



**TOGETHER**  
*for a sustainable future*

## OCCASION

This publication has been made available to the public on the occasion of the 50<sup>th</sup> anniversary of the United Nations Industrial Development Organisation.



**TOGETHER**  
*for a sustainable future*

## DISCLAIMER

This document has been produced without formal United Nations editing. The designations employed and the presentation of the material in this document do not imply the expression of any opinion whatsoever on the part of the Secretariat of the United Nations Industrial Development Organization (UNIDO) concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries, or its economic system or degree of development. Designations such as “developed”, “industrialized” and “developing” are intended for statistical convenience and do not necessarily express a judgment about the stage reached by a particular country or area in the development process. Mention of firm names or commercial products does not constitute an endorsement by UNIDO.

## FAIR USE POLICY

Any part of this publication may be quoted and referenced for educational and research purposes without additional permission from UNIDO. However, those who make use of quoting and referencing this publication are requested to follow the Fair Use Policy of giving due credit to UNIDO.

## CONTACT

Please contact [publications@unido.org](mailto:publications@unido.org) for further information concerning UNIDO publications.

For more information about UNIDO, please visit us at [www.unido.org](http://www.unido.org)

12075

Distr.  
LIMITED

PPD.177

22 October 1990

UNITED NATIONS  
INDUSTRIAL DEVELOPMENT ORGANIZATION

ORIGINAL: ENGLISH

---

# INDUSTRY IN THE LDCs: SYSTEMS OF DEVELOPMENT

V 90 82636

This report was prepared by the Regional and Country Studies Branch.

The designations employed and the presentation of the material in this document do not imply the expression of any opinion whatsoever on the part of the Secretariat of the United Nations Industrial Development Organization (UNIDO) concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries.

Mention of company names and commercial products does not imply the endorsement of UNIDO.

This document has not been edited.

## PREFACE

As part of its work on regional policy issues, the Regional and Country Studies Branch of UNIDO carries out policy-oriented studies and provides advisory services in key issues of industrial policy that affect groups of developing countries. This includes issues of economic integration, issues in the relationship between technological change and industrial organization and policy, and issues in international co-operation for industrial development. One area of analysis has been the industrialization policies and options of the least developed countries (LDCs). These constitute a group of developing countries whose economic and industrial development is still in its initial stages and whose prospects for future progress are hampered by profound socio-economic difficulties.

As part of its preparations for the Second United Nations Conference on the Least Developed Countries, held in Paris in September 1990, UNIDO has identified a number of issues in connexion with the design of successful industrialization strategies for LDCs. The present paper is a preliminary analysis of these issues. It discusses the nature and the role of industry in LDCs. It also reviews the main obstacles to its development, especially from the point of view of the individual industrialist and the need for infrastructure and services that allow the manufacturing sector to grow and to contribute to wider socio-economic development. The paper was prepared by the Regional and Country Studies Branch.

CONTENTS

	Page
<b>1. PROGRESS AND PROBLEMS IN THE INDUSTRIALIZATION OF LDCs</b>	1
1.1 Introduction	1
1.2 Levels of manufacturing in LDCs	1
1.3 The industrial system	3
1.3.1 Inputs from agriculture and mining	3
1.3.2 Inputs from the manufacturing sector itself	4
1.3.3 Labour	5
1.3.4 Markets and supplies	6
1.3.5 Agro-related industries: the case of metal-working	7
1.3.6 The industrialist and the investment decision	8
1.3.7 Transport	11
1.3.8 Communication and media	12
1.3.9 International linkages	13
<b>2. ISSUES FOR POLICY ACTION</b>	15
2.1 Human resource development	15
2.2 Resources for strategy formulation and implementation	16
2.3 Linkages and rural development	17
2.4 International support	18
2.4.1 The programme approach	18
2.4.2 The industry contribution to development projects in other sectors	19
<b>3. CONCLUSION</b>	20

## 1. PROGRESS AND PROBLEMS IN THE INDUSTRIALIZATION OF LDCs

### 1.1 Introduction

This paper is intended to examine the present status and development potential of industry in the Least Developed Countries. It looks at industry (and industrialization) as a system which is a component of a socio-economic process and it considers the ways in which manufacturing in LDCs at present exhibits shortages, constraints and bottlenecks. In view of the increasing internationalization of manufacturing it also considers the degree to which industry in the LDCs is part of world industry and the ways in which such linkages can be strengthened for improved economic progress in LDCs. Analysis of the present status and problems of industry in this section of the paper is followed in section 2 by a discussion of issues for action at the national and international level.

