed Areas.

Philippines Associated Smelting and Refining Corporation

The Philippine Associated Smelting and Refining Corporation (PASAR) was incorporated in 1976 to establish, own and operate the first copper smelting and refining facility in the country.

PASAR's main product is copper cathode which is refined from anode, an intermediate product obtained from treating copper concentrates. By-products include sulphuric acid, dore metal (gold and silver), selenium, granulated slag, gypsum, nickel sulfate, electrostatis precipitator dust and iron concentrate.

The plant's heat-up operations commenced in March 1983 and its final acceptance took effect in December of the same year.

The copper smelter and refinery complex is designed to produce 138,000 MTPY of copper cathodes. The concentrate requirement of PASAR is supplied by participating Philippine copper mines on a direct purchase basis. A treatment and refining charge (TC/RC) is deducted from the payable metal value of the concentrate to cover the processing cost.

The major units of the physical plant located in Isabel, Leyte include the smelter, the refinery, the dore plant, the sulphuric acid plant and other ancillary plants.

PASAR sells its copper cathodes both in the domestic and foreign markets, with 96 per cent being exported to markets in Japan, Taiwan Province of China, Republic of Korea and Europe. The PASAR copper cathode is accredited for good delivery with the London Metal Exchange (LME) under the "PASAR" brand and with the United States COMEX under the "PSAR" brand. Dore metal is sold to the Central Bank of the Philippines while sulphuric acid is sold to the nearby Philippine Phosphate Fertilizer Corporation (Philphos), and other domestic users of sulphuric acid.

Philippines Phosphate Fertilizer Corporation

The Philippine Phosphate Fertilizer Corporation (Philphos) was incorporated in 1980 as a 50-50 joint venture between NDC and the Government of Nauru. The Philphos fertilizer plant operates within the 435 hectare Leyte Industrial Development Estate (LIDE) in Isabel, Leyte. The plant complex is immediately adjacent to the copper processing plant of PASAR This location allows Philphos to take advantage of the supply of PASAR's sulphuric acid by-product.

The fertilizer complex includes the production units shown below with their corresponding capacities:

	No. of Units	Capacity MTPD	Process Licensor
Sulphuric acid	1	1,500	Lurgi
Phosphoric acid	2	1,200	Prayon
Ammonium sulphate	1	520	Struthers-Wells
Granulation plant	2	2,650 a/	Cros/Bearden Potter

a/ This production rate is based on the production of DAP.

The complex has great flexibility in making a wide range of NP and NPK products in large tonnages. Typical granular products are DAP, MAP, 15-15-15, 20-20-0, and 16-20-0; however, any presently marketed ammonium phosphate-based NP or NPK can be produced, allowing easy and quick response to changing markets. In addition, the two parallel phosphoric acid/granulation trains can be operated independently. Concurrently, two different products can be produced from two different phosphate rock feeds.

The total production of Philphos, which approximately amounts to one million tons of variuos fertilizer grades, is intended for both the local Philippine market and the ASEAN region, particularly China and Thailand. The domestic market accounts for about 20 per cent of its total production, with the remaining 80 per cent slated for export. In addtion to the granular fertilizer grades, Philphos is also exporting merchant grade phosphoric acid.

Filipinas Synthetic Fiber Corporation

Filipinas Synthetic Fiber Corporation (Filsyn) is a principal domestic manufacturer of a wide range of polyester fibre types and filament yarn used as industrial raw material by textile millers. It commenced commercial operation in November 1971 and has present capacity to produce 1,800 MTPY of staple fibre, 950 MTPY filament yarn and 600 MTPY of draw textured yarn. The Company was registered as a preferred pioneer enterprise under the First Investment Priorities Plan in 1970 and as an accredited trading company in 1982 to promote exports. Filsyn has diversified into export trading activities which include polyester products, prawns, ropes, garments, furnitures and processed foods.

In 1981, Filsyn acquired the assets and equipment of Lakeview Industrial Corporation (LIC), a small scale polyester plant, at the behest of the Government to achieve commonality of interest and rationalize the polyester manufacturing industry. LIC, in 1980, ceded its entire plant and fixed assets to DBP for failure to pay its financial obligations. In January 1981, the DBP offered for sale its entire interest in LIC to Filsyn through NDC. Part of Filsyn's payment to NDC was in the form of common shares which gave the Government a 24 per cent share in the ownership structure of the Company.

Menzi Development Corporation

The Menzi Development Corporation (Mendeco) originally operated as a division of Menzi and Company which was engaged mainly in the decorticating of abaca hemp. In 1972, it was registered with the BOI on a pioneer status to engage in the production of high quality paper. At present, the Company is engaged in the production of crumb rubber and high grade printing and writing papers. Its facilities include the following:

- 20 MTPD pulp and paper mill
- 5 MTPD bleached abaca pulp line
- 3 MTPD rubber processing line
- 350 hectares rubber plantation
- 200 hectares abaca plantation
- 170 hectares reserved for agricultural expansion.

