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A TECHNICAL ASSISTANCE PROGRAMME FOR INDUSTRY IN THE PHILIPPINES

Report of a UNIDO Mission to the Philippines

12 August - 4 September 1990

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This report was prepared by the Regional and Country Studies Branch, Industrial Policy and Perspectives Division and the Asia and Pacific Programme, Area Programmes Division.

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LIST OF ABBREVIATIONS

ASEAN	Association of Southeast Asian Nations
BOI	Board of Investments
CAIDS	Countryside Agro-Industrial Development Strategy
CTTC	Comprehensive Technology Transfer and Commercialization Programme
DBP	Development Bank of the Philippines
DCCCI	Davao City Chamber of Commerce and Industry
DENR	Department of Environment and Natural Resources
DOST	Department of Science and Technology
DTI	Department of Trade and Industry
ECC	Energy Conservation Center
ECFA	Engineering Consulting Firms Association, Japan
EIA	Environmental impact assessment
EPZ	Export Processing Zone
GDP	Gross domestic product
IGLF	Industrial Guarantee and Loan Fund
INTIB	Industrial and Technological Information Bank
MEPZ	Mactan EPZ
MIRDC	Metal Industry Research and Development Center
NCR	National Capital Region
NEDA	National Economic and Development Authority
NICs	Newly industrializing countries
NSCB	National Statistical Coordination Board
ODA	Official Development Assistance
PAP	Philippine Assistance Programme
PIDS	Philippine Institute for Development Studies
PIE	People's Industrial Enterprises
PSSD	Philippine Strategy for Sustainable Development
PTRI	Philippine Textile Research Institute
PTFST	Presidential Task Force for Science and Technology
R&D	Research and Development
RAIC	Regional Agro-Industrial Centre
RAPID	Regional Accelerated Program for Investment and Development
RIC	Regional Industrial Center
STCC	Science and Technology Coordinating Council
SDPs	Special Development Projects
SEED	Small Enterprise Equity Development
SMEs	Small and medium-scale enterprises
SMI	small and medium scale industry
SMILE	Small and Medium Industries Lending Programme
S&T	Science and Technology
STCC	Science and Technology Coordinating Council
TLRC	Technology and Livelihood Resource Center

I. INTRODUCTION

In the context of preparatory work for the Fifth Country Programme, UNDP has requested UNIDO to prepare an industry sector report providing (a) a brief overall review of industrial development in the Philippines and major prospects and constraints in a medium-term perspective, as well as, (b) recommendations for development objectives to be supported and project concepts to be pursued in the next Country Programme within the field of industry.

The present report reflects the findings of a mission which visited the Philippines from 12 August - 4 September 1990 and consulted a number of official and private sector institutions involved in industrial development both in Manila and in selected regions of the country. The mission team consisted of Herman Muegge (team leader), Head, Regional and Country Studies Branch (REG); Bernardo Jamilla, Head, Asia and Pacific Programme (AP); Wilfried Lütkenhorst, Industrial Development Officer, REG; and Jeannine Orłowski, Programme Officer, AP. In addition, Christian Newman, UNIDO Country Director, Manila, fully participated in the mission.

From the outset it was clear that the team's report would need to be limited in scope. Firstly, the very nature of the task was not to present a comprehensive study on Philippine industry but only to highlight salient features of current trends and the priorities and issues emerging for the 1990s as a basis for identifying target areas for possible external assistance. Second, it must be stressed that the identification of longer-term international co-operation prospects is necessarily an iterative process through which initially conceived broad areas of possible co-operation are narrowed down, subsequently elaborated and possibly reformulated. The present report intends to provide a first basis for this process by suggesting main programme areas for future co-operation efforts. It also puts forward a number of project concepts while leaving, however, the formulation of detailed projects to a subsequent stage.

Accordingly, the present report is not to be seen as an attempt to formulate a detailed UNDP/UNIDO country programme. It is highly selective in the coverage of issues and focusses on a small number of perceived priority programmes for future technical assistance. As these priority programmes are of a broad nature cutting across different industrial activities - such as regional dispersal or strengthening of supporting industries - they can be seen as guiding principles for the identification of specific projects.

The members of the UNIDO mission team wish to express their thanks to the various entities of the Government and other agencies as well as representatives from private industries, both in Manila and the various regions, for suggestions made and information provided during stimulating and frank discussions (see Annex III of this report for the list of persons met).

II. PHILIPPINE INDUSTRY IN THE 1990s: STRUCTURE, PROSPECTS AND CONSTRAINTS^{1/}

1. Structure of the industrial sector

The present Philippine government which took power after the revolutionary events of 1986 had inherited an economy beset with serious structural problems, such as low productivity levels partly due to inefficient, large-scale investments; a structure of incentives heavily biased against export activities; low capacity utilization rates; high and rising unemployment; and heavy foreign indebtedness. Industrial and manufacturing growth had completely collapsed in 1983-85 along with the country's most serious economic and financial crisis in the post-war period.

As a result both of policy reforms undertaken - aimed at reducing market distortions and thereby stimulating the private sector - and of growing confidence from domestic and foreign investors, a strong economic recovery process was triggered off. GDP growth rates reached 4.7 per cent in 1987, 6.4 per cent in 1988 and 6.0 per cent in 1989. Manufacturing, along with construction, was among the leading sectors posting above-average growth rates of 6.7 per cent, 9.0 per cent and 6.7 per cent, respectively, in these years (Table 1).

Table 1. Real GDP growth by industrial origin, 1981-89

Sector	(per cent)						
	1981-83 ^{b/}	1984	1985	1986	1987	1988	1989 ^{a/}
Agriculture	2.4	2.3	3.3	3.3	-1.0	3.5	3.6
Industry	3.0	-10.2	-10.2	-2.1	7.7	8.5	7.3
- Manufacturing	3.1	-7.1	-7.6	0.8	6.7	9.0	6.7
- Mining	-1.9	-10.7	0.7	-11.0	-1.7	4.4	-3.0
- Construction	3.4	-23.7	-27.4	-20.6	17.3	9.5	14.0
- Utilities	9.1	12.5	6.8	20.2	10.7	4.6	7.1
Services	4.1	-7.4	-4.4	2.9	6.6	6.8	6.6
GDP	3.3	-6.0	-4.3	1.4	4.7	6.4	6.0

Sources: NEDA; NSCB

a/ Preliminary (advance end-year estimates).

b/ Annual average.

^{1/} This chapter gives a brief summary account of the country's state of industrial development and key issues for attention. It does not claim to provide a comprehensive analysis and assessment. Reference is made to available in-depth studies on which this chapter has drawn liberally. Most of the tables have been taken from Pante, F., Jr./Medalla, E., The Philippine Industrial Sector: Policies, Programs and Performance, PIDS Working Paper (forthcoming). See also: Yap, J.T., The Philippines: Recent Performance, Prospects for 1990-91, and Policy and Development Issues, PIDS Working Paper No. 90-01, January 1990; World Bank, Philippines: Toward Sustaining the Economic Recovery, Country Economic Memorandum, Report 7438-PH, 30 January 1989.

In early 1990, NEDA forecast a GDP growth of at least 6.0 for 1990. While this forecast had already taken account of the likely impact of the December 1989 coup attempt, it was issued before the mid-1990 oil price increase and would therefore appear to require a significant downward adjustment.

The economic recovery of the late 1980s was primarily investment-led: gross domestic investment rose by 21.7 per cent annually between 1987-89 while consumer spending increased by only 5.8 per cent annually in the same period. The ratio of gross investment to GNP thus increased from 11 to 17 per cent (1986-89) which, however, is still significantly below the 25-30 per cent range achieved in the late 1970s and early 1980s.

As a consequence of the sector's above-average growth rates, the share of manufacturing in GDP increased slightly since 1985 to reach 24.9 per cent in 1988 (Table 2). It is noteworthy that this is only marginally higher than the sector's GDP share in 1970. Therefore, in a longer-term perspective and unlike in most other Southeast Asian countries, manufacturing industries have failed to act as a dynamic engine of growth in the Philippine economy.

Table 2. Composition of GDP and employment by industrial origin, 1970-88
(selected years)

Sector	(per cent)							
	1970		1980		1985		1988	
	GDP share	Employment share	GDP share	Employment share	GDP share	Employment share	GDP share	Employment share
Agriculture	29.2	50.4	25.5	51.4	29.2	49.0	27.3	47.0
Industry	30.7	15.7	36.2	15.5	32.3	14.2	32.7	15.4
-Manufacturing	(24.4)	(11.5)	(25.0)	(11.0)	(24.0)	(9.7)	(24.9)	(10.3)
Services	40.1	33.9	38.3	32.7	38.5	36.8	40.0	37.6
TOTAL	100	100	100	100	100	100	100	100

Source: NEDA; NSCB.

It is also obvious from Table 2 that the divergence between the GDP share and the employment share of the manufacturing sector is extraordinarily high. In other words, the highly capital-intensive nature of Philippine industry has led to a limited labour absorption capacity, with a declining trend over time.

A look at the branch composition of MVA reveals that structural change has been minimal in the last two decades (Table 3), both at the level of sub-groups of manufacturing (consumer, intermediate and capital goods) and individual branches of manufacturing. Food industries alone have continued to

Table 3. Branch composition of manufacturing value added, 1970-88 (selected years) at constant 1972 prices

(percentage shares)

Sub-sectors	1970	1975	1980	1985	1988
Consumer goods	50.6	49.1	48.9	54.5	52.4
Food	39.4	36.0	36.3	40.1	39.6
Beverage	3.0	2.9	3.2	3.7	3.3
Tobacco	3.6	5.5	4.5	4.5	2.8
Footwear & Wearing Apparel	3.8	4.2	4.4	5.6	6.2
Furnitures & Fixtures	0.8	0.6	0.6	0.5	0.6
Intermediate Goods	27.9	31.1	29.8	25.1	24.9
Textiles	5.5	5.1	4.5	3.4	4.0
Wood & Cork	3.1	2.5	2.9	2.5	1.8
Paper	0.8	0.9	0.8	0.7	0.9
Publishing & Printing	1.3	1.5	1.4	1.8	2.0
Leather	0.4	0.3	0.3	0.3	0.3
Rubber	1.5	1.7	1.3	1.3	1.4
Chemicals	5.6	8.6	10.2	7.9	7.2
Petroleum and Coal	7.0	7.7	5.9	5.4	5.4
Non-Metallic Minerals	2.8	2.7	2.5	1.7	1.9
Capital Goods	20.2	18.6	20.1	18.4	20.8
Basic Metals	3.4	3.3	3.7	5.0	5.2
Metal Products	5.2	4.2	4.5	3.5	3.5
Machinery, except Electrical	3.7	3.0	3.1	1.9	2.1
Electrical Machinery	4.4	3.9	5.0	7.4	9.2
Transport Equipment	3.6	4.2	3.8	0.6	0.7
Miscellaneous Manufactures	1.3	1.2	1.1	2.1	1.9
Total Manufacturing	100	100	100	100	100

Sources: NEDA; NSCB.

account for approximately two fifth of total MVA. In the case of only two branches has the share in total MVA increased significantly: footwear & wearing apparel (to 6.2 per cent in 1988) and electrical machinery (to 9.2 per cent in 1988). This is primarily to be explained by export-oriented foreign investment of a labour-intensive assembly nature (see below).

At the same time, there have been significant changes in the product pattern of the country's exports (Table 4.) Traditional exports (comprising ten primary products)^{1/} in 1988 accounted for only 23 per cent of total

^{1/} Copra, sugar, bananas, logs, lumber, desiccated coconut, coconut oil, abaca, copper concentrates and gold.

Table 4. Composition of export value by product groups, 1970-88
(selected years)

(percentage shares)

Product group	1970	1980	1985	1988
Traditional exports	92.0	53.7	28.4	23.0
Non-traditional exports	8.0	46.3	71.6	77.0
- Garments	-	(25.0)	(22.5)	(28.2)
- Electrical and electronic components	-	(33.5)	(38.2)	(31.6)
- Handicrafts	(6.9) ^{a/}	(7.4)	(4.9)	(5.3)
- Others	(93.1)	(34.1)	(34.4)	(34.8)
TOTAL	100	100	100	100
Memo item: Total non- traditional exports (in mio US-\$)	72	2,005	2,765	4,667

Source: DER, Central Bank of the Philippines.

a/ The figures in brackets are percentage shares of non-traditional exports only.

export value, down from 92 per cent in 1970 and 54 per cent in 1980. Accordingly, the share of non-traditional exports (comprising a wide range of manufactures) went up sharply to reach 77 per cent in 1988. While this is a welcome trend towards export diversification, a high product concentration of non-traditional manufactured exports is to be noted. The manufactured exports drive has largely been confined to garments and semi-conductors which together account for almost two thirds of all non-traditional exports. Geographical concentration of exports is also pronounced with the USA (34 per cent) and Japan (20 per cent) absorbing more than half of all exports, followed by the EEC with 18 per cent and ASEAN countries with another 7 per cent.

2. Key issues for attention

According to many criteria and compared with many other developing countries, the Philippines have established an impressive industrial basis. In recent years, as shown above, industrial growth rates have been high and significant industrial production capacities have been built up. Yet at the same time, it is obvious that the country has not fully utilized its great potentials for a more dynamic and diversified industrial growth. The structure of industry has remained precarious and vulnerable. On the one hand, food and raw material industries which are subject to wide world market price fluctuations, still dominate industrial production. On the other hand, the recent drive in the promotion of non-traditional exports has relied largely on a narrow range of garments and consumer electronics facing both an increasing international competition and trade barriers in developed country markets.

It is also to be noted that productivity levels prevailing in Philippine manufacturing are generally poor and well below corresponding levels of productivity in other Southeast and East Asian countries. This is as much due to relatively high levels of protection granted to many industrial branches as it is to low levels of competition in many markets dominated by large production enterprises and trading houses. Modernization of production facilities has been slow and, at least in the 1970s, available data indicate a continuous decline in total factor productivity in the manufacturing sector.

Furthermore, the country's manufacturing sector has remained highly import-dependent. Export-oriented manufacturing is largely based on the processing of inputs imported from abroad (particularly, of course, in the case of EPZ-based production) and domestic industrial investment is crucially dependent on imported machinery and equipment. Any significant expansion of industrial capacities, therefore, exerts additional pressure on the country's balance of payments position. It is also to be noted that the capital-intensity of Philippine manufacturing is much higher than in most other countries of the region. This is due to - apart from the legacy of highly protected import substitution in the 1960s and 1970s - the overvalued peso exchange rate and duty exemptions for machinery which provide effective incentives in favour of imported capital goods.

As a consequence, industrial growth has not generated sufficient remunerative employment to absorb the rapidly growing labour force. In particular, highly productive jobs in large-scale manufacturing establishments have remained limited. While the continued high incidence of poverty in the Philippines is due to a variety of reasons, the slow growth of employment opportunities is certainly among the more obvious factors.^{1/} It appears crucial, therefore, to foster in particular labour-intensive industries in the future. At the same time, a stronger regional dispersal of industries would be called for as an essential element of any poverty alleviation strategy; at present, the share of people living below the poverty line is highest in the country's regions and in rural areas and acts as a major push factor stimulating further rural-urban migration flows.

The following chapter of this report deals with priority areas for future industrial development in the Philippines, with heavy emphasis on the role of small- and medium-sized enterprises and the need for enhanced efforts at regional industrial development. In these areas lie the main contributions that the industrial sector can make towards reducing poverty and improving the country's highly inequitable income distribution.

Before turning to these issues, some remarks on the overall investment climate in the Philippines are in order. The rich endowment with natural resources - including a large agricultural base and a significant fisheries sector - together with the prevalence of a skilled, thrifty and low-cost labour force are certainly major assets for the country's continued industrial development in general and for inducing further investment, both domestic and foreign, in particular. Moreover, being part of the most dynamic region in

^{1/} This issue has been extensively analyzed and is beyond the scope of this report. Cf. World Bank, op.cit., pp. 55 ff.

the world economy and having traditionally close economic links with the major markets in the USA and Japan, the Philippines have an enormous potential advantage to capture opportunities in international trade and investment flows. However, this potential has remained largely untapped. Although net foreign equity investment increased by 70 per cent in 1989 (to almost \$200 mn), foreign investment inflows have remained at very low levels when seen against the backdrop of recent upsurges in such flows to other ASEAN countries. This has been due to (i) the perception on the side of foreign investors of high political risks and instability (the full impact of the December 1989 coup attempt is yet to be seen); (ii) an ambiguous attitude in the government towards the desired development role of foreign investment resulting in policies which are often more regulatory than promotional;^{1/} and (iii) cumbersome procedures involved in availing of investment incentives and export incentives. Two illustrative examples are the tedious documentary requirements (adding up to at least 15 different documents) involved in establishing a bonded manufacturing warehouse and the complex procedures applying to the duty-free import of intermediate inputs for export production.

^{1/} See also section IV.1 of this report.

III. PRIORITY ISSUES FOR FUTURE INDUSTRIAL DEVELOPMENT

1. Structural integration and diversification

As pointed out above, the Philippines have reached a fairly advanced level of industrial development compared to many other developing countries. At this level, both international trends, challenges and opportunities and the growth dynamics of the domestic market will need to be increasingly accounted for. At the same time, it must not be overlooked that the country's manufacturing sector is still highly dualistic and lacks a better structural integration. Efficient export industries co-exist along with protected inefficient domestic market-oriented industries and a limited number of modern large-scale companies contrast sharply with the vast majority of small traditional companies. The links between these different segments of industry have, however, remained rather weak.

There can be no doubt that in the 1990s international economic driving forces will have a growing significance for the Philippines' industrial transformation in terms of fierce price and quality competition in various product markets (both domestic and foreign); technological innovation pressures and concomitant needs for company-level and sector-level reorganization; growing influence of large foreign companies pursuing global and regional strategies; the changing international trade environment; and many others. In addition, domestic pressures are rising towards a socio-economic development pattern which takes due recognition of the need to stem the growing disparities in regional development and income distribution.

The emerging international and national pressures necessitate the continued restructuring of the country's industrial sector towards a more dynamic and competitive yet at the same time more balanced pattern. The years are drawing to a close during which industry could derive a strong position from one single factor, i.e. cheap labour. In the future, competitive advantages will be rooted in high quality production and the establishment of efficient interlinked industrial networks.

This emerging change has a variety of aspects some of which, such as a strong scientific-technological basis, will be discussed in subsequent sections of this report.

In particular, there is a need to de-emphasize in future industrial development the currently dominating assembly activities for which lower cost suppliers are emerging from within and outside the region. The challenge facing the Philippine industry, therefore, is to gradually move away from the heavy reliance on assembly subcontracting into supplying more finished products for the world market - either to original equipment manufacturers or, eventually, under Philippine brand names. The success of such a strategy would depend crucially, however, on an efficient domestic network of low-cost component sourcing. This is because in general the products involved in such a strategy (e.g. TVs, PCs or VCRs in the field of electronics) are more component-intensive than e.g. simple semiconductor devices or integrated circuits and require high quality, reliable and readily available supplies of inputs.

To achieve such a structural deepening and diversification of industry will require great efforts directed both at new investments and at modernizing, rehabilitating and rationalizing existing industry. It appears important to stress this two-pronged approach. Industrial expansion will be required and in this context, a stronger regional dispersal should receive greatest attention. At the same time, existing industries, largely concentrated in and around Metro Manila, are in dire need of support to raise their production efficiency and competitiveness. While this will require policy and direct support measures in a wide range of fields, two critical areas appear to be technological upgrading and industrial financing. The following sections deal with these issues.