### 1.2 Levels of manufacturing in LDCs

The indicator of manufacturing value added (MVA) per capita gives a first approximation to the degree of industrialization attained by a country. There is of course a basic assumption that an LDC has an MVA share of GDP less than 10 per cent, reflecting an under-developed manufacturing sector. However there is nevertheless considerable variation in an indicator such as MVA per capita. For LDCs the average value of this indicator was \$US 23 in 1987. This contrasts with a value of \$US 119 for all developing countries and \$US 3106 for developed countries. Although this average figure for MVA per capita of LDCs is already a low one, no fewer than 27 LDCs have a value below it. Eight other countries have a value between \$US 24 and \$US 30, and a final group of seven countries has values ranging from \$US 40 (Vanuatu) to \$US 85 (Djibouti).

A second approach to assessing the degree of progress achieved is to look at the extent to which diversification has taken place within the manufacturing sector. Typically those sectors close to the final consumer such as food processing and clothing and textiles are the ones which are responsible for most of MVA. A dispersion of MVA across a wider range of activities indicates, to some extent at least, the extent to which a complex and flexible manufacturing sector has developed. By this criterion, progress in LDCs of this kind has not been great. Analysis of the degree to which diversification has taken place within the manufacturing sector is complicated by the fact that comparable sectoral detail on manufacturing activities is not available for some of the LDCs. For those for which sub-sectoral detail is available (a total of 26 countries) the picture is one of industrial structures dominated by the food processing and textiles sub-sectors. In 11 of the 26 countries, the two branches constitute 50 per cent or more of MVA. In the remaining 15 countries, food processing by itself accounts for more than 50 per cent of MVA.

Only in a few cases are other sub-sectors of manufacturing significantly large. Chemicals is more than 10 per cent of MVA in nine cases (1987 data): Democratic Yemen, Tanzania, Niger, Malawi, Mozambique, Ethiopia and Somalia. Machinery and equipment is more than 10 per cent of MVA in only five LDCs: Tanzania, Haiti, Cape Verde, Guinea Bissau, and Mali.

It should be noted that manufacturing production in LDCs is usually the product of a small number of enterprises, and the closure of a factory or the opening of a new one can affect the statistical picture dramatically. The case of the Central African Republic illustrates this point and also shows the

vulnerability of industrial progress in an LDC. In 1980 the textile and clothing industry's share of total manufacturing output dropped from over one third to less than 12 per cent after financial difficulties had forced one factory to close. Value added from the textile and clothing industry seems to have completely disappeared, as do later achievements in machinery and chemical processing. The conclusion that may be drawn is that:

"...structural fragilities rather than rigidities seem to have been the greatest of the problems encountered by the country in its relatively short history of industrialization".<sup>1</sup>

For the LDCs for which detailed manufacturing data exists, it is also possible to construct an index to indicate the degree to which the activity in manufacturing is distributed across more than one sector.<sup>2</sup> In general, there are no clear groupings to be found from such an analysis. From the point of view of the indicator used, the most diversified countries were (in 1957) Democratic Yemen, Tanzania, Bangladesh, and Uganda. These had structures almost as diverse as more advanced African countries such as Algeria, Egypt, Kenya, and Zimbabwe. There is then a steady progression of countries leading to the most concentrated industrial structures, usually dominated by the food industry, such as in Botswana, Sudan and Burundi. (Chad is an exception in its concentration on textiles.)

A discussion concentrated on statistical data in value added terms can on its own give only an imperfect picture of industry in LDCs. It does however indicate, in terms of general attainments and sub-sectoral focus, the aggregate condition of industry in LDCs. This is important because any discussion of prospects for industrialization in LDCs has to recognise the base point from which the progress is intended to take place. A small and undiversified manufacturing sector offers limited prospects for expanding linkages and generates few services of the kind needed by a newcomer. The figures indicate the rudimentary stage that industry has so far reached in LDCs, and, to the extent that new industries will need industrial inputs, they will be often dependent, at least initially, on external sources, and thus on access to foreign exchange resources.