In 1983, the Company started its modernization plan to upgrade its paper mill in order to produce security papers in accordance with Central Bank's specifications. The plan which is a pioneer project in the ASEAN region, involved the installation of a security paper manufacturing facility with the capacity of 4 MTPD to complement the company's existing pulp and paper mill. In addition, an off-line coating machine will also be installed to produce 10 MTPD of coated paper while the bleached abaca pulp line will be upgraded and expanded to produce 10 MTPD of world-quality bleached abaca pulp.

The Company entered into a joint venture arrangement with Giesecke and Devrient (G and D), a German paper manufacturer which produces and prints almost 75 per cent of West Germany's needs for security paper. G and D supplied the upgrading equipment and machinery and entered into a five-year technology transfer agreement with Mendeco.

To date, the Company's modernization project is almost complete. The upgraded mill will be ready for commercial operation after six months of mounting and commissioning works to be undertaken as soon as financing is secured.

Paper Industries Corporation of the Philippines

The Paper Industries Corporation of the Philippines (PICOP) operates the largest fully integrated timber and ppaer industrial complex in Southeast

Asia. It has an annual capacity of 82,000 MTPY of newsprint and 68,000 MTPY of Kraft.

Philippines Dockyard Corporation

The Philippine Dockyard Corporation (PDC) was engaged in ship maintenance and outfitting, in addition to shipbuilding and other related services. PDC's shipyard was located in Mariveles, Bataan and is presently non-operational.

Marina Properties Corporation

Marina Properties Corporation (MPC) was incorporated in May 1979 under the management of CDCP. MPC is the owner and developer of Manila Marina Baytown (formerly called Halik-Alon or First Neighbourhood Unit), a 172 hectare reclaimed property within the Manila-Cavite Coastal Road and Reclamation Project (MOCRRP).

In July 1983, NDC took over MPC from CDCP by virtue of Letter of Instruction 1295 providing for the rehabilitation of the latter.

MPC has concentrated its efforts on the conversion of the Manila Marina into a viable self-sustaining island community by developing a residential area composed of single detached lots in Marina East. MPC also planned unit development in Marina South, North and West, with commercial centres and a yacht and country club at the northern tip of the Manila Marina.

Source: Philippine Chamber of Commerce and Industry.

Annex IV

LISTING OF R AND D PROGRAMME AREAS OR PROGRAMMES IN THE INDUSTRY AND ENERGY FIELDS[1/]

1. Development or adaptation of technological requirements for preservation and packaging of fruits and vegetables to serve the requirements of the small scale food processors.

2. Utilization of agriculture by-products and wastes as raw materials for the food processing industry.

3. Development of additives from indigenous sources extensively used by the food processing industry.

4. Development of local materials as substitutes for feedstuff and feed supplements.

5. Adaptation of technologies for the manufacture of active ingredients for the pharmaceutical industry.

6. Development and improvement of technology on the manufacture of various types of particle-boards.

7. Development of cheaper roofing materials.

8. Design and development of furniture and wares from lesser-known and fast-growing wood species and non-wood materials.

9. Development of hardwood technology for pulp and paper products.

10. Development of yarn technology for natural fibres such as silk, cotton and ramie.

11. Improvement of the finishing technology of natural fibre to promote certain characteristics such as shirnkage, dyeing and printing.

12. Beneficiation/utilization of mineral deposits low-grade fertilizer.

13. Identification and characterization of potential raw material sources for the chemical industry.

14. Development/adaptation of known technologies for the manufacture of basic industrial chemicals from indigenous sources.

15. Design and fabrication of intermediate technology machineries and equipment for the production and processing needs of various small and medium scale enterprises.

1/ Source: National Science and Technology Authority (NSTA).

16. Upgrading the design and fabrication capability of the metal working sector for equipment parts and component products.

17. Design and fabrication of low-cost communications equipment.

18. Design and development of low-cost industrial instrumentation and control equipments.

19. Development of technological requirements for the utilization of locally available iron ore deposits for iron smelting.

20. Substitution of imported industrial mineral with locally available resources.

21. Utilization of locally available stone and clay materials for the housing construction and ceramics industry.

22. New uses for metals and minerals which are abundant locally.

23. Local coal combustion properties and design of suitable boilers.

24. Adaptive research on gasification systems.

25. Commercial scale charcoal production from other biomass resources aside from wood and coconut shells.

26. Development of readily usable information on solar insolation and wind regimes for design and economic projects.

27. Institutionalization of energy conservation measures and practices including fuel substitution.

28. Energy generation from aquacultural and industrial wastes.

29. Improvement of design of low-cost utility vehicles.

30. Standardization of design of ships to reduce production and repair costs and minimize yard delays.

31. Adaptation of microcomputerized operations research sofware to local transportation conditions.

32. Development of systems and equipment standards for telecommunications.

33. Development of the capability to manufacture locally developed telecommunications equipment and components.

34. Modular design for mass housing projects.

35. Development of materials and components for building systems.