The Mission discussed these issues, i.e. emerging challenges to the country's industries and required policy and institutional responses, in many meetings. Considerable interest was expressed by BOI, DTI, DBP and others for UNIDO to organize a policy workshop where related questions could be analyzed jointly between the country's policy-making bodies, UNIDO and international experts (see project concept No.1 in the Annex).

2. Enhancing the role of small- and medium-scale supporting industries

Both in recent research on industrial development as well as in industrial plans and policies in developing countries (especially in Southeast Asia) there has been an increasing emphasis on the critical development contribution of what has come to be called 'supporting industries'. While the term itself has not yet been clearly defined, it refers to small- and medium-scale enterprises which are linked with larger manufacturers thus creating industrial networks based on the advantages of specialization. The most essential categories of supporting industries include the following:

- At the core of the supporting industry concept have traditionally been those industries producing parts and components. They tend to belong to the private sector and have been the domain of small- to medium-sized enterprises. Often they are linked to prime manufacturers by subcontracting arrangements as is predominantly the case in the automotive sector.
- A less obvious albeit essential segment of supporting industries are the producers of machinery and equipment, be it moulds and dies for plastic or rubber processing industries; woodworking machinery; industrial pumps etc. By definition they are part of the engineering sector although they serve, of course, other industrial branches as well.
- Finally, industrial services can be included as a third support category. Such services can either be provided by other enterprises (e.g. packaging or design) or by specialized institutions (e.g. training or quality control) which can be operated by private associations or public sector entities. Further, engineering services would be included among industrial support services.

The role of supporting industries has in recent years come to the forefront as many developing countries, including the Philippines, have tended to overemphasize the promotion of assembly operations while at the same time neglecting capability generation in medium-sized firms supplying the required production inputs. A biased processing pattern in favour of final (assembled) products is the consequence. In this context, the comparative experience of two Asian NICs, the Republic of Korea and Taiwan Province, is instructive. While the former long neglected the development of an efficient local supply base of parts/components, and consequently continues to suffer from high import dependency, in the latter industrial priorities were different from the start with stress having been placed on establishing a powerful domestic parts/components industry first. It was only out of parts manufacturing that the assembly sector subsequently grew.

The strategic role for industrial development of strong supporting industries can hardly be overemphasized. They contribute to reducing the import dependency of industrial production (which, given the Philippines' high foreign debt would be particularly important), create additional employment, link large and medium-sized companies through sub-contracting arrangements, broaden the basis of domestic entrepreneurship and often lead to a higher utilization of domestically available natural resources.

So far, in the Philippines small- and medium-scale enterprises (SMEs) in general have been subject to a number of policy biases working against them.^{1/} These include more difficult access to import licenses (becoming less important, however, in the course of the ongoing import liberalization); investment incentives (under BOI) largely focussing on large-scale new investment employing hitherto unavailable technologies; export promotion measures being tied to complicated documentary and other requirements; and financing constraints. Problems related to the high cost and, particularly, the access to industrial financing were pointed out to the Mission unanimously as critical bottleneck for the further development of SMEs - despite a broad array of available financial assistance schemes. These include:

- the Industrial Guarantee and Loan Fund (IGLF). This is a Central Bank administered revolving fund catering to the financing needs of SMEs for working capital and acquisition of fixed assets;
- the Small and Medium Industries Lending Programme (SMILE), operated by the Development Bank of the Philippines (DBP) with a wide range of lending facilities;
- various programmes under the Technology and Livelihood Resource Center (TLRC), aimed at specific purposes such as financing of technology acquisition and modernization.

While an in-depth review of these programmes would be required to reveal their specific advantages and shortcomings, it appears that generally their lending operations are concentrated very much in the National Capital Region (NCR). They also - apart from some programmes under TLRC - are very demanding

^{1/} For a more detailed review cf. Pante, op.cit., pp. 44 ff.

in terms of collateral requirements and project justifications, including the need for feasibility studies. SMEs lacking sufficient collaterals and entrepreneurs lacking the capability to submit a sophisticated technical and economic project justification have found it hard, therefore, to avail themselves of the loans offered.

Two initiatives are at present being launched by DBP which address themselves specifically at these problems. These are the so-called Window III Operations and the Small Enterprise Equity Development (SEED) Fund.

- Window III is a programme launched in early 1990 and financed from DBP's own profits by setting aside P1 billion annually. This fund finances projects, not financeable by other sources, which have a high socio-economic impact. It puts special emphasis on projects in the country's regions. DBP's regional branches have been put in charge of assessing resource endowments and development potentials in various regions and identifying viable projects in areas ranging from agriculture to existing rural industries, institutional development, entrepreneurial development, skill upgrading and environmental conservation. For each identified project, an intervention scheme is formulated putting together the required inputs in an innovative manner so as to resolve the usual issues on collateral requirements by providing alternative mechanisms to ensure repayment, as well as to provide for sufficient concessionality of terms where needed.
- The SEED Fund is aimed at established SMEs with considerable growth potential, primarily those of an export-oriented nature. It seeks to provide equity capital to viable companies which may lack sufficient collateral to take up additional loans or which may already have a high gearing ratio. It is intended to set up the SEED Fund as a Trust Fund sponsored initially by DBP, to serve as a financing facility, through equity participation primarily by way of preferred stocks in SMEs which have substantial growth potential. The DBP has allocated a sum of P50 million for the Fund, which would serve as counterpart for contributions to the Fund that may become available from bilateral and multilateral financing sources and funding from the private sector. The Fund is expected to commence operations from mid-1991, initially with total resources of P250 million, which are expected to increase to P1,000 million by 1992. The proposal has been discussed with NEDA, which is now processing its inclusion in the Public Investment Program. The Department of Trade and Industry has endorsed the SEED Program as an effective program for the growth of small-medium enterprises and rural industry development.^{1/}

The Mission, taking note of the crucial role of industrial financing for SMEs and the new approaches adopted in this respect, recommends that UNIDO

^{1/} UNIDO has been involved from the beginning in launching the SEED Fund concept and in determining the most appropriate modalities. At present, assistance is provided under project SI/PHI/90/801.

become more strongly involved in providing assistance of a complementary nature. There is a strong and growing need to assist SMEs, particularly those located in the regions, in the preparation of bankable project proposals based on sound feasibility studies. Furthermore, once financing has been provided, technical assistance focussing on the specified area of modernization and/or expansion can help to ensure a maximum impact of the utilization of funds (see Project Concept No. 2 in the Annex).

As regards assistance for the promotion of supporting industries in general, the Mission would like to reiterate the findings and recommendations of the 1987 mission of the UNIDO/ECFA team on this subject. The report^{1/} based on that mission contains a number of detailed project concepts in this field. While most of the proposed concepts are still valid, special attention is drawn to assistance required in the design and making of tools, dies and moulds. The Metals and Engineering Industries National Action Plan prepared under the 'leading edges' programme for STCC (see also the following section of this report) has targeted the design and manufacturing of tools and dies as "the foremost metalworking trade that should be developed". The Mission supports this priority in view of the high demand from various branches of industry and the great potential for foreign exchange savings. A related project with MIRDC as counterpart agency would complement DOST-financed training programmes in this field (see project concept No. 3 in the Annex).

Furthermore, there is a need to strengthen quality control and standardization efforts as at present the entry of SMEs into supplier relationships with large enterprises and into production for export markets is often hampered by the unreliable quality of production and resulting high rejection rates. This applies specifically to the production of automotive components (see project concept No. 4 in the Annex).

3. Strengthening of science and technology for industry

The economic recovery since 1986 and the ambitions for future industrial development have brought into sharp focus the weakness of the scientific and technological base for industry in the Philippines. Policy makers, industrialists and researchers alike are now seriously concerned that this constraint may jeopardise the country's move into more sophisticated areas of industrial production which is considered a necessity to stay competitive in the years to come. Accordingly, NEDA and other economic planning agencies have put science and technology as well as high-level human resource development at the top of their policy agenda. There is an acute awareness now that unless immediate action is taken in these fields the economic recovery of the late 1980s will remain a short historical episode rather than a step towards self-sustained development in the long run.

In comparison with other Southeast and East-Asian developing countries, the Philippines have long neglected the building up of scientific and technological capabilities; the main emphasis has rather been on the basic

1/ Cf. UNIDO, Promotion of Supporting Industries in the Philippines, PPD/R.20, 18 November 1988.

physical infrastructure (such as transport facilities and communication) for industrial development. Expenditures on research and development (R&D) have in fact been declining as a percentage of GNP since 1979. They accounted for only 0.12 per cent of GNP in 1984, considerably lower than the level achieved by other ASEAN countries and only a small portion of the levels prevailing in the East Asian NICs. Furthermore, the contribution of the private sector to total R&D expenditures has remained marginal, accounting for approximately 10 per cent. These figures are also reflected by the country's small labour force engaged in R&D related fields: with 190 R&D professionals per million population (1984), the ratio is even below that in Indonesia and about one tenth of the corresponding ratio in Singapore.

In general, the promotion of R&D and of efficient acquisition and diffusion of new technology is an area requiring strong government involvement. On the one hand, experience shows that competitive pressure in open markets is among the most powerful mechanisms to induce changes in products and processes and respond to opportunities offered by new, more efficient technologies. On the other hand, in many developing countries only insufficient information is available on the nature and range of new technologies on offer as well as on the terms and prices of acquisition. Furthermore, the developmental role of new technologies typically implies disparities in the perceived private and social returns of their introduction. Government policy and public institutions are thus needed to complement and reinforce the market mechanism. Indeed, it is hard to overestimate the role played by an efficient institutional network in promoting the development and diffusion of technologies in developing countries.

In the Philippines, such an institutional framework is certainly in place; it is indeed more sophisticated than in most other developing countries. The main government agency in charge of planning, co-ordinating and implementing R&D activities is the Department of Science and Technology (DOST) which has five sectoral councils, seven R&D institutes and six scientific and technological services institutes. These include the Metals Industry Research and Development Center (MIRDC) and the Philippine Textile Research Institute (PTRI), to give but two examples from the field of industry. Furthermore, a Presidential Task Force for Science and Technology (PTFST) was created in August 1988 which recommended the setting up of a Science and Technology Coordinating Council (STCC). This Council was established in April 1989 as the highest governing body for all policy matters relating to science and technology.^{1/}

^{1/} The STCC is chaired by the Secretary of Science and Technology and is composed of the Secretaries of Trade and Industry, Health, Transportation and Communications, National Defense, Agriculture, Environment and Natural Resources, Education, Culture and Sports, and Foreign Affairs; two representatives from the private sector and one representative from the academe.

The UNIDO mission was given to understand, however, that many R&D institutions in the country are not fully geared to meeting the requirements of technological advancement of Philippine industry. A general lack of interaction between private industry and research institutions is noticeable. The latter are particularly weak in industry-related applied research and the commercialization of research results, partly due to limited manpower and financial resources.

The Government is aware of these problems and of the general need to provide clear guidelines and a sense of direction to the country's R&D efforts. One endeavour recently launched by the Government is the Science & Technology Master Plan which has just been worked out by DOST. It is an "indicative plan which aims to provide clear signals to both the public and private sectors on the desired direction of Science and Technology (S&T) in the Philippines."^{1/} The Plan sets out to identify and promote priority sectors for S&T programmes and proposes 15 so-called "leading edges" for this purpose. These include

- agriculture,
- aquaculture and marine fisheries,
- forestry and natural resources,
- metals and engineerings,
- textile industry,
- mining and minerals,
- process industry,
- food and feed industry,
- energy,
- transportation,
- construction industry,
- information technology,
- electronics, instrumentation and control,
- emerging technologies,
- pharmaceuticals.

For each of the 15 leading edges, a Sectoral Technical Panel has been created with the mandate to formulate Actions Plans and Implementation Programmes. As of mid-1990, the Action Plans of the following sectors have been approved: metals and engineering; process industry (coconut, polymers, and sucrochemicals); agriculture; aquaculture and marine fisheries; energy; emerging technologies (laser technology, polymers, electronic materials, and ceramics); food and feed industry; mining and minerals; pharmaceuticals; construction; electronics; and textile industry.

The S&T Master Plan provides the framework for the build-up of a science and technology base for industrial development. Major efforts are, however, required to further develop this general framework and to formulate operational programmes of direct application for the modernization of industry. International assistance could critically support such work. To this end, it is suggested to consider the following areas as primary targets for possible future assistance from UNIDO:

^{1/} Department of Science and Technology, Science and Technology Master Plan, July 10, 1990, p.1.

- Innovative industry-related S&T institutions

The Master Plan suggests the establishment of science parks to serve as a vehicle for strengthening interactions between private industry, R&D laboratories and academe. UNIDO has closely followed related approaches in other Asian developing countries as well as in developed countries and could provide expertise and advisory services based on this experience (see project concept No. 5 in the Annex).

- Support activities for the Comprehensive Technology Transfer and Commercialization Programme (CTTC)

The CTTC Programme serves as a mechanism for advancing domestic R&D results towards productive application and utilization. Fifty technologies ready for commercialization have been identified and grouped into seven clusters: (1) agriculture, aquaculture, forestry and feeds; (2) construction materials; (3) metals, engineering, transportation, energy and mining; (4) textiles; (5) food; (6) chemicals and pharmaceuticals; and (7) high technology. The Master Plan foresees, inter alia, to carry out feasibility studies on selected technologies and, based on these studies, to organize investors' fora with a view to attract commercial investment. UNIDO has extensive experience in industrial feasibility studies and has successfully organized an investors forum in the Philippines in 1988. Contacts already established with potential foreign investors during that forum would be valuable inputs for more specific investment promotion meetings as foreseen under the CTTC programme (see project concept No. 6 in the Annex).

- Support in implementing the STCC Sectoral Action Plans in the 'leading edges' framework

This applies in particular to the Metals and Engineering Industries Action Plan which was approved in August 1989 as the first Sectoral Action Plan presented to the STCC. It contains a wide range of recommendations aimed at strengthening this sector which is seen to play a key role in the future industrialization process. These recommendations include the establishment of a Design and Engineering Center (for which a foundation has already been created); modernization programmes in areas such as tool and die making, heat treatment, machine building and others; and quality control and standardization. Similar support could be given in the context of other Sectoral Action Plans as and when required. An industrial technology umbrella project under which required expertise would be provided in a flexible manner by UNIDO could greatly enhance DOST's capabilities to implement the various Actions Plans (see project concept No. 7 in the Annex).

- Support in developing the plastics industry

The Science and Technology Master Plan points to the need to address the following problems of the plastics industry: lack of standards and quality control, lack of technical know-how in plastic production, limited plastic product diversification, outmoded machineries and absence of corrective maintenance plans regarding machinery and moulds.

In order to correct the deficiencies of the plastics industry as described above, the Philippine authorities have requested UNIDO's assistance in establishing a Plastics Research and Development Unit at the Industrial Technology Development Institute which will assist the plastics industry, its suppliers and product end-users through testing, training, processing and information (see project concept No. 8 in the Annex).

- Support to PTRI in developing viable technologies for use of selected indigenous fibers in the production of textiles

The Science and Technology Master Plan emphasizes the need to develop technology for processing natural fibers such as cotton, ramie, silk, pina, abaca and banana.

Under phase I of project DP/PHI/87/002 - Development/Utilization of Indigenous Fibers for Textile Products, preliminary assistance has been extended by UNDP/UNIDO to PTRI in developing viable technologies for the use of selected indigenous fibers such as banana, pineapple, abaca, maguey, and kenaf in the production of textiles. All the prerequisites have been created to proceed to the second phase of the project which will enable the dissemination of the acquired knowledge to the industry and its application to commercial production (see project concept No. 9 in the Annex).

4. Energy and environmental issues

Along with the country's economic growth the environment has deteriorated both in terms of over-exploitation of natural resources and pollution and waste accumulation in urban-industrial agglomerations, above all in Metro Manila and the adjoining industrial centers. In the Philippines, a strong consciousness and awareness of the environmental threats and of the need to take preventive action rather than react by ex-post damage control has recently developed. There is now a widespread consensus that industrial growth needs to be environmentally sustainable in the long run unless it is to undermine its very foundation. At the same time, industry itself will need to develop the technological solutions required to make production less polluting and to treat wastes in an environmentally sound way. External assistance in various fields is actively sought and will generally meet with strong counterpart motivation and commitment.

In January 1990, the Department of Environment and Natural Resources (DENR) has prepared a "Philippine Strategy for Sustainable Development" (PSSD) which seeks to formulate solutions reconciling the diverse and sometimes conflicting environmental, demographic, economic and natural resource use issues arising in the course of the country's present and future development efforts. It is essential to integrate environmental considerations into the economic decision-making process and to make sure that in the future natural resources are priced in accordance with their social opportunity costs.

As regards the impact of industrial development on the environment, the PSSD document expresses particular concern about the resulting demand increases for raw materials and energy (on the energy issue see below); the further concentration of industrial activities in urban areas; the environmental risks of new technologies; and the pollution and hazardous wastes resulting from industrial production. DENR, in consultation with DTI is in the process of establishing environmental goals, policies and standards for industry in fields such as location policies, pollution control, waste management, disposal of toxic substances etc. UNIDO assistance should actively support these endeavours through the provision of international expertise.

As mentioned above, the soaring industrial demand for energy is another issue requiring increased attention in the future. Already now, the limited supply of energy acts as a serious bottleneck for further industrial expansion. From a financing point of view and given the country's high dependence on oil imports, the situation will further deteriorate in the wake of the recent drastic oil price increase. In 1989, imported oil accounted for more than half (58 per cent) of total energy consumption in the Philippines. Consequently, there is a strong need to intensify ongoing efforts both to take energy conservation measures and to expand the power supply base. As a rough figure, it is internationally accepted that to save 1 KW of installed power through energy conservation measures costs only approximately US \$300 while to provide 1 KW by means of additional power supply costs approximately US \$1,200. This would certainly justify more attention than in the past, both from the Government and from external donors, to be devoted to energy conservation programmes.

UNIDO has assisted energy conservation efforts in the past through the establishment of an Energy Management Consultancy Centre (EMCC) capable, inter alia, of conducting company-level energy audits (project DP/PHI/82/002 and, as phase II, DP/PHI/87/004). At present, the Government is planning to create an Energy Conservation Center (ECC). This Center, already approved by the STCC, is to be active in disseminating information on and demonstrating appropriate technologies for energy conservation. The Mission feels that UNIDO's international information network and its rich experience in company level energy conservation programmes could be of great value in the establishment of the ECC. Proper use should also be made in this context of the expertise available at the Energy Management Consultancy Center.

With respect to expanding the power supply base, the S&T Master Plan points to the need to develop R&D on the utilization and commercialization of technologies for, inter alia, alternative fuel conversion. It also encourages the development of indigenous conventional and non-conventional energy resources in order to reduce oil import dependence. The Mission therefore recommends that the following pipeline projects which are in line with the Government priorities as outlined above be given full support:

- The project "Demonstration and Promotion of Biogas Technology" addresses the need to upgrade the capabilities of several universities and agricultural colleges located in different regions of the country to provide the technical assistance and training needed by biogas system users (poultry farms, dairies and piggeries). These institutions are also tasked to promote the commercialization of biogas and other non-conventional energy systems through technology

demonstration projects and surveys that could generate the technical and economic data required for the preparation of sound investment proposals (see project concept No. 10 in the Annex):

- the project "Application of Coal Gasification" is to evaluate the industrial application of coal gasification technology in the Philippine setting and its suitability for Philippine coals. It is to be implemented in two phases, namely technology assessment/ investigation (Phase I) and feasibility study (Phase II). The construction/operation of the demonstration project should be the subject of a separate project (see project concept No. 11 in the Annex).

5. Regional industrial development: Recent approaches^{1/}

It is well known that past industrial development in the Philippines has strongly concentrated on the National Capital Region (NCR) and the directly adjoining regions III (Central Luzon) and IV (Southern Tagalog). Metro Manila alone, at the end of the 1970s, accounted for more than half of the country's manufacturing output and employment; together with regions III and IV the corresponding shares reached around four fifth of the total (for exact figures see Table 5). Despite recent signs of more powerful industrial growth in some of the country's regions (see below), this pattern has remained essentially unchanged during the 1980s.

Table 5. Selected indicators of regional concentration
(selected years)

Indicator	Share in total		
	NCR	Regions III + IV	All other regions
Manufacturing output (1978)	56.5	26.4	17.1
Manufacturing employment (1979)	50.2	19.3	30.5
Fixed assets of manufacturing industries (1980)	39.1	25.5	35.4
GDP (1989, at 1972 prices)	31.0	21.6	47.4

Sources: Pante, op.cit.; NSCB. (Based on NSO Census of Establishments 1978 and Annual Survey of Establishments in Manufacturing 1980.)

^{1/} This section briefly reviews the most recent initiatives launched by the Government to foster industrial development in the country's regions. Project concepts for related UNIDO activities will be presented in chapter IV of this report covering the Mission's visits to various regions.

This lop-sided concentration of economic activities in Metro Manila and the surrounding regions has been due to advantages of agglomeration, such as the availability of infrastructure (transport, energy etc.), the provision of essential services (finance, insurance, technological expertise etc.), the availability of skilled labour, the purchasing power of the near-by domestic market as well as easy access to export markets; and easy communication with government offices and with the outside world. All these factors have tended to keep production and transaction costs for companies relatively low.

The perceived economic advantages of agglomeration described above are, however, slowly turning into disadvantages. Metro Manila has become seriously overcrowded and the resulting strains on infrastructure have risen to high levels. While this applies to a lot of different aspects, the shortage and rising prices of land, as well as the traffic congestion are among the most serious ones. Overall, the operational costs and inconvenience of locating industrial production in the capital have risen drastically and may, in the long run, reduce the country's attractiveness for foreign investors as long as attractive locations outside Metro Manila are not available. The building-up of further regional investment locations would appear, therefore, to be of utmost importance for the country's sustainable future industrial development. In this context, it is important to recognize that a more decentralized regional development pattern will not only contribute to equity objectives. Also, it has become a requirement to maintain and improve economic efficiency.

The Philippine authorities have always been committed to promoting regional development and various approaches and measures were pursued since the early 1970s to change the highly skewed locational distribution of industrial activity. Among the major policy instruments utilized by the Government have been fiscal incentives; financial and credit incentives; industrial estates, including export-processing zones; and zoning regulations, such as the 50 km ban for industries around Metro Manila. These measures have, however, so far failed to generate the desired impact as the continued attractiveness of Metro Manila has overcompensated the investment incentives provided in the regions.^{1/}

It appears, however, that the chances for launching a more successful decentralization programme are particularly promising at present. In general, spatial redistribution policies tend to be the more successful the more they are consistent with market forces. In this respect, the present environment is very favourable. There is a noticeable trend now for many industries to search for locational options outside NCR. If the government were to take a lead role by e.g. building up an industrial infrastructure in selected regional growth poles, it would clearly work in line with market mechanisms, not against them.

^{1/} A detailed assessment is undertaken in Pante, op.cit., pp. 39 ff.

Recently, economic and industrial growth in some of the country's regions (including Central Visayas and Southern Mindanao) has been significantly above the national average. A growing number of companies is gradually moving production to regional locations, as e.g. witnessed by the trend to subcontract garments production to regional companies. BOI data indicate that Metro Manila's share in total project investments has declined from 51 per cent in 1986 to 45 per cent in 1988 and further to 37 per cent up to August 1989.

Regional dispersal programmes at present being launched by the Government are therefore very timely and should receive strongest support also from the international community. The most important initiatives in this context include DTI's programme to establish Regional Industrial Centers (RICs); NEDA's framework for a Countryside Agro-Industrial Development Strategy (CAIDS); and the suggested Special Development Projects (SDPs) under the Philippine Assistance Programme (PAP). They will be briefly reviewed below.

a. DTI: Regional Industrial Centers

In 1988 DTI launched a programme of providing integrated infrastructure support to selected RICs as the main vehicles for future regional industrialization. RICs have meanwhile been identified in each of the country's regions (see Table 6), based on the following selection criteria: market size; availability of land and labour; proximity to airport/seaport and to raw materials sources; availability of social services and amenities; and availability of basic infrastructure and utilities (roads, communication, power, water).

Development work for most RICs is at an early stage and still needs to be integrated into overall regional and industrial policies. While it is too early to assess the plans in any detail, it appears doubtful whether the heavy reliance on EPZs as nuclei for regional development (as evident from Table 6) is justified. Past experience both in the Philippines and in other countries has indicated their very limited ability to provide stimuli for a broader regional development.

b. NEDA: Countryside Agro-Industrial Development Strategy (CAIDS)

NEDA has developed a framework for CAIDS which was adopted by the joint Cabinet-NEDA Board in December 1989. This programme, based on an assessment of the available resources, infrastructure and development potentials of the regions, seeks to stimulate industrial processing of agro-resources to satisfy domestic demand and to serve export markets. The programme is complementary to DTI's approach to establish RICs, yet both concepts have so far not been fully integrated. Within the overall CAIDS framework, four regional clusters have been grouped. They comprise:^{1/}

^{1/} The following description of the four regional groupings is taken with only minor changes from Pante, op.cit., pp. 47 ff.

Table 6 Regional Industrial Centers proposed by DTI

Region	Location of RIC	Area of RIC (ha)
CAR	Baguio EPZ, Benguet	66
I	Bungro-Tanguigan, San Fernando, La Union	100
II	Bgy Tagaran, Canayan, Isabela	100
III	Bataan EPZ, Mariveles, Bataan	1,209
IV	Cavite EPZ, Rosario, Cavite	275
	Bgy Tabangao, Simlong, Tabacong Batangas City	500
V	Bgy Lamba, Legaspi City	100
VI	Pavia, Iloilo	187
VII	Mactan EPZ, Mactan, Cebu	182
VIII	Bgy New Kawayan, Tacloban City	40
IX	Bgy Ayala & Recodo, Zamboanga City	40
X	Phividec Industrial Estate, Misamis Oriental	2,853
XI	Panacan Area, Davao City	51
	Hacienda Espina, Gen. Santos City	400
XII	Polloc, Parang Maguindanao	40
	Fuentes, Ma. Cristina, Iligan City	105

Source: DTI.

- (1) Metro Manila and the Industrial Areas of Regions III and IV: This area will be the primary industrial core, with Metro Manila continuing to be the dominant political, administrative, commercial and industry centre of the country and wide segments of Central Luzon and Southern Tagalog experiencing the spillover of population and economic activities, especially industry, from the rapidly expanding metropolis.
- (2) CAR, Regions I, II, V and the Rest of Regions III and IV: This group of regions will primarily be the main food producing area in the country, supplying the country, particularly, the primary industrial core, with cereals, fruits and vegetables, meat, fish, dairy products and other staples. However, urban centres in the area such as Legaspi City, Tuguegarao, La Union, and Cabanatuan can be minor industrial cores with small and medium industries processing agricultural products and producing certain types of consumer goods.
- (3) The Central Industrial Core: A secondary industrial core can be developed in the South consisting of the Iligan - Cagayan de Oro and Cebu network of cities. Industries similar to those in Metro Manila can be located in this core. At the same time, a number of small and medium scale industries can be encouraged to cluster around the larger industries enterprises in the area. Metro Cebu is expected to continue to serve the crucial role of commercially linking Visayas and Mindanao to the rest of the economy and to world markets. While the development of footloose industries and industries processing the agricultural surplus of other regions is the logical choice of industries in Metro Cebu, it has the potential for branching out into shipbuilding and a number of engineering industries.
- (4) Regions VI, VIII, IX, XI and the Rest of Regions VII, X and XII: For Western Visayas, the strategy calls for the diversification of exportable and import substitute crops, and the encouragement of the growth of more agro-processing industries in its urban centres. The urban centres of Eastern Visayas can also be sites of industries processing abaca, rootcrop and coconut produced in the region. In the case of Western Mindanao, agriculture, including fishery and forestry will be the dominant sector. For Northern, Central and the rest of Northern Mindanao, the vast tracts of land available make them suitable for the production of a variety of traditional and non-traditional food and cash crops. The cities of Davao, General Santos and Zamboanga can continue to be the principal processing centres for the area. The rest of Visayas and Mindanao can increasingly provide the food and processed as well as unprocessed raw material requirements of the secondary industrial core in Cebu, Iligan and Cagayan de Oro, and the primary industrial core in Luzon.

c. Special Development Projects (SDPs)

In the framework of the recently launched Philippine Assistance Programme (PAP) as a mechanism to induce and co-ordinate ODA flows to the country, special development projects (SDPs) have been designated and submitted for finance. These SDPs are pilot projects to demonstrate to the donor community the government's commitment to regional development, poverty alleviation and employment generation. The five SDPs are:

- the Samar Livelihood and Infrastructure Project in region VIII;
- the Cavite - Laguna - Batangas - Rizal-Quezon Industrial Area (CALABARZON) in region IV;
- the South Cotabato/General Santos area in region XI;
- the Metro Cagayan de Oro project in region X; and
- the Panay Island project in region VI.

Absorptive capacity, likelihood of success and attractiveness to potential investors were used as main criteria to select the individual projects. All SDPs are very large-scale, long-term projects of major significance to the country's further development. For instance, the CALABARZON-SDP is to be implemented over a 10 year period and is estimated to cost \$735 million of which \$148 million are expected to be contributed under the PAP.

IV. DISPERSAL AND DECENTRALIZATION OF INDUSTRIAL DEVELOPMENT

While the previous section has given a summary account of the Government's current regional dispersal initiatives, this chapter presents the findings and recommendations of the Mission in this area, based on both discussions with government agencies and other institutions in Manila and, specifically, field visits to selected regions. General observations are presented first before subsequent sections of this chapter deal with individual regions.

1. General issues

UNIDO's experience in policy-oriented studies and advisory work in developing countries clearly indicates the growing concern of national policy-makers about the current locational pattern of industry. Past developments, especially in more advanced developing countries, have tended to concentrate industries in the main urban metropolitan area of the country which gradually absorbed more and more domestic investible resources and foreign direct investment. This has led to an accentuated agglomeration of industries and associated services in the metropolitan centre, to congestion and malfunctioning of the centre's physical and administrative infrastructure and to a growing economic backwardness and retardation of other regions, in particular peripheral regions. With the increasing international competition among countries both in terms of trade in manufactures and attraction of foreign direct investment flows, the weaknesses of this development pattern have become obvious. The metropolitan area confronted with rising land and other costs and inefficiency tends to lose its attractiveness for foreign investment and associated modernization whereas outside regions lack the basic financial resources and facilities to be able to generate sufficient entrepreneurship and to attract foreign investment. In order to improve their international competitiveness, many developing - and also developed - countries are therefore including regional development as an essential dimension in their industrial restructuring process.

Also in the Philippines greater emphasis on regional development seems to be a major prerequisite for enhancing industrial growth. The economy needs to be stimulated through an active regional industrial policy which would:

- ease the congestion and induce an industrial modernization and restructuring process in Metro-Manila;
- alleviate some of the social pressure building up including the prevailing high poverty rates in some regions;
- mobilize and activate local initiatives, motivation and resources;
- capture new opportunities for foreign investment and exports.

The Philippine Government is obviously well aware of the need for a greater regional emphasis and has indeed launched a series of policies to enhance regional dispersion of industries, such as the Investment Priorities Plan of May 1990. BOI has withdrawn a number of incentives (tax holidays and tax-free importation of equipment) from new and expanding projects located in Metro Manila, except in the case of services. It has also made its services better accessible to small and medium enterprises in the countryside.

The UNIDO mission saw it as one of its major tasks to focus on this issue of regional industrial development. It therefore attempted to obtain a first-hand impression of current structures, prospects and constraints in selected regions outside of Metro-Manila. The aim was to identify critical bottlenecks to industrial development and on this basis submit tentative proposals for support measures.

It is important to note that out of the 11 regions outside of Metro-Manila only four could be visited at this stage, namely regions XI, VII, VI and I. The basis for the Mission's findings is thus very narrow and can be seen as a modest start only of a subsequent wider and more thorough fact-finding mission. Nevertheless, the observations made in each of the four regions presented below, preceded by a synopsis of the findings, may give an indication of some key issues which warrant special attention.

A synopsis

The Mission noted that the past development pattern of industry has basically led to the following situation.

First, products are largely routed through Metro-Manila for further processing, distribution and/or exports. Thus, most raw materials (such as forest and agricultural products) as well as semi-processed products (such as frozen shrimps) tend to be transported out of the regions for processing and distribution in Metro-Manila. Accordingly, little industrial processing takes place in the regions and it is also not easy to induce this. Furthermore, the trading routes both for internal and external trade are largely routed through Metro-Manila. As a result, little value added is generated in the regions and intra-regional and inter-regional trade is hampered. Moreover, the lack of direct communication between local producers and final users including foreign importers, deprive the former of essential market information, feedback and stimulation for product development and investment.

The reloading (including shipping delays) of goods for export and the involvement of various traders in Metro-Manila in addition increase costs significantly. It was reported that in the case of certain product groups this fact tends to offset competitiveness versus other Asian exporters. Yet there are good harbours - such as Cebu and Iloilo - which certainly could handle direct export shipments. It is expected that also airports in regional centres will increasingly be directly connected with foreign airports. Cebu airport is already linked to Japan and San Francisco and this is indeed the major precondition for the operations of the Mactan export processing zone.

The Mission understood also that the customs clearance needs to be improved so as to enable smooth exports and imports in regional centres. Several cases were reported to the Mission where customs clearance of imports was not undertaken efficiently and expeditiously although these imports were essential inputs, inter alia, for export production and were stored in a bonded warehouse. It was also reported that in some cases when import tariffs were to be offset through incentives granted under the priority industry act, local customs authorities still insisted on payment, presumably in order to meet set fiscal targets.

The Government's endeavours to improve the situation by ensuring the efficient operation of "one-stop offices" and consistent administrative support to industry thus need to be promoted and strengthened.

Second, financial resources seem to be difficult to obtain for industrial investments in the region. Except in Cebu, few larger Manila-based industries have so far dispersed their production to the regions and foreign direct investment has, besides in the Mactan export processing zone, until now not been significant. It is therefore the predominant small- and medium-sized industry (SMI) which would have the key role to play in building up or expanding industrial capacities. However, it is this segment of industry which faces the most severe constraints in obtaining investment capital and credits, mainly due to lack of collateral. The established Industry Guarantee Loan Fund (IGLF) which provides Government guarantee for investment loans of up to 85 per cent of the investment, is apparently not accessible by most SMI's in the regions. The IGLF seems primarily to be applicable for expansion projects and presupposes a detailed feasibility study. As a result, mainly larger firms with existing capacities and possibilities to present a feasibility study - mainly companies in Metro-Manila and to a certain extent in Cebu - utilize this scheme. Thus, the so essential start-up of small processing plants in the regions is held back by the lack of access to finance - and of course the cost of external financing. Support to overcome these constraints is considered crucial. UNIDO could contribute by providing expertise for "quality proof" feasibility studies. The UNIDO proposal to set up a special scheme ("SEED") in the Philippine Development Bank should be further pursued. Industrial co-operatives, and local small-scale industry associations should be promoted and supported so as to encourage joint purchasing, sales and credit negotiations (on industrial financing see also section III.2 of this report).

As regards foreign direct investment as a source of capital (and technology, marketing, know-how etc.), the mission noted that the 60 per cent - 40 per cent ownership regulation was regarded as one of the major obstacles to attract foreign capital.^{1/} So far only the export processing zones in the Philippines permit full foreign ownership. It certainly would be important to review current legislation and explore the possible introduction of a more flexible approach on a case-by-case basis. In fact, most other South East Asian countries have much more relaxed rules.

Third, given the prevailing low degree of industrial production in the regions there is obviously a lack of local supply of spares, and of supporting industries and services. Regional development centres would need to give due attention to this matter and improve supplies from Manila-based companies and also from possible sources in the regions themselves. Financing seems again to be an obstacle for some supporting industries in the region: they are themselves short of working capital and can therefore not afford to produce and deliver with prolonged (and uncertain) payment conditions to smaller firms in the region.

^{1/} This fact is well known and is currently subject to a major political debate. Government is constrained to act, however, by the constitution which would require changes to modify ownership rights for foreigners.

A special case of promoting supporting industries could be made for the industries which operate inside the Mactan export processing zone. As data on the zone show, the net balance of total foreign exchange earnings of the zone is positive but very limited. The managing director of one firm in Mactan visited by the mission (Timex) stated that it had been attempted to source some parts locally instead of relying only on imports. Also DTI in Cebu had tried to support such developments. But so far these attempts had not brought any results since local manufacturers were apparently not able to comply with technical specifications. The mission suggests that further initiatives in this direction should be pursued and supported - also through appropriate UNIDO assistance - as major benefits could be derived for the region and for the national economy if such export-oriented production linkages could be built up and the local content of the foreign companies' production thus increased (see also section IV.4 and project concept No.15 in the Annex).

Taken together, the above conditions constitute major disincentives for industrial investment in the regions, largely offsetting the incentives provided for in the Government's investment priorities plan and other measures. Financial and skill resources as well as raw materials thus continue to flow from the regions to Metro-Manila which as major financial and industrial centre is attractive also for property acquisition and other "non-productive" investments. The task of the Government to achieve regional dispersal of industry is hence long and complex and requires concerted action by all actors concerned including the bilateral and multilateral assistance agencies.

There is no doubt, however, that major strides have been made. The political will is firmly manifested, the Government administrative machinery in the regions is well conceived and systematic surveys of development potentials exist. Indeed, the mission noted the high professional competence and motivation of staff of regional NEDA, DTI, DOST, and the regional development councils as well as the close interaction with the private sector, including the Chambers of Commerce and Industry. There is a general awareness of development prospects and examples of impressive innovative and entrepreneurial activities. Major infrastructural investments are underway to further facilitate intra- and inter-regional as well as international communication.

It is indeed essential to better integrate the various provinces in each region and also various adjacent regions in order to utilize the regional demand for manufactured products. Increased attention would also need to be given to identifying prospects for industrial processing (canning, freezing, drying) of agricultural raw materials for exports. On this basis it should then be attempted to examine the various pre-processing stages and inputs into the production chain ("filière") as a whole and to identify the scope and requirements for introducing new crops and generally strengthen the backward linkages. Recent initiatives for asparagus exports are a case in point.

The mission believes that in the coming years UNIDO/UNDP assistance should focus on the main technical, information and contact problems which hinder the effective interplay between various policies, institutions and actors and which delay the industrial take-off in the regions. To this end, it is proposed that UNIDO technical assistance for 1992-1996 be designed to increase the required capabilities mainly of regional DTI offices and, where necessary, provide direct assistance (see project concept No. 12 in the Annex).

The Mission further identified specific project ideas in the various regions visited, as presented in the subsequent sections.

2. Region XI (Southern Mindanao)

The Southern Mindanao region (also known as Region XI) is located in the Southern part of the Philippines. The region is composed of 5 provinces, namely Surigao del Sur, Davao Oriental, Davao del Norte, Davao del Sur and South Cotabato, and of two major cities, Davao City and General Santos City. Its total population in 1987 amounted to slightly more than 4 million and its total area occupies 3.2 million hectares, equivalent to approximately 10 per cent of the country's total land area.

In terms of the region's infrastructure for industrial development, the following features are noteworthy. The region's major airport is Davao International Airport which can accommodate Airbus 300 jets and is the center both for passenger and commercial flights in the region.^{1/} The region further has two major ports, Port of Davao and Port of General Santos. The Port of Davao ranks third among all Philippine ports in terms of export trade; it is the most important export trading port outside NCR and handles 72 per cent of the entire export value of Region XI, with the port of General Santos accounting for another 18 per cent.

The region's road network is quite extensive and includes a land connection from Davao to Manila via the Maharlika highway (including a ferry connection).

Region XI is characterized by a surplus capacity of power. While existing power generation capacity stands at 900 MW, the current peak consumption reaches only 600 MW, leaving one third of the total capacity untapped. At present power is sourced from the Maria Christina power station; a further generator is available for contingencies and a geo-thermal energy plant is to be completed by 1992 at Mount Apo. It is further to be noted that Region XI offers the cheapest power rates in the country (P 0.74 per Kw/h), almost 40 per cent below the rate prevailing in Manila.

Region XI is richly endowed with agricultural, marine, forest and mineral resources. Out of the total land area, approximately 50 per cent are cultivated, two thirds with food crops and one third with commercial crops. Major crops include corn, banana, coconut, pineapple, coffee, cacao, ramie and citrus. Indeed, Mindanao is the country's leading agricultural producer and Region XI ranks first among the 4 regions comprising Mindanao. Table 7 shows the significance of Region XI as agricultural supplier, measured by its contribution to overall agricultural production in the country.

The Southern Mindanao region is also the country's first ranking supplier of tuna and has become a significant producer of prawns through sea farming techniques. The latter activity was reinforced by the availability of commercial fry production and the technologies developed and disseminated by SEAFDEC.

^{1/} It should be noted, however, that at present this airport does not operate any international flights.

Table 7. Contribution of Region XI to agricultural production in the Philippines, 1987

(Percentage share)

Crop	Share in total production
Corn	30.7
Banana	33.7
Coconut	31.1
Pineapple	37.4
Coffee	19.0
Cacao	49.2
Ramie	85.0
Citrus	23.1

Source: CRC, Agribusiness Factbook, Manila 1987.

As of 1982, the region's mineral reserves were recorded at 1.8 bn m.t. constituting 7 per cent of the country's aggregate reserves. Metallic mineral reserves (mainly gold, copper ore, chromite ore and nickel ferrous ore) accounted for 13 per cent of the country's total and non-metallic minerals (mainly clay, cement raw materials, limestone and marble) for 6 per cent of the national total. Gold and copper are the most valuable resources which are at present mined almost entirely in the area of Davao City.

The structure of economic activity in Region XI largely reflects its natural resource base. In 1987, the agricultural sector (including fishery and forestry) accounted for 45 per cent of the region's GDP, industry (including mining, utilities and construction) for 20.5 per cent and services for 34.4 per cent (for a more detailed breakdown see Table 8). Between 1985-89, industry has been the fastest growing sector reaching an average annual growth rate of 13 per cent (as compared to 3 per cent for agriculture and 5 per cent for services).

As can be seen from Table 9, manufacturing proper is clearly dominated by resource-processing branches with food and beverages generating 51 per cent of gross output, wood and cork products 18 per cent and paper and paper products 17 per cent. Apart from non-metallic minerals (5 per cent), all other branches, in particular metalworking industries, have so far remained insignificant.

Likewise, the region's exports consist mainly of agricultural goods or food products with low degrees of industrial processing. In 1988, coconut products, bananas, pineapples and wood and wood products between them accounted for 91 per cent of all exports.

Table 8. Region XI: Southern Mindanao gross domestic product, by industrial origin at constant prices, 1985-1989

(Percent distribution)

Industry	1985	1986	1987	1988	1989 ^{a/}
1. Agriculture, fishery, forestry	49.7	49.7	47.5	45.7	45.1
a. Agricultural crops	41.5	41.0	38.9	37.2	36.6
b. Livestock and poultry	4.0	4.2	4.3	4.3	4.5
c. Fishery	1.3	1.3	1.2	1.3	1.3
d. Forestry	2.9	3.2	3.0	3.0	2.7
2. Industry	15.4	15.3	17.8	20.4	20.5
a. Mining & quarrying	1.9	1.7	1.7	1.6	1.5
b. Manufacturing	11.1	11.6	13.2	16.0	16.0
c. Construction	2.0	1.5	2.3	2.2	2.4
d. Electricity, gas & water	0.4	0.5	0.6	0.7	0.7
3. Service sector	34.9	35.1	34.7	33.9	34.4
a. Transportation	4.1	4.0	4.0	3.8	3.7
b. Trade	20.8	21.0	21.1	20.7	21.0
c. Finance & housing	3.6	3.5	3.6	3.5	3.4
d. Other services	6.6	6.6	6.1	6.0	6.2
Cross Domestic Product	100.0	100.0	100.0	100.0	100.0

Source: ESSO; NSCB.

a/ 1989 data are advance estimates as of December 1989.

The Mission held meetings with the regional DTI office, the regional NEDA office, the People's Economic Council, the Department of Public Works and Utilities, the Davao City Chamber of Commerce and Industry and the Mayor of Davao City.

Throughout these meetings, the Mission was impressed by the development drive, aspirations and action programmes adopted to foster the region's future industrial development, as expressed particularly in the Regional Accelerated Program for Investment and Development (RAPID). The programme is aimed at reinforcing the role of Region XI as the country's third industrial center outside NCR, following Cebu and the CALABARZON region. More specifically, Southern Mindanao is to become a gateway for the country's trade and industrial transactions with the Southern Pacific Rim.

Table 9. Manufacturing regional output, by industry, Region XI, 1980-1986

(percentage distribution)

Industry	1980	1981	1982	1983	1984	1985	1986
Food	25.1	25.1	42.1	43.7	25.7	45.0	43.2
Beverage	20.8	34.6	5.3	9.9	4.3	5.4	7.6
Tobacco	0.3	0.2	0.7	0.0	0.4	0.4	0.3
Textile	0.2	0.2	2.6	0.0	0.8	0.8	0.4
Footwear & Wearing Apparel	0.0	0.0	0.1	0.0	0.0	0.0	0.0
Wood & Cork Products	30.2	20.6	27.5	43.7	28.6	19.7	18.1
Furniture & Fixtures	0.3	0.2	0.2	0.4	0.4	0.2	0.2
Paper & Paper Products	15.8	13.3	4.5	0.0	28.8	16.9	17.3
Publishing & Printing	0.3	0.1	0.5	0.5	0.4	0.2	1.5
Leather & Leather Products	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rubber Products	0.3	0.3	0.8	0.7	0.5	1.4	1.7
Chemical and Chemical Products	3.0	2.8	6.6	0.0	3.9	3.4	2.5
Products of Petroleum & Coal	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Non-metallic Mineral Products	1.8	0.8	4.3	0.0	3.5	4.8	5.0
Basic Metal Industries	0.0	0.8	0.1	0.0	2.2	1.0	1.3
Metal Products	0.5	0.2	3.6	0.3	0.1	0.0	0.0
Machinery except Electrical	0.8	0.4	0.7	0.4	0.3	0.3	0.2
Electrical Machinery	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transport Equipment	0.3	0.4	0.2	0.4	0.0	0.2	0.2
Miscellaneous Manufacturers	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Census of Establishments.
National Statistics Office.

In general, three industrial cores have been designed by NEDA for special promotion. The first is the Northern industrial core, the so-called CALABARZON region, comprising the Calamba, Laguna, Batangas, Rizal and Quezon areas. The second is the central industrial core, with Cebu, Cagayan de Oro and Iligan as main centers. Finally, the third or Southern industrial core consists of the cities of Davao, General Santos, Zamboanga and the Cotabato-Parang complex.

The backbone of the RAPID programme is the strengthening of Davao City as one of the 16 Regional Industrial Centers (RIC) designated for priority attention by DTI. It is further noteworthy that General Santos City has been selected as one out of five so-called Special Development Projects under the new Philippine Assistance Programme (PAP), with special emphasis on the development of agro-processing industries. The development of the Davao City RIC has five major components:

- establishment of an industrial estate (and possibly an EPZ) to be completed by 1992;
- improvement of transport and support facilities of Davao City International Airport;
- improvement of the Davao Sasa Seaport facilities;
- expansion of existing telecommunication network;
- improvement of the road network.

A second main element of RAPID is the promotion of so-called craft villages in the region's provincial municipalities aimed at setting up cottage and small industries specializing in specific processing activities.

The Mission noted some promising features for future industrial development of Region XI in general and Davao City in particular. These include the level of industrial activity and skills already existing in the region, its rich endowment with natural resources, its accessibility for air and sea transport (with sea transport linkages already established with the USA, Japan and Australia) and the availability of power for industrial use at low prices.

At the same time, major public investments to expand infrastructural facilities will be required in the future. Moreover, the region lacks crucial industrial support facilities in areas such as financing schemes, testing and quality control, packaging, marketing assistance and others. It is the lack of these support services which, more than anything else, accounts for the difficulties to attract industrial investors from NCR and to induce more investment from within the region. The establishment of an industrial estate in Davao City which could offer common services in some of these areas, therefore deserves special attention. It could also be beneficial in terms of providing a sense of security to potential investors who may still be deterred from investing due to the city's past security problems.

During its discussions in the region, the Mission noted in particular the following areas in which specific technical assistance projects could be further developed:

- Establishment of a Regional Product Development and Design Center with a view to reducing dependence on the limited assistance from the Philippine Design Center.
- Entrepreneurship Development Programmes in the context of promoting Craft Villages.
- Assistance to the General Santos City Furniture Making Association (see project concept No.13 in the Annex).
- Strengthening the Business Information Center of the DCCCI and general assistance to the Chamber through twinning arrangements.

3. Region VI (Western Visayas)

Region VI is composed of 6 provinces and 8 cities encompassing a total land area of more than 2 million hectares and populated by 5.3 million inhabitants. Like in most regions in the Philippines, its economic base is predominantly agricultural. 70 per cent of crop production is based on rice and sugar, making the region's economy vulnerable both to weather conditions and to price trends in the world market. However, the region is known to possess rich natural resources, only a few of which have been exploited commercially. For instance, Region VI has large reserves of molybdenum and copper and, in the non-metallic area, coal, clay, limestone, marble and guano. Ample opportunities appear to exist for exploiting forest products for building materials, furniture, houseware, gifts and toys. There is also a strong base for increasing the food processing activities especially in fish and other marine products.

Industry's contribution to the Gross Regional Product in 1989 was 17 per cent compared to 42 per cent of the combined agriculture, fishery and forestry sector contribution, and 41 per cent of services.

Almost one-half of the total US dollar value in 1989 of exports originating from Region VI was attributed to traditional exports of copper concentrates, sugar and molasses. However, non-traditional exports are increasing their share, with shrimps/prawns, silk fabric, rattan furniture, ethyl alcohol and raffia rolls leading the way.

DTI records show that outside of services and trading, planned investments for the region in 1990 are largely in marine and aquaculture activities, followed by food processing, steel/metal products, gifts, toys and houseware, furniture, garments, and construction materials.

In meetings held with regional DTI and NEDA, the need was emphasized to integrate the efforts of both the Government and the private sector in developing the potentials of the region beyond agriculture. A most welcome event was the recent launching of the Panay-Negros agro-industrial development framework for Region VI. It envisages the setting up of a Regional Agro Industrial Centre (RAIC) in Pavia, Iloilo supported by subregional centres and other urban centres with high-growth potential organized as People's

Industrial Enterprises (PIE). In general, these subregional units are intended to carry out intermediate processing of indigenous raw materials produced in their respective areas and to forward them to the Regional Agro-Industrial Centre in Pavia for final processing. However, where comparative advantages exist the subregional centres could also directly manufacture finished goods. The Government's principal contribution to the development of the Regional Agro-Industrial Centre will be the construction of access roads and the development and rehabilitation of watershed areas that will eventually supply the water needs of the RAIC; otherwise, the private sector is expected to plan, develop and manage the scheme.

In anticipation of the establishment of the RAIC and the PIEs, the Panay-Negros agro-industrial development project has recommended that pre-investment studies be carried out for, inter alia, (1) ramie-based manufacturing, (2) fruit and vegetable processing, (3) aquatic and marine products processing, (4) ceramics and earthenware, (5) marble, and (6) furniture. The identification and prioritization of the type and scale of projects that will be set up in the RAIC and the PIEs will be done by a Task Force which will also coordinate on-site and off-site development projects. It should be worth considering to assist even now the task force in assessing the technological needs of the region and advise on the setting up of the corresponding technology infrastructure and other institutional support mechanisms. The availability of a technological services delivery system which could either provide direct assistance to industry or bridge the technological gaps between technical resource institutions and the small industry sector could not only serve the needs of the existing industry but also encourage further investments.

The metals industry in Region VI can be seen as one priority area for growth and expansion. In Iloilo province alone there are 125 metalworking establishments, of which 27 belong to the farm implements manufacturing industry. The two metalworking associations in the region, namely, the Farm Implements in Western Visayas Association and the Iloilo Metalcraft Association have been active in identifying common problems and opportunities. The problems include, inter alia, lack of raw materials, inadequacy of quality control, testing, equipment and insufficiency of technical know-how which have caused poor product quality (materials, design and workmanship) and hence, limited marketability. The associations recognise that individually the enterprises are unable to tackle all of these problems and have suggested the need for having common services facilities to help them in material selection, heat treatment, testing, and training. There is reportedly no existing facility offering such services in the region. They are either sought for in Cebu or Manila or are crudely done by trial and error methods. The mission recommends support to the efforts of the above mentioned associations in Region VI to set up common services facilities (see project concept No.14 in the Annex).

4. Region VII (Central Visayas)

Region VII, otherwise known as Central Visayas, occupies an area of 1,495,142 hectares in the center of the Philippine archipelago and is composed of four island-provinces, namely: Bohol, Cebu (508,844 hectares), Negros Oriental and Siquijor.

Central Visayas is one of the most populated regions in the Philippines. More than half of the population is concentrated in Cebu (2.5 million). As of 1988, 49 per cent of the household population were employed in services, 36 per cent in agriculture, fisheries and forestry and 24 per cent in industry.

Trade and commerce between Luzon, Visayas and Mindanao are carried out through the ports and airports of Cebu, Cebu province being the country's major growth area outside Metro Manila. It is for this reason that development of the region is lopsided in favour of Cebu province leaving the other provinces behind.

In terms of the region's infrastructure for industrial development, it is worth mentioning that the region has two major ports, Port of Cebu and Port of Dumaguete (Negros Oriental). The port of Cebu, which is the second busiest in the country, handled a cargo tonnage of 13.5 million in 1989. The region's main airport is the Mactan Airport in Cebu which operates international flights. It had a passenger movement of 4.3 million in 1989 in comparison to 2.9 million in 1985. The region has also an extensive road network with a highway kilometerage of 11,000 as of 1983.

Water and power supply, however, do hardly meet the increasing requirements emanating from the rapid economic growth of Cebu province.

The present major production activities of the region belong mostly to the areas of agriculture, livestock, fisheries, forestry and minerals. Its leading food crops are corn fruits, rice and rootcrops. Coconut production is concentrated in Cebu and Bohol while sugar is dominant in Negros Oriental. Due to the region's small and practically used up agricultural land, agricultural production is not extensive in Central Visayas compared with the other areas in the country.

The region is very rich in metallic (copper, iron magnetite sand, manganese, chromite) and non-metallic (cement raw materials, pyrite, limestone, silica, dolomitic limestone, marble, rock phosphate, guano, clay) minerals. As of 1982, metallic mineral reserves were recorded at 52.2 million m.t., while non-metallic mineral reserves were recorded at 4.2 bn m.t.

Mining activities dominate the large scale industries in the region (Toledo City, Cebu), followed by the cement industry, also in Cebu. The leading sugar mills are found in Negros Oriental and in Cebu.

Past development strategies for the region put emphasis on the development of industries less dependent on agriculture as most of its agro-processing industries were sustained by agricultural inputs from other regions. The region's relatively well-developed infrastructure, large industrial base and urban centers indicated that this strategy was the most logical. However, in the context of the current national development thrusts (self-sufficiency and maximum use of the region's raw materials, manpower and overall economic potentials), agro-industrial projects are being expanded or newly established along with the promotion of non-agro-based industries.

In 1988, Cebu province had an estimated total of 2,876 industrial establishments, the majority of which were classified under small scale industries (84 per cent). The medium and large scale industries represented 12 per cent and 4 per cent respectively.

Of the country's four operating EPZs (in Baguio, Bataan, Cavite and Mactan (Cebu)), the Mactan EPZ has recently shown the most dynamic development: 35 firms have been registered in 1990 compared to 22 in 1989, 16 in 1988 and 10 in 1987. One fifth of the firms in the zone are wholly Filipino owned and the majority of the remaining firms are Japanese. In terms of job creation, 9,369 factory workers were employed by the zone in 1989 compared to only 5,566 in 1988. Only 17 per cent of the zone area (119 ha) are left for new occupancy. The possibility of expanding the occupancy area through expropriation or by reclaiming some 200 ha is under consideration. The lack of sufficient water and power supply is another issue of concern.

Cebu's economy exhibited a good performance over the last two years, as reflected by its economic growth rate of 15 per cent for the period 1987-1988, and 20 per cent for the period 1988-1989 in comparison to national growth rates of 6.7 per cent and 5.5 per cent respectively.

As regards investments, Region VII actualised P. 2.171 billion in 1989 distributed among the following sectors: construction materials (P. 677.4 million), shipping (P. 403.76 million), marine and aquaculture (P. 311.72 million), metals and engineering (P. 228.18 million), tourism (P. 187.76 million), food/chemicals (P. 128.13 million), mining (P. 45 million), forest-based (P.44.23 million) and agriculture (P. 25.5 million). A total of P. 2.5 billion have been reported for the period January-July 1990 distributed among the nine investment priority areas for 1990, namely: marine and aquaculture, garments and textile, computer services (software), gifts/toys/houseware, processed food and beverages, furniture and wood products, semiconductors and electronics, ceramics, steel and metal products.

The total export revenue of Cebu province amounted to \$ 392,945 in 1989 or 69 per cent of the total export revenue of Region VII. Leading traditional exports consist of copper concentrate, raw sugar, coconut oil, abaca fiber, lumber, sugar, copra. The leading non-traditional exports consist of rattan furniture, electronic watches, semiconductors, gifts, toys and houseware, carrageenan and dried seaweeds, stone furniture, fashion accessories.

The Mission held meetings with the regional DTI Office, the management of the Mactan export processing zone and several private entrepreneurs. In several meetings it was reported that, in order to sustain the industrial development of the region, custom clearance procedures need to be improved so as to enable a smooth and speedy handling of exports and imports of essential parts.

The Mission further noted the key role assigned to the Mactan EPZ as growth pole for the region's future industrial development. This would make it essential, however, that industries operating inside the Mactan EPZ could improve the local content of their production if local manufacturers of parts and components were able to comply with technical specifications. A survey of the potentials of the existing supporting industries in the region would be called for, followed by the formulation of a technical assistance programme (see project concept No.15 in the Annex).

Several entrepreneurs expressed the need for assistance to improve access to information on sources of technology and market trends, establishing commercial contacts with overseas producers; preparing feasibility studies; improving the performance of their production activities; diversifying their production, improving product design, etc. The establishment of a technology services delivery system in the region could help to improve the performance of SMIs either through direct assistance or by reinforcing the link between technical resource institutions in and outside the region (universities, research and development institutes, etc.).

The plating and jewelry industry has been an important source of income in the Philippines in general, and in Cebu in particular. Given proper technical assistance on metal plating, this industry would be in a better position to compete in foreign markets. In order to correct the deficiencies of the plating and jewelry small scale industries in the Philippines, the Metals Industry Research and Development Centre (MIRDC) has requested UNIDO's assistance in investigating the exact manner in which MIRDC and other relevant institutions could help in sustaining the modernization of the plating and jewelry industry. An assessment by UNIDO of the existing levels of technology, design facilities, operational skills, management and maintenance practices of the plating and jewelry industries in Cebu and relevant regions would be called for, followed by a technical assistance programme (see project concept No.16 in the Annex).

The mission's attention was also drawn to the pollution problems caused by the cement, fertilizers and stonecraft industries in Cebu. There is obviously a need to define the current environmental impacts of these major industries and to investigate the technical capacity of existing industrial R & D and other institutes in monitoring pollution and conducting environmental impact assessment studies (EIA). Based on these preliminary investigations, EIA procedures for application to industry and for subsequent application by the relevant institutions would have to be outlined.

Of the 33 producing underground coal mines in the country, 16 are located in Cebu Island, accounting for 30 per cent of total national coal production. However, in view of the low quality of their production, Cebu mines supply only 42 per cent of the needs of the Cebu-based coal users, particularly the cement and power plants. The rest of the coal required by the main users is either supplied by mines from neighbouring islands, or the larger part, imported from other countries. A centralized preparation plant in Cebu would enable Cebu mines to provide a product of consistent calorific value which would meet the requirements of the main users. Such a facility would be beneficial not only in the optimum utilization of the indigenous energy resources but also in the reduction of coal importation (see project concept No.17 in the Annex).

A special issue brought to the Mission's attention is the high amount of waste emanating from mango peels and from crustaceans shells. Assistance was requested from entrepreneurs aimed at reducing the pollution caused by uncontrolled dumping of these wastes and identifying opportunities for commercial waste utilization, such as the potential use of crustaceans shells in producing the enzyme 'kitin'.

5. Region I (Ilocos)

Region I situated in Luzon consists of four provinces, i.e. from North to South Ilocos Norte, Ilocos Sur, La Union and Pangasinan. Its land area is approximately 13,000 sq kms. which in turn constitutes about 4 per cent of the total land area of the Philippines. The population of Region I was 3.3 million (as of 1988) which is about 6 per cent of the country's total population. About 70 per cent of this population lives in rural areas and its growth rate is rather low for the Philippines, i.e. 1 per cent.

Important mineral resources in Region I are manganese, chromite and copper. Of the non-metallic resources, the more important ones are limestone, kaolinitic clay, feldspar, asbestos and silica.

Region I produces vegetables but especially tomatoes, mushrooms, garlic and onions as well as corn, palay, cassava and mango. It is also rich in various fruits (bananas and mango), tobacco, cotton, sugarcane and more recently cacao and coffee.

With regard to infrastructure, the region has one base seaport and six sub-ports serve the region. One international airport and one secondary as well as three feeder airports are also available. At present, the region has adequate power facilities, even to accommodate industrial expansion.

The overall strategy for the economic development of this region puts emphasis on:

- the promotion of selected, medium to large scale resource-based industries such as in food processing, cement and feldspar;
- the promotion of domestic and foreign trade; and
- the promotion of service support industries such as storage, warehousing and transport.

In the Mission's discussions with local authorities, the importance of strengthening post-harvest facilities particularly for vegetables (e.g. tomatoes, garlic and onions) was repeatedly emphasized. Vegetables are the main crop in the southern part of the region. They are transported to Metro Manila at great losses. Consequently, the development especially of post-harvest facilities is given a high priority by the Government. At present, only the canning of mushrooms takes place in the region yet facilities to dehydrate vegetables which is still done by drying them in the sun and the processing of tomatoes would be of particular importance. Vegetable farming and livestock breeding account for eighty per cent of the region's employment. Lately, the farmers have been encouraged to organize themselves into co-operatives to increase their bargaining position vis-à-vis financial intermediaries in securing funding for the establishment of processing facilities. In this connection, the Land Bank of the Philippines has indicated interest in funding selected investments.

The authorities further pointed out that meat processing and marketing in Urdaneta and other locations in the southern part of Region I have a good potential for further development. In fact, the livestock market in Urdaneta is reported to be one of the largest ones in the Philippines. The establishment of a modern slaughterhouse in Urdaneta with accompanying infrastructural facilities would therefore be badly needed.

Region I has one of the longest coastlines of any of the regions in the Philippines and is therefore the location of major fishing activities. Shrimps and other aqua products are caught in large quantities but the lack of fish processing facilities results in little value-added for the region. As in the case of the farmers, fishermen have been encouraged to establish co-operatives to provide their own processing and transportation facilities. In addition, financial assistance is needed to rebuild port facilities in the harbor of Dagupan (which was severely hit by the 1990 earthquake) to accommodate fishing vessels.

The importance of developing the metalworking industry to supply the local market with simple farm machinery and implements was stressed several times. In Pangasinan, the Mission visited a medium-sized metalworking/engineering firm (Philgerma) which, aside from farm equipment, supplies the local mining industry with a multitude of products. As indicated by the owner, the company's main problem is the lack of skilled manpower. In this regard, the firm received assistance from MIRDC and it established its own training programme. Generally speaking, the metalworking industry in Region I faces a severe shortage of skilled workers to adequately operate its facilities. In a meeting with the Dagupan business association, the Mission was requested to look into this matter and to provide expertise in the processing of fish skin for the production of handbags and shoes and to supply information on the technology of producing glasswool from waste glass. In another meeting, the mission's attention was drawn to the need for job creation in the rural areas. This applied in particular, the need for advice in establishing co-operatives in the informal textile/garment sector to secure financial support for the purchase of sewing machines as this would enable women in the rural areas to add to the family income.

Generally, for the country to attain economic recovery and progress, it would be vital to mobilize all available human resources. It is the goal of the Philippine Development Plan for Women for 1989-1992 to fully and actively integrate women in the establishment of industries, revitalization of existing viable enterprises, and in other productive and gainful activities. The Plan aims, inter alia, at (1) creating jobs where women's productivity is recognized, unemployment/underemployment is minimized, and exploitation created by feminized cheap labour and employment instability in the export-oriented economy is lessened, and (2) providing adequate training and support facilities to existing and potential women workers and entrepreneurs. The issue of promoting entrepreneurship development in general and among women in rural areas in particular is addressed in project concept No.18 in the Annex.

Finally, one of the main issues brought to the attention of the mission is the extension and modernization of the seaport in San Fernando, La Union which was damaged by a recent typhoon. The Governor of La Union placed the highest priority on the development of this port as it constitutes the main entry/exit point for goods in the region. At present, the port does not have container handling facilities.

In summing up, it can be stated that aside from the urgently needed assistance in rebuilding devastated communities, technical assistance in the following fields would appear to have the strongest impact on the economic development of Region I:

- food processing with particular reference to canning and de-hydration of vegetables. Processing facilities for tomatoes to handle the large seasonal excess supply are urgently needed in Pangasinan. The processing of fish and meat are also of particular importance to this region;
- the metalworking sector to support farm and mining activities in the region;
- the establishment of entrepreneurship development programmes possibly in tandem with skill development as provided by ILO (see project concept No.18 in the Annex);
- providing assistance in the establishment or upgrading of co-operatives as requested by several local authorities.

V. CONCEPTS AND MODALITIES OF FUTURE UNIDO ASSISTANCE

The Mission took place at a critical period of the country's economic and industrial development. At this stage, it is important to stock-take current trends, prospects and constraints of industrial development and to outline areas requiring particular attention in the years to come. The Mission attempted to do this although it had only limited time at its disposal. It could, however, in many areas refer to analytical reports and policy-oriented work being undertaken in the country. On this basis, the present report provides a framework for a technical assistance programme for industry in the next country programme cycle. The objective was to design technical assistance concepts in a packaged and focussed manner responding to the critical industrial development needs. The technical assistance proposals in this report have been formulated on the basis of their assessed importance for the country's industrial development; they have been grouped into clusters of complementary and mutually reinforcing projects so as to achieve the desired impact on the industrial development process. Indeed, the benefit of international co-operation for the country would be greatly enhanced if it were possible to concentrate on selected programme areas and to closely intertwine external inputs with corresponding national efforts.

The Philippine economy is in a process of deregulation, reduced direct Government interventions and accordingly, a greater reliance on market forces. The Mission is of the opinion that this needs to be reflected in the nature of external assistance in terms of delivery and end users:

- The technical assistance thus needs to be firstly formulated and delivered as a flexible response to rapidly changing trends and constraints in the key branches of industry so as to enable timely support to arising critical needs;
- The technical assistance would secondly have to be increasingly directed to the private sector entities such as industrial enterprises, chambers of industry and commerce and regional and sectoral industry associations as well as to the banking sector in its capacity as provider of industrial finance.

Moreover, increasing emphasis needs to be placed on the instrumental role of industrial development for the society's overall welfare. The objectives of poverty alleviation, equitable regional development and environmentally sound and sustainable development are all intimately linked to the pattern of industrial development.

A wide range of bilateral and multilateral co-operation programmes are currently supporting the Philippine development process. It is obviously an essential part of the subsequent detailed programming exercise to synchronize and use the synergic effects of the entire assistance. The most important of these programmes in the field of industry are briefly reviewed in Annex II so as to provide a starting point for possible coordination of UNIDO's and other donors' activities in this area.

Annex I presents individual project proposals for future assistance to be provided by UNIDO (for a synoptic list of these proposals, see Table 10). Most of these proposals were identified by the Mission and elaborated in meetings with the prospective counterpart agencies. In addition, some

existing pipeline projects were included in such cases where the Mission felt that these were responding to critical assistance requirements in thrust areas of the next Country Programme.

Following the above-mentioned need for effective modalities and forms of technical assistance, the Mission proposes in two cases 'umbrella' projects under which foreign expertise could be mobilized flexibly and at short notice in a wide range of fields. In both cases, the nature of assistance required appears to call for such arrangements. The technology umbrella project (see project concept No. 7 in the Annex) is aimed at assisting DOST in operationalizing and implementing action plans on 'leading edge' technologies. These cut across different branches of manufacturing and, at different stages will require varied expertise ranging from the assessment of prospects for technology commercialization to advice on institutional or contractual matters. The same applies in principle to the regional umbrella project (see project concept No. 12 in the Annex) which is to support DTI's efforts to promote new industries in selected regions of the country. The exact nature of expertise required can, to some extent, only be determined in the course of project implementation, particularly as this project is also supposed to assess in detail the potential viability of a large number of tentative project ideas identified by the Mission during the regional visits.

At this stage of the programming exercise, the Mission decided to refrain from elaborating the project concepts in greater detail in order to first enable UNDP and the authorities concerned to review the report in its entirety and respond to its proposals. Subsequently, UNIDO will certainly be pleased to provide its services for detailed technical project formulation work in the designated areas.

Table 10. Survey of proposed project concepts

Proposed projects	Cost estimate	Remarks
I. <u>Industrial strategy and policies</u>		
Industrial policy workshop: towards elaborating a "preferred" industrial structure and a policy framework for the 1990s	\$ 90,000	See project concept No.1
II. <u>Enhancing the role of small and medium scale supporting industries</u>		
Assistance to small and medium enterprises to improve access to industrial finance	\$ 200,000	See project concept No.2
Assistance to NIBDC in design and making of tools, dies and moulds for die-casting, plastics and shell moulding	\$ 1,500,000	See project concept No.3
Assistance in quality control and standardization to small and medium scale producers of automotive components	\$ 700,000	See project concept No.4
III. <u>Strengthening of science and technology for industry</u>		
Advisory services on innovative approaches to foster science - technology - industry linkages: the science park approach	\$ 150,000	See project concept No.5
Assistance to DOST on the industrial commercialization of selected technologies under the Comprehensive Technology Transfer and Commercialization (CTTC) Programme	\$ 250,000	See project concept No.6
Support for DOST in implementing the STCC Sectoral Action Plans in the 'leading edges' framework (umbrella project)	\$ 250,000	See project concept No.7
Establishment of a Plastics Research and Development Unit at the Industrial Technology Development Institute	\$ 1,100,000	See project concept No.8 (pipeline project)
Development/utilization of indigenous fibres for textile products (phase II)	\$ 700,000	See project concept No.9
IV. <u>Energy and environment</u>		
Demonstration and promotion of biogas technology	\$ 300,000	See project concept No.10 (pipeline project)
Evaluation of the industrial application potential of coal gasification	\$ 150,000	See project concept No.11 (pipeline project)
Assistance to DENR in the field of environmental policies and standards		To be further discussed
Assistance on industry-related energy conservation measures in the context of the planned Energy Conservation Centre		To be further discussed and linked to ongoing project DP/PHI/87/007

Table 10. (cont'd)

Proposed projects	Cost estimate	Remarks
V. <u>Regional dispersal of industrial development</u>		
Regional 'umbrella' project: Assistance to regional DTI offices and industry associations in promoting new industries	\$ 1,500,000	See project concept No.12
Region XI: Assistance to the General Santos City Furniture Making Association	\$ 300,000	See project concept No.13
Region VI: Establishment of a Heat Treatment Common Service Facility in Iloilo	\$ 530,000	See project concept No.14 (pipeline project)
Region VI: Strengthening of backward linkages from the Mactan EPZ	\$ 120,000	See project concept No.15
Region VII: Upgrading of Electroplating and Jewelry Small-Scale Industries (Cebu and other regions)	\$ 40,000	See project concept No.16 (pipeline project)
Region VII: Assistance in assessing the Commercial prospects of a coal preparation plant in Cebu	\$ 50,000	See project concept No.17 (pipeline project)
Region I: Entrepreneurship development programmes	\$ 435,000	See project concept No.18 (pipeline project)

ANNEX I: PROJECT CONCEPTS FOR UNIDO ASSISTANCE

PROJECT CONCEPT NO.1

PROJECT TITLE: Industrial policy workshop: Towards elaborating a "preferred" industrial structure and a policy framework for the 1990s.

COUNTERPART AGENCY: Department of Trade and Industry (DTI).

PROJECT OBJECTIVE: To review current and emerging challenges to enhancing industrial competitiveness and elaborate options for suitable policy responses.

BACKGROUND INFORMATION AND JUSTIFICATION: The workshop is to take stock and analyse current trends in the global economy and their implication for Philippine industry and to assess the emerging versus desirable path and pattern of the country's manufacturing industry. The international competitiveness of various industrial subsectors would be examined and a diagnosis undertaken of the need for modernization or rehabilitation of industries. The need for fine tuning and consistency of industrial policies and institutional measures will be reviewed. On this basis a national policy programme and a further strengthening of financial, technical training, technological and infrastructural support to industrial modernization and entrepreneurship will be conceived. Various follow-up activities will be outlined also for international co-operation. To this end, an industrial policy workshop with support by UNIDO and participation of international specialists along with leading representatives from relevant Government authorities, private industry and academic research institutes will be organized. Analytical background documents will be prepared by national and international experts to be presented at the workshop.

The precise scope, participation, timing and venue would be determined early 1991. It would be attempted to hold the workshop around mid-1991.

EXPECTED PROJECT DURATION: Four months

COST ESTIMATE: US \$90,000.

PROJECT CONCEPT NO.2

PROJECT TITLE: Assistance to small and medium enterprises to improve access to industrial financing.

COUNTERPART AGENCY: Development Bank of the Philippines and
Bureau for Small and Medium Business Development

PROJECT OBJECTIVE: To assist SMEs in preparing and implementing bankable projects for financing under DBP schemes.

BACKGROUND INFORMATION AND JUSTIFICATION: Various finance schemes have recently been introduced in the Philippines which are aimed specifically at meeting the needs of small and medium enterprises (SMEs). Two innovative approaches (described in more detail on p. 11 of this report) include DBP's Window III programme and the SEED programme at present being launched by DBP with UNIDO assistance. Both programmes take into account the lack of sufficient collaterals which in the past has hindered the access of many SMEs to industrial finance.

The project proposed here is to support and complement the implementation of these schemes by providing related technical assistance to SMEs applying for finance. This would entail providing assistance to such industries both in terms of required opportunity studies and/c: feasibility studies and operational assistance in terms of technical advisory work accompanying the actual modernization or investment projects financed by the loans or equity capital obtained.

By linking this type of assistance to the Window III and SEED programmes, a targeted provision of assistance would be ensured. Within the Window III programme, DBP's regional branches have already identified a portfolio of promising projects in various regions of the country. A similar situation prevails with respect to the SEED programme where SME with high growth potentials and good export prospects have already been pre-selected for possible funding.

This project, in a very focussed manner and by easing critical development constraints, would contribute not only to SME promotion but - given the orientation of Window III and SEED - also to regional industrial development and export promotion.

EXPECTED PROJECT DURATION: Two years

COST ESTIMATE: US \$200,000.

PROJECT CONCEPT NO. 3

PROJECT TITLE: Assistance to MIRDC in design and making of tools, dies and moulds for die-casting, plastics and shell moulding.

COUNTERPART AGENCY: Metal Industry Research and Development Center, DOST

PROJECT OBJECTIVE: To contribute to improved productivity, efficiency and competitiveness of the country's metals and engineering industry by enhancing the potentials of local foundry shops, forging plants and machine shops to meet the demands of the industry for quality metal products.

BACKGROUND INFORMATION AND JUSTIFICATION: The project will strengthen the capabilities of MIRDC in terms of manpower and physical facilities to enable the transfer of technology, i.e. modern methods of tool and die manufacture, particularly in the design of tools and dies intended for die casting and shell moulding, through the carrying out of workshop/training programmes with personnel of small and medium firms, comprising foundry shops, forging plants and machine shops. Workshops training programmes will be held at MIRDC as well as in selected regional centres. The training of personnel will aim at the application in the plants of efficient production methods and product diversification.

The specific areas for training, where MIRDC on its part also requires upgrading, include:

- tool and die design;
- material selection for die making;
- production methods/techniques;
- die design of intricate products; and
- quality control.

EXPECTED PROJECT DURATION: 2 years

COST ESTIMATE: US \$1,500,000
(including equipment component).

PROJECT CONCEPT NO. 4

PROJECT TITLE: Assistance in quality control and standardization to small and medium-scale producers of automotive components.

COUNTERPART AGENCY: Bureau of Small and Medium Business Development, DTI.

PROJECT OBJECTIVE: To assist small and medium scale automotive component producers in improving the quality of their products and thus increasing their competitiveness.

BACKGROUND INFORMATION AND JUSTIFICATION: At present, automobiles of different makes are assembled locally to designs of various foreign companies in joint venture arrangements. The components and parts used for assembly of the vehicles and for use in the replacement/spare parts market are either imported (from the collaborating countries or from other countries manufacturing such items) or are manufactured locally. The local production is either done as in-house production or by enterprises ranging from very large to extremely small units. Most large and many medium scale enterprises are working in joint-ventures with foreign companies while remaining medium and most small scale units are wholly locally owned.

The Government's policy in this subsector is twofold. Firstly, it desires progressive local manufacture of automotive parts and components. Secondly, the Government gives high priority to the development and growth of small and medium scale industry in the country. In the engineering sector it has also emphasized the need for the SMI to have linkages with and supply products to the large scale industry; to have a large share of the replacement market in engineering items; and to enhance exports of engineering goods. It envisages the development and expansion of the SMI to meet the growing demand in the automotive sector from original equipment manufacturers and in the replacement market through upgrading the quality of products and improvement in productivity and economical production.

The project would assist the small and medium scale industry in the automotive sector in upgrading the quality of production and improving its productivity through application of standardization and quality control techniques in its operations so that consumers can get known quality and reliability at competitive prices. A package of assistance would be provided to the concerned personnel in areas such as standards making, rationalization of components and materials, testing of components and establishment of test equipment/rigs. Assistance to small and medium scale industries would be given through enterprise level training and consultancy in selected units.

EXPECTED PROJECT DURATION: 2 years

COST ESTIMATE: US \$700,000

(Note: Project may benefit from establishing links with JICA National Standardization and Industrial Quality Control Improvement Programme.)

PROJECT CONCEPT No. 5

PROJECT TITLE: Advisory services on innovative approaches to foster science-technology-industry linkages: The science park approach.

COUNTERPART AGENCY: Department of Science and Technology

PROJECT OBJECTIVE: To evaluate constraints, prospects and options to establish a science park, based on experience gained in other Asian developing countries

BACKGROUND INFORMATION AND JUSTIFICATION: DOST, in its endeavour to promote industrial applications and commercialization of science and technology, has indicated its interest in establishing a science park in the Philippines "to serve as a vehicle for private industry, R&D laboratories and academe interactions in the development of knowledge-based industries." (S&T Master Plan, p.31).

As experience elsewhere has shown, the establishment of science parks requires a long-term commitment often bearing fruit only after an incubation period of up to 10 years. Also it needs to be emphasized that the successful operation of a science park has a number of important preconditions. In addition to the more obvious ones - availability of highly skilled personnel; an attractive site with an excellent infrastructure - this includes the existence of venture capital institutions willing to finance high risk, non-standard projects.

The number of science parks so far established in developing countries is extremely small. The most prominent example is the Hsinchu Science-Based Industrial Park in Taiwan Province, which testifies to the possibility of rapid progress in a realistic planning framework. Founded only in 1980, the Hsinchu Park has attracted more than 70 research-based companies (some 40 per cent locally owned), predominantly from the electronics industry. The main objectives in establishing the Hsinchu Park were to speed up industrial restructuring towards more knowledge-intensive production, to create proper jobs for highly skilled local workers and to promote domestic entrepreneurship.

It is suggested that UNIDO, jointly with DOST, reviews the experience gained in existing science parks in both developed and developing countries. Based on this review, possible approaches to be adopted in the Philippines could be elaborated in terms of

- appropriate location;
- target areas to which investors are to be attracted;
- institutional framework;
- related sources of finance required to stimulate commercial production in research-intensive industries;
- supportive industrial policy measures.

Project activities would include holding a workshop to review various science park concepts and practical experience in other countries as well as international experts to assist DOST in conceptualizing a science park in the Philippines.

EXPECTED PROJECT DURATION: Five months

COST ESTIMATE: US \$150,000.

PROJECT CONCEPT No. 6

PROJECT TITLE: Assistance to DOST on the industrial commercialization of selected technologies under the Comprehensive Technology Transfer and Commercialization (CTTC) Programme

COUNTERPART AGENCY: Department of Science and Technology

PROJECT OBJECTIVE: To assess potential commercial applications of indigenous industrial technologies and promote related investment projects

BACKGROUND INFORMATION AND JUSTIFICATION: The CTTC Programme was launched by DOST to speed up the commercial application of technologies which have been developed in the country. The industrial technologies covered by the Programme span a wide field ranging from food processing equipment to downstream processing of degummed ramie, household chemicals and specific industrial ceramics. In some cases, feasibility studies have already been undertaken.

It is suggested that UNIDO assistance be provided in two phases. In phase I, three sector-specific experts (one expert each for agro-processing industries, chemical industries and engineering industries) would undertake to assess the identified technologies as regards their commercial applicability and market potential, partly by carrying out additional opportunity studies. In phase II, investors fora would be organized by UNIDO on selected, most promising technologies. In these fora, Philippine technology proponents, potential domestic and foreign investors, and the banking sector would be brought together to discuss concrete investment opportunities.

EXPECTED PROJECT DURATION: One and a half years

COST ESTIMATE: US \$250,000.

PROJECT CONCEPT No. 7

PROJECT TITLE: Support to DOST in Implementing the Sectoral Action Plans in the 'Leading Edges' Framework ('umbrella' project).

COUNTERPART AGENCY: Department of Science and Technology and various Sectoral Technical Panels on specific 'leading edges'.

BACKGROUND INFORMATION AND JUSTIFICATION: DOST has identified 15 so-called 'leading edges' for the promotion of science and technology, most of which are closely linked with crucial areas of industrial development. This applies specifically to metals and engineering; textile industry; food and feed industry; energy; information technology; electronics, instrumentation and control; emerging technologies; and pharmaceuticals. Sectoral Technical Panels have been appointed, in charge of formulating Action Plans and Implementation Programmes some of which have already been finalized. The overall aim is to raise core industries to international levels of competitiveness through application of innovative product and process technologies.

The proposed 'umbrella' project would assist DOST (a) in finalizing some of the Sectoral Action Plans still under preparation through provision of short-term expertise in critical areas, and (b) in identifying company-level constraints and action requirements for related modernization efforts. The project would commence with a diagnostic phase in which leading industrial companies in "core" industrial subsectors undergo a "technology audit" and an analysis of required upgrading of technology, including associated services (design, organization, material flows, inventory control etc.). This phase would be followed by outlining an investment and rationalization programme for the concerned industries. The choice and alternative sources of technology and the costing would be determined and the preparation of feasibility studies undertaken prior to acquisition negotiations and foreign direct investment promotion.

Assistance under the project would be in the form of short-term experts to be recruited in a flexible manner if and when required to provide advisory services on industrial technology application and related issues.

EXPECTED PROJECT DURATION: Two years

COST ESTIMATE: US \$250,000.

PROJECT CONCEPT No. 8

PROJECT TITLE: Plastics Research and Development Unit

COUNTERPART AGENCY: Industrial Technology Development Institute (ITDI), DOST.

PROJECT OBJECTIVE: To establish a Plastics Research and Development Unit which will provide training, testing, processing and information services to the plastics industry, as well as to its suppliers and products users.

BACKGROUND INFORMATION AND JUSTIFICATION: It is an established fact that the plastics industry in the Philippines has started playing and is potentially able to play a very vital role in the economy through the plastic products utilization in many of the Government priority sectors stated to be developed. However, the industry of plastics transformation lacks the adequate national technology sources for formulation and processing, design of products and moulds and development of new products and applications. In general, this industry does not have the capacity to develop technologies in order to increase the productivity and variety of its manufactures and improve their quality. It acquires technology abroad (patents, trademarks, etc.) for elaborating products of relatively easy manufacturing. There exists practically no quality control in the factories in order to comply with external rules and specifications. Therefore, the local needs are not satisfied and it becomes impossible to compete on the international markets.

It is against the above-mentioned background that the Philippine authorities have requested UNIDO's assistance in creating a local capacity to solve the plastics industry problems in products quality, testing and quality control, processing, productivity/efficiency, products and mould design, training and information.

The project is intended to establish a Plastics Research and Development Unit at the Industrial Technology Development Institute (ITDI, DOST). This unit will provide assistance to the plastics industry, the raw materials, equipment and mould suppliers, as well as the end user enterprises through four operating modules namely training module, testing module, process/product development module, and a technical information module.

The private plastics industry will be closely involved in the project execution.

EXPECTED PROJECT DURATION: Four years.

COST ESTIMATE: US \$1,100,000

PROJECT CONCEPT No. 9

PROJECT TITLE: Development/Utilization of Indigenous Fibres for Textile Products (Phase II)

COUNTERPART AGENCY: Philippine Textile Research Institute (PTRI).

PROJECT OBJECTIVE: To develop a technically viable technology for use of selected indigenous fibers in the production of textiles and ascertain the economic viability of the technology(ies) developed.

BACKGROUND INFORMATION AND JUSTIFICATION: The textile and garment industries are heavily dependent on imported fibres and fabrics. There is very limited production of cotton in the country (3,000 tonnes in 1986) - only 12 percent of the domestic cotton consumption, and the available land and climatic conditions impose limits to further significant expansion of cotton cultivation. Hence the possibilities for substituting imported cellulosic fibre and meeting the demands for increased cellulosic fibre usage must be directed towards other fibres than cotton.

The R&D work carried out by the Philippine Textile Research Institute (PTRI) on indigenous similar fibres such as pineapple, banana, maguey, abaca and kenaf two categories: fibre pre-treatment (de-gumming) and the development of optimum spinning conditions. The results are encouraging but not yet satisfactory. More work is clearly needed to develop both the pre-treatment of the fibres and their subsequent processing into yarn. The only solution is for PTRI to acquire its own pilot plant and for this, external assistance is requested.

It is against the above-mentioned background that UNDP/UNIDO assistance has been extended to PTRI project (DP/PHI/87/002 "Indigenous Fibres-Development of their Processing Technology and Use in Textiles", Phase I), in developing a technically viable technology for the use of selected indigenous fibres, namely, banana, pineapple, abaca, maguey and kenaf in the production of textiles.

Under Phase I of the project, work on the pre-treatment of the fibre has been carried out and a set of processing institutions has been developed to serve as a starting point for further experimental work at PTRI once the complete pilot plant is in operation. The equipment specifications and processing routes for yarn production have also been produced. Despite the delay in the construction of the pilot plant building, the first phase of the project can be considered to have been satisfactorily completed and the prerequisites created for proceeding to the second phase as originally foreseen. Phase II activities will cover elements such as costing of the various processes, developing product performance standards and standard methods of testing at different stages in the production process, product development and, finally, dissemination of the acquired knowledge to the industry and assisting in its application to commercial production. A draft project document covering Phase II of the project is being prepared, based on the outcome of the technical review of Phase I which was carried out in September 1990. It is to be noted that the equipment to be purchased under Phase II will also be used for the processing of ramie.

EXPECTED PROJECT DURATION: One and a half years.

COST ESTIMATE: US \$700,000

PROJECT CONCEPT No. 10

PROJECT TITLE: Demonstration and Promotion of Biogas Technology

COUNTERPART AGENCY: The Office of Energy Affairs - Non-Conventional Resources Division (OEA - NCRD)

PROJECT OBJECTIVE: To upgrade the capacity of Affiliated Non-Conventional Energy Centers (NCECs) to enable them to support and promote the use of biogas technology within their respective geographical areas.

BACKGROUND INFORMATION AND JUSTIFICATION: A major objective of the country's energy programme is to sustain efforts in the development of indigenous energy resources and reduction of oil import dependence. In line with this, the development and promotion of use of technically feasible, socially desirable and economically viable non-conventional energy systems (NESs) is being pursued strongly by the country's energy sector.

Biomass energy systems are energy systems which use organic matter, primarily plant matter, through either thermochemical or biochemical processes, to produce energy. During the last decade, one of the biomass energy systems that has been developed was the biogas system. Biogas generation for energy and fertilizer application, has been proven to be commercially competitive with conventional energy systems through various demonstration and actual commercial scale projects.

However, the mixed results of some small-scale biogas systems raised doubts on this technology's viability. Some small-scale systems closed down due to technical problems. The operational problems were not properly addressed because of inadequate technical know-how of users. Owners of these systems depended on outside help from the government and some academic institutions confronted with the problem of limited technical personnel. High initial investment is considered another deterring factor to the widespread utilization of biogas technology, despite favourable economic evaluation of the project brought about by low operating cost.

There is a need to upgrade the capabilities of universities and agricultural colleges, located in different regions of the country and assigned by OEA as Affiliated Non-conventional Energy Centers (ANECs), to provide the technical assistance and training needed by biogas system users, such as poultry farms, dairies, and piggeries in their respective areas. In the process, the centers will be able to implement successful demonstration and actual commercial-scale projects and generate interest among users and investment from financing agencies.

Under this project, the ANECs will be provided with technology information and training, demonstration facilities, monitoring equipment and supply, to enable them to support current biogas plant installations and, in cooperation with OEA/NCRD, provide background information and assistance to potential users, manufacturers and potential investors.

EXPECTED PROJECT DURATION: Three years.

COST ESTIMATE: US \$300,000

PROJECT CONCEPT No. 11

PROJECT TITLE: Application of Coal Gasification

COUNTERPART AGENCY: Office of Energy Affairs (OEA)

PROJECT OBJECTIVE: To evaluate the industrial application of the coal gasification technology in Philippine setting and advise the Philippine authorities on the process best suited for Philippine Coal

BACKGROUND INFORMATION AND JUSTIFICATION: Coal is a principal indigenous energy resource in the Philippines and is found in all major islands in the archipelago. Coal production and consumption have both steadily increased from 1973 to 1985, as a result of the government's strong coal conversion and coal development programme. However, because most of the coal burning plants established, particularly the coal-fired power plants and almost all the cement plants, were designed to use better quality coal, the country has had to import coal to blend with local low quality coal. The increasing level of coal importation has resulted in the displacement of local coal. This factor as well as the lack of future market for coal has discouraged the local producers of low quality coal to develop their coal deposits.

In order to support the country's thrust in coal development, there is a need to introduce new technologies, particularly those which utilize low quality coal. Most of these new technologies have been developed in foreign countries. One such technology is coal gasification. Coal gasification technology is usually used in cases where direct combustion is impractical and likely to cause pollution problems. This is particularly true in steel plants, glass works, ceramics and lime burning plants, gas utilities and metallurgical and chemical plants.

The present project is to be implemented in two phases. The first phase will consist of an in-depth technology assessment and status of coal gasifiers available worldwide (fixed-bed and fluidized-bed). Major activities for this phase consist of survey/data gathering and a study tour to USA, UK, Germany and India. The second phase will cover the selection of an industrial host partner for the demonstration project, collection of process and equipment data, detailed technical-financial analysis to assess the technology's soundness for local adoption, report preparation and manpower training.

The implementation of phase I and II will be followed by the setting up of a pilot demonstration at a selected industrial host location. This will be a separate project proposal which will be determined after a detailed techno-economic assessment on phase I and II shows substantial support for its implementation. Major activities for this follow-up project will cover a detailed engineering design, civil works construction, importation and delivery, and the installation of the pilot plant at a pre-selected site.

EXPECTED PROJECT DURATION: 18 months.

COST ESTIMATE: US \$150,000

PROJECT CONCEPT No. 12

PROJECT TITLE: Regional 'umbrella' project: Assistance to regional DTI offices and industry associations in promoting new industries

COUNTERPART AGENCY: Department of Trade and Industry (Regional Offices)

OBJECTIVES: To contribute to accelerated regional industrial development by strengthening project identification, promotion and implementation capabilities of DTI Regional Offices and by providing direct assistance to selected projects.

BACKGROUND INFORMATION AND JUSTIFICATION: This project is aimed at providing continuous assistance to the Government's regional dispersal efforts in a wide range of fields as required in the course of programmes and activities to establish new industries. This would involve in particular:

- Assisting in investment project identification;
- assisting in identifying technical problems in operating industries;
- provision of information on sources of technology and on market trends;
- assessment of planning, expansion, diversification and product adaptation programmes of existing SMI's;
- preparing feasibility studies, and assessing and completing available feasibility studies for SMI projects so as to enable well conceived, bankable projects to be submitted for "third window" financing (DBP) and Loan Guarantee issuance;
- establishing commercial contacts of SMI's with overseas producers, research institutes and importers/distributors with a view to ascertaining pertinent information and possibilities for co-operation (market co-operation, joint ventures, subcontracting etc.); arrange for foreign business representatives to visit and co-operate with the specific region's industrial companies;
- initiating comprehensive industrial development co-operation schemes between the specific region and a selected region in a developed country.

Such technical assistance programmes should be directly attached to the regional DTI office with the provision that they will be fully accessible to the regional Chambers of Commerce and Industry, the People's Economic Council and other private (and public) entities. They should also have a very wide applicability so as to meet specific emerging needs and supplement national and other international programmes. In addition to such direct assistance, provision would need to be made for linking up the regional project with pertinent international data banks (such as UNIDO's INTIB). Substantial short-term experts/consultancy funds would have to be attached to the project so as to enable unbureaucratic quick and specialized expertise to be called in as required.

On the level of each of the regions to be selected for the UNIDO assistance there will thus be a nucleus for promoting and supporting the specific programmes of industrial development. At an early stage of the programme - and included in the individual project - would be the organization of the international business meeting in each of the selected regions. Industrial and commercial leaders from major (potential) foreign markets would be invited to have conversations with the business community in the regions to explore possible co-operation. Preparatory and follow-up work would be undertaken by the UNIDO project.

The project could be designed either as a one-region project (Alternative I) or as a larger programme covering simultaneously several regions (Alternative II).

Alternative I

One selected region would be supported by a UNIDO team of three international experts:

- One investment project analyst;
- One industrial engineer;
- One agro-industry specialist.

These experts will be joined by three local experts with corresponding professional background.

In addition, the project will have at its disposal a fund for subcontracting of international and national consultancy companies to carry out specific techno-economic project work as required. Project equipment will cover:

- Office equipment;
- Vehicle(s);
- Computer terminal for linking with international data networks.

Alternative II

The project will consist of different project teams assigned to each of the selected regions. Each project team will have one international expert (Regional CTA) and three to four national experts. In addition to these long-term experts, a major consultancy/short-term expert component will be available in the project as a whole for meeting special requirements. The fund will be administered by a national expert attached to the office of the UCD and will be drawn upon according to specific requests by the Regional CTAs as required.

During the visits to regions XI, VI, VII and I, the Mission has identified a number of tentative project ideas requiring further analysis and assessment which could be carried out under this 'umbrella' project. These include:

- in Region XI:
 - Establishment of a Regional Product Development and Design Center;
 - Entrepreneurship Development and Skill Development Programmes in the context of promoting Craft Villages;
 - Strengthening of the Business Information Center of the DCCCI and general assistance to the Chamber through twinning arrangements.
- in Region VI:
 - Assistance to the Task Force for establishment of a Regional Agro-Industrial Center in Pavia;
 - Common service facilities for the Farm Implements in Western Visayas Association and the Iloilo Metalcraft Association.
- in Region VII:
 - Direct assistance to private industries to improve access to information on sources of technology and market trends;
 - Environmental impact assessment and pollution control measures for cement, fertilizer and stonecraft industries in Cebu;
 - Industrial waste utilization (mango peels; crustaceans shells).
- in Region I:
 - Post-harvest processing, specifically dehydration and canning of vegetables;
 - Assistance to the metalworking sector in support of farm and mining activities.

EXPECTED PROJECT DURATION: Two - three years

COST ESTIMATE: 1.5 - 2.0 million.

PROJECT CONCEPT NO.13

PROJECT TITLE: Upgrading the Furniture Industry in General Santos City, Mindanao (Region XI).

COUNTERPART AGENCY: The General Santos City (GSC) Furniture Makers Association, the GSC Business Resource Centre and the Provincial Department of Trade and Industry.

PROJECT OBJECTIVE: To contribute to improved productivity, efficiency and competitiveness of the furniture industry in General Santos City.

The woodcraftsmen of General Santos City (GSC) are among the finest that are found in all of Mindanao. Most of these work as simple proprietors but maintain a loose federation in what is known today as "The Furniture Makers Association of General Santos City". What is surprising is that most of their shops have very crude equipments and that power tools have just started to make their appearance. Presently, 80-85% of the work is done by hand labor.

There are today 1,000 to 1,500 employees engaged in the local furniture making industry, not counting those engaged in rattan craft. While the latter is at present very popular because of the attractiveness of rattan and bamboo furniture, the future does not appear that promising due to depletion of required raw materials. The development of the local furniture industry offers more promise given the imminent growth of the local housing industry and the possibility of exporting finely-crafted Filipino furniture and marketable wood items like magazine racks, pre-fab housing components, knocked-down furniture, wooden toys, etc.

Despite of the assistance received since 1984 from the Business Resource Centre (BRC), General Santos City, in the form of management training seminars, study tours, small loans, etc., the GSC woodcraftsmen do still face problems in terms of quality of craftsmanship, lack of exposure to overseas markets, obsolete equipment, absence of wood kiln driers, business management, insufficient resources to acquire working capital, etc.

The project will provide technical, financial and business management assistance to the members of the GSC Furniture Makers Association. A preparatory assistance mission is required to assess the needs to be addressed by priority and prepare a detailed project document.

EXPECTED PROJECT DURATION: Preparatory assistance: Two weeks
Main phase: Two years

COST ESTIMATE: Preparatory assistance: US\$ 10,000
Main phase: US\$ 300,000

PROJECT CONCEPT No. 14

PROJECT TITLE: Establishment of a Heat Treatment Common Service Facility for Region VI (Iloilo)

COUNTERPART AGENCY: The Metals Industry Research and Development Centre (MIRDC)

PROJECT OBJECTIVE: To contribute to improved productivity and competitiveness of the metalworking industry in Region VI, within the framework of the Government's regional industrial dispersal programme.

BACKGROUND INFORMATION AND JUSTIFICATION: MIRDC has identified the metals industry Region VI may be cited as one priority area for growth and expansion. In Iloilo province alone there are 125 metalworking establishments, of which 27 belong to the farm implements manufacturing industry. These metalworking companies provide services to the sugar centrals, irrigation pump operators and the shipbuilding industry.

The two metalworking associations in the region, namely, the Farm Implements in Western Visayas Association and the Iloilo Metalcraft Association have been active in identifying common problems such as poor quality of raw materials, unavailability of quality control testing equipment, insufficiency of technical know-how which have caused poor product quality and hence, limited marketability. The two associations recognize that individually the enterprises are unable to tackle all the problems and have recommended the establishment of common service facilities to help them in material selection, heat treatment and testing.

It is against the above-mentioned background that the MIRDC has requested UNIDO's assistance in establishing a heat treatment common service facility in Region VI. The establishment of similar facilities is also foreseen for regions VII, XII, III, X and XI.

The project will assist and strengthen the metalworking industry in Region VI by setting a heat treatment common facility, capable of rendering services such as material selection, heat treatment, prototype fabrication, production techniques, testing and training.

The above-mentioned associations of manufacturers will be responsible for the day-to-day operation of the common facility.

EXPECTED PROJECT DURATION: Two and a half years.

COST ESTIMATE: US \$530,000

Preparatory Assistance phase:

A preparatory assistance mission (2 m/m expert and one staff member - \$ 17,000) is required to define the role/inputs of MIRDC/DOST, the manufacturers associations and prepare a full project document and PFF following UNDP guidelines.

PROJECT CONCEPT No. 15

PROJECT TITLE: Strengthening of backward linkages from the Mactan EPZ

COUNTERPART AGENCY: Mactan Export Processing Zone Authority and DTI Regional Office (Region VI)

PROJECT OBJECTIVE: To increase the regional development impact of Mactan EPZ by intensified domestic sourcing of production inputs.

BACKGROUND INFORMATION AND JUSTIFICATION: Mactan EPZ was established in 1979 alongside an international airport outside of Cebu. Located also close to the country's second busiest seaport, it was designed primarily to attract light manufacturing export operations. Of the country's four operating EPZs (in Baguio, Bataan, Cavite and Mactan), the Mactan EPZ has recently shown the most dynamic development: 35 firms have been registered in 1990 compared to 22 in 1989, 16 in 1988 and 10 in 1987. One fifth of the firms in the zone are wholly Filipino owned and the majority of the remaining firms are Japanese. In terms of job creation, 9,369 factory workers were employed by the zone in 1989 compared to only 5,566 in 1988. The net foreign exchange earnings of Mactan EPZ have been positive yet only minimal due to the low degree of domestic sourcing of inputs which accounts for only less than 5 per cent of total inputs. Foreign companies operating in the EPZ have indicated their willingness to increase local inputs if these were available at competitive prices and above all, reliable quality.

The proposed project would (1) review the present potential for increased domestic supplies to the zone's production by surveying existing SMEs in the Cebu area; (2) identify those products/components/raw materials most suitable for such linkages; (3) suggest suitable policy measures to be taken to foster domestic sourcing, such as the establishment of industrial estates for SMEs at the zone's periphery; (4) evaluate the relevance of successful measures taken in other countries, above all the Republic of Korea, for Mactan EPZ; (5) based on these analytical activities recommend a technical assistance programme for the future.

EXPECTED PROJECT DURATION: Six months

COST ESTIMATE: US \$120,000

PROJECT CONCEPT No. 16

PROJECT TITLE: Upgrading of Electroplating and Jewelry Small-Scale Industries

COUNTERPART AGENCY: Metals Industry Research and Development Centre (MIRDC)

PROJECT OBJECTIVE: The basic objective is to contribute to improved productivity, efficiency and competitiveness of the country's electroplating industry, including jewelry industry. Specifically, the project will address the needs for upgrading and development of electroplating and jewelry small-scale industries in the countryside, and particularly in regions I, VI, VII, X and XI.

BACKGROUND INFORMATION AND JUSTIFICATION: Almost all the decorative metal requirements of the footwear and leathersgoods export industries have been met by imports due to the poor quality of the accessories made in the Philippines. These include metal accessories like buckles, hooks clamps fasteners, clasps, brass fittings, etc. In some parts of the country and particularly in Cebu, jewelry making has been a major source of livelihood. However, the crude method of production, deficient equipment, and insufficient facilities have contributed to low productivity and low quality output. Given the proper technical assistance on metal plating, this industry could compete in the foreign market. The world market for fine jewelry is growing. In Japan the market has already reached \$ 20.7 billion.

In order to correct the deficiencies of the plating and jewelry small scale industries, the Metals Industry Research and Development Centre (MIRDC) of the Department of Science and Technology is contemplating the possibility of establishing (1) a common service facility for training and testing of plated products in the National Capital Region, for use by the artisans and (2) regional training and testing centres in regions VII (Cebu) and X in 1991, in region VI (Iloilo) in 1992, and in regions I and XI in 1993.

It is against the above-mentioned background that MIRDC has already requested UNIDO's assistance in assessing the existing levels of technologies, practices skills etc. of the existing plating and jewelry small scale industries in the above-mentioned regions and in investigating the exact manner in which MIRDC and other relevant institutions such as the Bureau of Small and Medium Business Development (BSMBD), the Product Development and Design Centre of the Philippines, the Philippine Electroplaters Association, etc. can help in sustaining the modernization and development of the plating and jewelry industry.

The project will provide the services of one electroplating and one investment casting expert who will prepare a report covering analysis of the existing levels of technology, design facilities, operational skills, management and maintenance practices, of the existing plating and jewelry industries, and propose alternative strategies for their modernization and development.

EXPECTED PROJECT DURATION: Two months.

COST ESTIMATE: US \$40,000

PROJECT CONCEPT No. 17

PROJECT TITLE: Assistance in Re-Assessing the Norwest Feasibility Study for a Centralized Coal Preparation Plant in Cebu

COUNTERPART AGENCY: Office of Energy Affairs, Office of the President.

PROJECT OBJECTIVE: The basic objective is to enable the Government authorities to decide on the establishment of a centralized coal preparation plant in Cebu.

BACKGROUND INFORMATION AND JUSTIFICATION: The Philippine Energy Programme calls for an increase in the development and utilization of the nation's coal resources. The biggest drawback to the full implementation of this policy, however, is the inability of many producers to sell their low-quality coal to consumers, particularly the cement and power plants. While it is in the national interest to increase coal production, it is also vital to maximize the effective utilization of the coal produced. The use of coal cleaning will, therefore, facilitate the utilization of less-than-premium quality coals.

Of the thirty-three (33) producing underground coal mines in the country, sixteen (16) are located in Cebu Island, accounting for 30% of the total production coming from underground operations. However, Cebu mines supply only about 42% of the needs of the Cebu-based coal users. The rest of the coal is either supplied by mines from the neighbouring islands or, the larger part, imported from other countries. The coal mines in Cebu consist of small mining operations in scattered locations so that no single mine or company produces enough raw coal to solely justify the investment required for a coal beneficiation plant. As such, the idea of the mines cooperatively providing a raw coalfeed to a central coal preparation facility could be extremely beneficial, not only in the light of possibly increasing the mines' production but also in the optimum utilization of the indigenous energy resources and in the reduction of coal importation which has increased dramatically in recent years. A centralized preparation plant in Cebu would allow Cebu mines, whose production is of quality below the present market specification, to provide a product of consistent calorific value which will meet those requirements.

To make such a beneficiation plant attractive to would-be investors, the Government authorities have requested UNIDO's assistance in carrying out a cost-effectiveness analysis based on a thorough review of the technical and economic feasibility study carried out in 1983 by Norwest Resource Consultants, Inc. (Norwest).

The project will provide the services of a consultant who will prepare an up-dated cost-effectiveness analysis and make recommendations on the best suited coal beneficiation process and on alternative plant location.

EXPECTED PROJECT DURATION: Three months

COST ESTIMATE: US \$50,000

PROJECT CONCEPT NO. 18

**PROJECT TITLE: Entrepreneurship Development in Region I (Ilocos)
Preparatory Assistance.**

**COUNTERPART AGENCIES: Institute for Small-Scale Industries (UP/ISSI),
Development of Trade and Industry (DTI), Department of Science and Technology
(DOST) and other relevant institutions such as ILO.**

**PROJECT OBJECTIVE: To develop a long-term programme for entrepreneurship
development in Region I.**

**BACKGROUND INFORMATION AND JUSTIFICATION: Rampant migration from people from
rural areas in Region I to urban areas in and outside Region I is brought
about by the search for alternative sources of income and livelihood in order
to improve their standard of living. The only way to alleviate this
migration problem is to develop human and natural resources in the region and
to promote employment through the establishment of cottage, small and medium
scale, labour-intensive enterprises in rural and urban areas in Region I.**

It is against the above-mentioned background that the Philippine authorities
have requested UNIDO's support to the following two programmes which have been
designed to (1) promote rural development in Region I through enterprises and
entrepreneurship development by stimulating private sector and government
participation (PRIDE) and (2) establish entrepreneurship equipped schools
which will provide theoretical and practical technological training and
services to students, entrepreneurs, and development workers (SUCCEED).

It is recommended that a preparatory assistance mission be fielded in order to
assess the prevailing conditions and prepare a long-term programme for
entrepreneurship development in Region I. The mission would cover, inter
alia, the following activities:

- survey of potentials in the region (resources, existing infrastructure,
industrial production, exports/imports, etc.);
- recommendations for the development of selected industry sub-sectors;
- survey of entrepreneurs in existing industrial companies and identification
of potential entrepreneurs;
- identification of needs for training instructors as well as existing and
potential entrepreneurs in selected sub-sectors;
- inventory of institutions engaged in entrepreneurship development by type
(government, private, semi-private) and by kinds of delivery systems
(training, research, extension, information).

Based on the findings and recommendations of the preparatory assistance
mission, a programme for entrepreneurship development in Region I will be
prepared. The programme will encompass pilot programmes for target groups
such as: (1) existing entrepreneurs, (2) potential entrepreneurs who will be
engaged in specific agro-based industries and (3) women in rural areas
engaged in community based industries.

**EXPECTED PROJECT DURATION: Six weeks (preparatory assistance)
Two years (main phase)**

INTERNATIONAL ASSISTANCE INPUTS:

- | | |
|--------------------------|--------------|
| - Preparatory assistance | US\$ 35,000 |
| - Main phase | US\$ 400,000 |

ANNEX II: DEVELOPMENT COOPERATION IN THE PHILIPPINES

1. Development Assistance Trends in 1989

In 1989, total inflows of external assistance reached \$ 1.691 million. 55 percent of the assistance was multilateral in nature, 44 percent was bilateral and 1 per cent was NGO assistance.

By terms of assistance, the 1989 total external assistance of 1.691 million consisted of 68 per cent in loans amounting to \$ 1.142 million and 32 per cent in grants totalling \$ 549 million. The major sources of loans were IBRD which provided 35 per cent, IMF 26 per cent, Japan 21 per cent and ADB 15 per cent. The grants came mainly from USAID which accounted for 50 per cent, Japan 21 per cent, ADB 5 per cent, Netherlands 4 per cent and Canada 4 per cent.

Economic development related projects represented the larger sector representing 51 per cent of total external assistance. Agriculture, forestry and fisheries received 13 per cent of the assistance, social development accounted for 8 per cent, energy for 6 per cent, transport for 4 per cent, health for 2 per cent and industry for 2 per cent.

2. Ongoing and Planned Multilateral/Bilateral Assistance in the Industrial Sector

The sources of external assistance covered are the World Bank, the ADB, the governments of Japan, United States and FRG. The technical assistance extended by UNDP/UNIDO is covered under section III below.

The World Bank has so far been the largest source of external assistance to the Philippine industrial sector. The on-going WB programme of assistance to the sector is composed of the following: (1) Economic Recovery Loan (\$ 300 million) aimed at addressing fundamental problems which have been outstanding and unresolved for many years, such as tax reforms, rationalisation of trade policies, restructuring of the public investment programme, etc.; (2) Reform Programme for Government Corporations (\$ 200 million) which focuses on the Non-Financial Government Corporations (NFGCs) and establishes a policy and institutional framework to reduce, limit and rationalize Government activities, using the corporate form, and institutes improvements in the efficiency and effectiveness of retained NFGCs and GFIs in order to gradually reduce the heavy burden they impose on the economy; (3) Small-Medium Scale Industry (SMI) IV Programme (loan of \$ 60 million) which helps to ensure, *inter alia*, that long term resources continue to be available for the long-term financial needs of the SMIs, that the access of SMI firms to finance is improved by strengthening IGLF guarantee operations and that SMI exporters have improved access to inputs at world prices through streamlined and simplified duty drawback and exemption systems; (4) Industrial Investment Credit (\$ 65 million) which is aimed, *inter alia*, at filling the gap in the supply of term credit to medium and large industrial enterprises, improving credit delivery to industry by assisting the Development Bank of the Philippines (DBP) in carrying out its wholesale banking function, helping

promote the development of the capital market, supporting and developing the capabilities within DBP and DTI to conduct analytical and policy-oriented studies.

The World Bank projects in the pipeline are: (1) The cottage Enterprise Project Loan (\$ 40 million) which would make credit available to cottage and micro enterprises; (2) The Export Development Programme Loan (\$ 100 million) which would provide support to export promotion efforts, including assistance to policy reform, infrastructure for selected export financing and strengthening of institutions engaged in export promotion; (3) the Industrial Restructuring Loan (\$ 150 million) which is a programme to support restructuring of selected subsectors such as pulp and paper, cement, ship repair.

The Asian Development Bank (ADB) is launching a programme loan amounting to \$ 100 million aimed at augmenting the funds of the Industrial Guarantee and Loan Fund (IGLF) and enabling Participating Financial Institutions (PFIs) to finance qualified SMI projects. The loan became effective in 1989 and is expected to run through 1993. The ADB has also provided a grant of \$ 150,000 for the Improvement of SMI Development Policies and Programmes (1989-1990).

The on-going Japan OECF programme of assistance is composed of the following: (1) Export Industry Modernization Programme (loan of 6.015 billion yen, expected to end in 1992) which is a two-step loan directed at promoting the modernization of the technologies, equipment and operation of export-oriented small and medium-sized industries in order to improve their international competitive position; (2) The Bataan Export Processing Zone II project (loan of 2.905 yen, expected to end in 1991) which is basically concerned with the rehabilitation and improvement of the existing infrastructure facilities and utilities in the Bataan EPZ; (3) The ASEAN - Japan Development Fund which is a \$ 2 billion fund committed by the Japanese Government for lending to the ASEAN - member countries. A total of \$ 350 million has been allocated under this Fund to the Philippines for relending to the country's private sector.

The USAID has launched a Small and Medium Enterprise Development (SMED) programme (\$ 3.5 million loan, \$ 1.5 million grant) intended to institutionalize an effective process, predominantly in the private sector, to accelerate the growth of labour intensive SMIs outside Metro Manila. Assistance is also being provided by USAID in the form of grants for (1) Technology Transfer for Energy Management (1985-1990) (2) Small Enterprise Credit Programme (grant of \$ 13 million) covering the period 1989-1992; (3) Small and Medium Enterprise Development (\$ 3.9 million) programme covering the period 1983-1990.

The Federal Republic of Germany is negotiating on Industrial Sector Loan (DM 25 million) which is an on-lending programme to industries for the rehabilitation and modernization of existing plants, particularly export-oriented ones. The GTZ is also providing assistance in the form of grants in the following areas: (1) Cooperation between Chambers of Commerce and Industry (1986-1993); (2) Upgrading of Quality of Philippine Metal Products by Providing testing and Inspection Services for MIRDC (1989-1990); (3) Special Energy Programme (1987-1990); (4) Rational Use of Energy (1989-1990).

3. UNDP/UNIDO Assistance under the Fourth Country Programme

The Fourth Country Programme for the Philippines covering the period 1987-1992, was approved by the UNDP Governing Council in June 1986. Consistent with the objectives of the Medium-Term Philippine Development Plan (1987-1992), the Fourth CP is expressly committed to the pursuit of a balanced agro-industrial development. Two key areas singled out to support the main strategy were energy development and national planning/management improvement. In pursuit of the main strategy, self-reliance was to be the most dominant guideline - thus, the logical emphasis on development of indigenous materials and supplies in order to reduce import dependence. Side by side with reducing the country's dependence on imports was promoting exports and the promotion of employment.

Since the formulation of the Fourth CP document, however, notable modifications in development priorities of the post 1986 Revolution Government (poverty alleviation, improved productivity, equity/social justice and sustainable development growth) have resulted in considerable recasting of the general configuration of the CP.

In response to the priorities identified in the CP as well as to the effective modifications that have reshaped the CP, the assistance provided by UNIDO under IPF as well as UNIDO-managed resources has been built around the major themes of promotion of industrial investment, improvement of productivity and competitiveness, entrepreneurship and SMIs development and energy production and consumption.

The Investment Forum held in Manila in November 1988 is part of UNDP/UNIDO effort to attract foreign investment in the Philippines. During the Forum (financed under projects DP/PHI/88/002 - \$ 117,000 and UC/PHI/87/242 - \$ 38,420), 120 industrial investment projects were presented to some 250 foreign companies from 29 countries. Moreover, 13 opportunity studies covering priority areas had been prepared for that occasion under project US/UC/PHI/88/082 - \$ 110,000 financed by Italy. As a direct follow-up to the Investment Forum, high-level advice was provided by UNIDO to DTI/BOI for smoothing and expediting negotiations between local project proponents and foreign investors (SI/PHI/89/803 - Pre-investment Consultancy Service to DTI/BOI - \$ 39,500).

The launching of a pharmaceutical industry development study carried out in 1988 to identify areas where possible upstream integration of existing capacities could be done (DP/PHI/87/019 - \$ 349,000), can also be regarded as direct assistance in the area of attraction of local and foreign investment which is a major priority in the country's macro economic policy framework.

The conclusions/recommendations contained in the study were reviewed by an independent group of experts in October 1988 (UC/INT/88/233 - \$ 38,042) who recommended that the following socio-economic analyses be undertaken:

- a) prefeasibility study on cultivation and processing of cinchona to manufacture quinine and its derivatives (DP/PHI/87/019 - \$ 50,000)
- b) prefeasibility study of an industrial scale fermentation plant for penicillin (DP/PHI/86/014, fund for project preparation - \$ 197,000)

- c) advice on the expansion of CHEMFIELDs for erythromycin derivatives and rifampicin production (UC/PHI/89/073 - \$ 49,000)
- d) feasibility study on establishment of a multi-purpose plant for chemical synthesis (UC/PHI/89/074 - \$ 49,300).

In addition, assistance was provided to validate the "Intercare Study on the Alabang Vaccine Complex" (SI/PHI/89/801 - \$ 35,000) and to provide advice on hospital-based intravenous (IV) fluid production, DOH-UP (SI/PHI/89/802 - \$ 26,500).

Assistance is also offered in sustaining the Government's industrialization drive focussing on exports and greater use of domestic raw materials, therefore calling for improved productivity at the enterprise level, enhanced institutional measures for adoption of preventive maintenance and standardization and quality control, and for developing indigenous technologies in promising areas. In this context, assistance is provided in creating a nucleus of capability within the National Engineering Centre (NEC) for institutionalizing preventive maintenance in Philippine industry, and more specifically in food manufacturing, textile, metalworking, downstream chemicals, ceramics and refractories (DP/PHI/87/008 - \$ 1,074,450); contributing to the higher value added processing of domestic raw materials by helping the Philippine Textile Research Institute (PTRI) in developing a technically viable technology for the use of selected indigenous fibres (DP/PHI/87/002, Phase I - \$ 316,000), by establishing a Fibre Processing and Utilization Laboratory at FIDA to help in developing, improving and/or adapting fiber processing technologies (DP/PHI/87/003 - \$ 784,550) and by encouraging the production of chemicals such as citric acid (DP/PHI/85/010 - \$ 408,897) and paint resins (SI/PHI/90/802 - \$ 75,000) from local raw materials; promoting enterprise-to-enterprise cooperation for support to industries in the electronics and automotive sectors for creating export-oriented industrial development opportunities (SI/PHI/88/801 - High-level advisory services to the Electronics Sector - \$ 26,000, SI/PHI/88/802 - High-level advisory services to the Automotive Sector - \$ 22,200 and TF/PHI/89/002 - Direct support to the automotive sector in the Philippines - \$ 100,000). Assistance is also foreseen for improving the performance of specific non-traditional export sectors such as furniture, building woodwork, natural fibers, wooden toys (project DP/PHI/87/007 - Export development - Government executed in cooperation with ITC and UNIDO), and the stonecraft industry in Cebu (UC/PHI/89/118 - \$54,760). Assistance is also provided in upgrading the level of the Footwear and Leather Goods Training and Demonstration Centre in providing services, such as training, product development for exportable quality footwear and leather goods, quality control and applied research, etc. (US/PHI/85/109 - \$ 1,157,342). Finally, pre-investment studies are to be carried out under project US/PHI/89/039 (Japanese financing - \$ 88,591) to enable the Government to decide on plant relocation of industries from industrialized countries, mainly from Japan, in the Philippines.

The achievement of Government's policy guidelines on equitable spatial distribution of economic development and on the generation of employment are largely dependent upon the enlargement of the small scale industry and of the informal sector, as well as upon the quality of entrepreneurship. The assistance provided under DP/PHI/86/018 - Development of entrepreneurs for cottage and small scale industries is an essential step in this process (\$ 327,400).

Project SI/PHI/90/801 "Advisory Services for Implementing a Small Enterprise Equity Development Programme" (\$ 48,000) is also to contribute to fostering entrepreneurship development and SMIs by easing financial constraints for their expansion. An attempt is also being made to pilot-test the establishment of technology information services (TIS) at four regional offices of the Department of Science and Technology (DOST) and the Department of Trade and Industry (DTI) as a mechanism to accelerate the utilization and commercialization of technology information in promoting employment-oriented, rural-based, small-scale industries (DP/PHI/86/016 - \$435,000).

In the area of energy production and utilization a major programme was launched under CP-III (1982-1986) which led to the establishment of an Energy Management Consultancy Centre (EMCC) capable of conducting energy audits, developing appropriate consultancy methods and training local specialists (DP/PHI/82/002 - \$ 1,579,750). Phase II of the project (DP/PHI/87/004 - \$ 1,184,850) is expected to consolidate the gains made in helping national industries improve the efficiency of energy utilization. Specifically, the second phase intends to help the EMCC become fully capable of doing comprehensive energy systems analysis, including financial and economic analysis and of training local companies, public and private, in carrying out detailed energy audits as well as engineering designs.

Finally, in order to enhance the productivity of the industries in Metro Manila, assistance has been provided to safeguard and ensure the power system reliability in the area (TF/PHI/89/001 - \$ 88,495).

While UNDP/UNIDO programme as described above has been, in general, very supportive of the main thrusts of CP-IV, it is felt that much more has to be done to address the Government concern to achieve poverty alleviation and sustainable industrial growth through regional dispersal of industry.

With the exception of three project which have a strong regional connotation, namely DP/PHI/86/018 - Development of Entrepreneurs for Cottage, Small Scale Industries, DP/PHI/86/016 - Technology Information Services (TIS), and DP/PHI/87/007 - Export Development, the assistance extended by UNDP/UNIDO under the present CP has mostly benefitted Manila-based institutions and companies.

As explained under Chapter IV above, future UNDP/UNIDO assistance should be supportive of the need to stimulate the Philippine economy through an active regional development programme (see Chapter IV for further details).

It should also be mentioned that there has been a good number of projects which have been endorsed by NEDA and UNDP for financing under UNIDO's resources, and which are directly in line with the recommendations of the mission for support to critical areas. Those projects are listed in Annex IV.

ANNEX III

LIST OF PERSONS CONSULTED

UNITED NATIONS DEVELOPMENT PROGRAMME (UNDP)

Mr. Turhan K. Mangun, UNDP Resident Representative.

GOVERNMENT OFFICIALS

- Senator Leticia Ramos-Shahani.
- Hon. Simplicio C. Gri o, Governor, Province of Iloilo.
- Hon. Rodrigo Duterte, Mayor, Davao City.
- Hon. Joaquin Ortega, Governor, La Union.
- Atty. Pablo M. Olarte, Mayor, Agno.
- Col. Gregorio Hufano, Vice Mayor, San Fernando, La Union.
- Mr. Rodolfo E. Parayno, Vice Mayor, Urdaneta, Pangasinan.
- Mr. Edilberto Belvis, Municipal Secretary, Urdaneta, Pangasinan.
- Mr. Adolfo Basco, Municipal Councilor, Urdaneta, Pangasinan.
- Mr. Marcelino de la Cruz, Municipal Treasurer, Urdaneta, Pangasinan.
- Dr. Guido Tiong, Provincial Administrator, Provincial Capitol, Lingayen, Pangasinan.
- Mr. Alipio Fernandez, Vice Mayor, Dagupan City.
- Mr. Alejandro Decano, City Councilor, Dagupan City.
- Mr. Pons Melecio, City Council, Dagupan City.

NATIONAL ECONOMIC AND DEVELOPMENT AUTHORITY (NEDA)

- Mr. Ramon Lopez, Assistant Director, Trade, Industry and Utilities Staff (TIUS).
- Ms. Ella S. Antonio, TIUS.
- Mr. Toby Marcello, Economic Development Specialist, Public Investment Staff (PIS).
- Ms. Josefina Esguerra, PIS.
- Mr. Jesusito Tranquilino, Assistant Director, PIS.
- Mr. Alex G. Umaday, Regional Director, Region VI.
- Ms. Marie Jean P. Sabidong, Region VI.
- Mr. Oscar Ramos, Region VI.
- Mr. Santiago Enginco, Regional Director, Region XI.
- Mr. K. Mangansakan, Regional Director, Region XII.
- Mr. Leonardo Quitos, Ass. Regional Director/OIC, Region I.

DEPARTMENT OF TRADE AND INDUSTRY (DTI)

- Ms. Gloria M. Arroyo, Undersecretary.
- Mr. Ernesto M. Ordo ez, Undersecretary.
- Ms. Marita M. Jimenez, Office of Special Concerns.

Region I (Ilocos)

- Mr. A.P. Galimba, Regional Director.
- Ms. Imelda J. Madarang, Assistant-Secretary-Luzon, Regional and Domestic Group.
- Mr. Florante O. Leal, Provincial Director.
- Ms. Lea T. Gonzales, Division Chief, Trade and Industry Development Division.
- Ms. Josefa P. Palmeres, Senior Trade and Industry Development Specialist.
- Ms. Susan L. Pacheo, Trade and Industry Development Specialist.

Region VI (Iloilo)

- Mr. Timothy T. Moiket, Regional Director.
- Mr. Dominic P. Abad, Provincial Director, Iloilo.
- Mr. Jose M. Divinagracia, Provincial Director, Capiz.
- Mr. Diosdado P. Cadena, Jr., Provincial Director, Negros Oriental.
- Mr. Wilhelm M. Malones, Provincial Director, Aklan.

Region VII (Cebu)

- Mr. Joel Mari S. Yu, Assistant Secretary for Visayas and Mindanao.
- Ms. Brenda A. Orosco, OIC, DTI, Cebu.
- Ms. Evelyn "Beng" Lao, Senior Investment Specialist MACTAN Export Processing Zone.

Region XI (Davao)

- Ms. Syvelyn J. Tan, Regional Director.
- Mr. Robert W. Barlis, OIC, Davao City Field Office.
- Mr. Larry N. Digal, Division Chief-Special Projects, Institutional Dev. and Information Div. (Reg'l Office).
- Ms. Carlita A. Balio, Division Chief, Trade Promotion and Regulatory Div. (Reg'l Office).
- Mr. Robert C. Barlis, OIC, Davao City Field Office (DCFO).
- Eng. Virgilio Delos Reyes, OIC, DTI-XI BOI Office.
- Ms. Christine Rizado, Division Chief, Trade Promotion and Regulatory Div., DCFO.
- Mr. Cleto B. Cleto, Jr., Senior Information Officer Regional Office.
- Ms. Joy C. Rubillar, Information Officer, Reg'l Office.

Board of Investment (BOI), DTI

- Mr. Tomas I. Alcantara, Undersecretary Industry and Investments.
- Gov. Melito S. Salazar.
- Mr. Allan P.E. Tolentino, Economic Consultant, Foreign-Assisted Projects, Industry and Investment.
- Mr. Virgilio P. Delos Reyes, Region XI.

DEPARTMENT OF SCIENCE AND TECHNOLOGY (DOST)

- Mr. Ceferino L. Follosco, Secretary.
- Ms. Lydia G. Tansinsin, Assistant Secretary.
- Ms. Amelia C. Ancog, Assistant Secretary, Policy and Legislation.
- Ms. Lydia M. Josen, Chief, Microbiology and Genetics Division.
- Ms. Josefina C. Geronimo, Regional Director, Region VI, Iloilo.
- Mr. S.M. Ocampo, Jr., Regional Director, Region I.

Metals Industry Research and Development Centre (MIRDC, DOST)

- Mr. Leopoldo V. Abis, Executive Director.
- Mr. Rolando I. Vilorio, Deputy Executive Director, Technical Operations.

Project Facilitation Committee, Office of the President

- Mr. Ernesto S. de Castro, Chairman.
- Ms. Annie Pami, OIC, Regional Conferences.

Infrastructure and Utilities Support Facilities in Region XI, Davao

Transportation

- Mr. Antonio V.A. Llamas, Regional Director, Department of Transportation and Communications (DOTC).
- Mr. Dennis L. Maningo, Administrative Officer, DOTC.

Road Network

- Mr. Conrado Repalo, Assistant Regional Director, DPWH.
- Mr. Danilo Versola, DPWH.

Water Supply

- Mr. Iluminado P. Quinto, DCWD.

Port Facilities

- Mr. Bienvenido P. Basco, PPA.

Power Supply

- Mr. L.S. Adasa, NPC.

ASIAN DEVELOPMENT BANK (ADB)

- Mr. V.V. Desai, Manager, Industry and Minerals Division, Energy and Industry Department.
- Mr. Thomas P. Walsh, Senior Programme Officer.
- Mr. K.H. Moinuddin, Senior Economist.

WORLD BANK (WB)

- Mr. Rolando Arrivillaga, WB Resident Representative.

DEVELOPMENT BANK OF THE PHILIPPINES (DBP)

- Mr. Roberto F. de Ocampo, Chairman.
- Mr. M. Reyes, Vice-President.
- Mr. A. Alvendia, Adviser to DBP.

PHILIPPINE INSTITUTE FOR DEVELOPMENT STUDIES (PIDS)

- Mr. F. Pante, President.

CENTRE FOR RESEARCH AND COMMUNICATIONS (CRC)

- Mr. Raymund Fabre, Agribusiness Unit.
- Mr. Rolando T. Dy, Agribusiness Unit.
- Mr. Jovi C. Dacanay, Industry Monitoring Unit.

PHILIPPINE CHAMBER OF COMMERCE AND INDUSTRY (PCGI)

- Mr. Meneleo Carlos, Jr., Chairman, Committee of Industry.
- Mr. Francisco Floro, Vice-President, Internal Affairs Division.
- Mr. Oscar Villadolid, Vice-President, Public Affairs Division.
- Mr. Albert Fenix, Vice-President, Small and Medium Enterprises Div.
- Mr. Herman Montenegro, Vice-President, National Issues Division.
- Mr. Agustin R. Bengzon, Director.
- Ms. Carmencita G. Arce, Secretary-General.

PHILIPPINE CHAMBER OF COMMERCE AND INDUSTRY, REGION VI, ILOILO

- Mr. Ramon G. Hechanova, PCCI Regional Governor Region VI,
RDC Co-Chairman and Chairman of the People's Economic Council.

PRIVATE ENTREPRENEURS, REGION VI, ILOILO

- Ms. M. Villaruz, President, S.V. Agro-Industries, Pavia.
- Mr. Santiago T. Abad, ESA Farms.
- Mr. Renato Mu ez, Northwest (Iloilo) Agro-Industrial Mineral, Inc.
- Mr. I. Consing, Passi Sugar Central.
- Mr. F.F. Bermejo, Managing Director, F.F. Bermejo and Associates.

SOUTHEAST ASIAN FISHERIES DEVELOPMENT CENTRE, REGION VI, ILOILO

- Ms. Clarissa L. Marte, Scientist, Aquaculture Department.

PRIVATE ENTREPRENEURS, REGION VII, CEBU

- Ms. Venus C. Genson, President Cebu Manufacturers and Exporters of Gifts, Toys and Housewares Ass. Inc.
- Ms. Concepcion Y. Lua, President Ass. of Food Industries and President SUGECO CEBU Export Corporation.
- Ms. Armi L. Garcia, President Cebu Fashion Accessories Manufacturers and Exporters.
- Mr. Manolo A. Cantos, President, Philippine Chamber of Stonecraft Industries.
- Mr. Benson U. Dakay, President, Seaweed Industry Association of the Philippines.
- Mr. Geronimo D. Sta. Ana, Partner, SRC Sta. Ana, Rivera and Co.
- Mr. Sonny Bas, General Manager, TIMEX.

THE JAPANESE CHAMBER OF COMMERCE AND INDUSTRY OF CEBU

- Ms. Michiyoshi Ishigami, President.

DAVAO CITY CHAMBER OF COMMERCE AND INDUSTRY, INC. (DCCGII)

- Mr. John S. Gaisano, Jr., President.
- Mr. Rey De Leon, Vice-President for Trade and Commerce.
- Ms. Leonida D. Santos, Vice-President for Industry.
- Mr. Asterio Uybocho, Executive Vice-President.
- Mr. Jesus O. Dy, Secretary.
- Mr. Iluminado P. Quinto, Director.

PRIVATE ENTREPRENEURS, REGION XI, DAVAO CITY

- Mr. Adolf Arguna, Wood Works Industry.
- Mr. Leopoldo Alpresto, Metal Works Industry.
- Mr. Louis Bonguyan, Garments Industry.
- Mr. Sebastian Angliongto, Fruit and Vegetable Industry.
- Mr. Reynaldo Sazon, Aqua Culture Industry.
- Mr. Pedro Durano, Tourism Industry.
- Ms. Charita P. Puentespina, Cut Flowers.

PEOPLE'S ECONOMIC COUNCIL (PEC), DAVAO CITY

- Mr. Bro. Bob McGovern, Chairman, Regional PEC.
- Mr. Jose B. Toong, Incoming Chairman, Regional PEC.
- Mr. Rey De Leon, Incoming executive Vice-Chairman, Regional PEC.
- Mr. Ben Garcia, Incoming Executive Vice-Chairman, Regional PEC.
- Mr. Saturnio G. Rufo, Jr., Secretary, Regional PEC.
- Mr. Gerry Garay, Auditor, Regional PEC.
- Mr. A.C. Cucueco, Member of the Board.
- Mr. Eustaquio S. Pamplona, Member of the Board.
- Mr. Juan Perales, Member of the Board.
- Mr. Henry Lim, Member of the Board.

- Mr. Antonio C. Salanga, Member of the Board.
- Mr. Vicente Castellones, Member of the Board.
- Mr. Regino Vergara, Member of the Board.

DAGUPAN CHAMBER OF COMMERCE AND INDUSTRY, REGION I

- Mr. Teofilo Goyena, President.
- Mr. MacArthur Samson, Vice President.
- Mr. Tito Meneses, Secretary.

ECONOMIC RECONSTRUCTION GROUP, DAGUPAN CITY

- Mr. Benjie Lim, Chairman.

PRIVATE ENTREPRENEURS, REGION I

- Mr. Maximo Tan, Taya's Commercial, Dagupan City.
- Ms. Vivian Chua, Narra Commercial, Dagupan City.
- Mr. Bobby Uson, Administrator, Sangguniang, Panglungsod, Dagupan City.
- Ms. Leila Sy, Manager, Far East Bank and Trust Co., Dagupan City.
- Mr. Albert Oliva, Sunday Pouch, Dagupan City.
- Ms. Aurora Thomann, Manager, Philgerma, Galasiao, Pangasinan.
- Mr. Romeo Garcia, Manager, Fieldman Cotton Centre, San Eugenio, Aringay, La Union.

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