It also follows that discussion of industrialization in LDCs has to have a particular emphasis on the establishment of new industries, simply because so few exist at present. This is not to deny the importance of rehabilitating existing industries when it is at all possible, in order that the capital and expertise so painfully acquired be not lost for good. Nor is it to imply that new industries must be large scale investment projects of the kind that have in the past been the usual focus of discussion at the international level. The kinds of new industries that are to be established will be largely decided, in the end, by entrepreneurs in the countries themselves (and in some cases by international investors also). Discussion of industrial strategies for LDCs, whether at the national or international level, has to give due attention to this fact, and to the need to provide the right kinds of

<sup>1</sup> UNIDO Industry and Development Global Report 1989/92, October 1990, Sales No. E 89 II E 5

<sup>2</sup> The index is constructed by taking the two digit ISIC shares of manufacturing value added and then the standard deviation of them. This would give a value of zero for the case where manufacturing activity was exactly equally distributed across all the nine branches. The higher the actual value, the more activity is skewed.

guidance, incentives, assistance and support to those who will make the investment.

### 1.3 The industrial system

The following is a brief description of the approach to be used in this paper in assessing the problems and prospects of industrialization in LDCs. The distinction is made between raw material current inputs (from agriculture and mining), and industrial current inputs (from within the manufacturing sector). Other inputs include capital goods, and labour (distinguishing between skilled and unskilled). Sub-division of these categories into those of imported and domestic origin is also necessary. Issues in the supply of material inputs from the domestic market may be considered under three headings, those of inputs from agriculture, mining, and the manufacturing sector itself.

#### 1.3.1 Inputs from agriculture and mining

In LDCs the agriculture sector is often largely of a subsistence nature, and the possibilities for processing of agricultural products in the manufacturing sector may be limited by the availability of a surplus. However the manufacturing sector has an important role to play in guaranteeing food supplies and in food security programmes, in that it can improve the conservation and distribution possibilities of food even within a rural area. Much activity of this kind (principally in the form of such activities as milling, drying, etc.) may already be carried out within the informal sector. Industrial processing of agricultural raw materials is not only a case of increasing value added. In some cases it can include the industrial processing of materials which are otherwise regarded as waste. Thus in Bangladesh the establishment of a Sheep Wool Development Center motivated owners to shear the sheep and use the wool for productive purposes. This then encouraged others to set up small industries, such as the production of hand-knotted woollen carpets.<sup>1</sup>

One measure of the suitability of the existing agriculture sector for the supply of inputs to manufacturing is the degree to which an exportable surplus exists. There may then be prospects of increasing value added through industrial processing of agricultural raw materials. From this point of view, the most promising countries would be Equatorial Guinea, Cambodia, Malawi, Maldives, Mauritania, Sao Tome and Principe, Togo, Uganda, Vanuatu and Western Samoa. In 1986 all of these had exports of agricultural products of at least \$US 30 per capita. The highest was Maldives with \$US 156, followed by Mauritania with \$US 120. None of these are large countries in population terms, but they have all maintained, relative to their size, a high level of agricultural exports for many years.<sup>2</sup>

The position with respect to the mining sector is analogous in some respects to that of the agriculture sector, in that the presence of a strong mining

<sup>1</sup> "Promotion of hand-knotted woollen carpet industry" II ER 3411 - Technical Report, Evaluation report on hand-knotted woollen carpet training project (UNEP), April 1989.

<sup>2</sup> However, it should be noted that the distribution systems usually used for agricultural products do not fully reflect those used in industrial production. Thus many agricultural and mining products, especially base metals, undergo a degree of industrial processing.



exports pattern may indicate the possibilities in principle of increased value added due to mineral processing. The differences are however important also. In the first place there is little informal mining, and thus little competition for capital and labour resources. In the second place the pattern of ownership is very different to that of agriculture. Often dominated by foreign interests, the degree to which public policy can successfully encourage domestic raw material processing may be limited. Thirdly, it is rare for the mineral resources, if they exist at all, to be diversified. Domestic processing of the mineral resources cannot guard against a shift in technology or world market trends that reduce demand for the product. Finally the different steps in the mineral processing chain offer, in general, fewer possibilities for small scale dispersed production and are often associated with higher investment costs than is the case for manufacturing in general. For all these reasons the consideration of mining inputs to the manufacturing system has to be viewed as a special set of problems as well as the more general problems associated with the supply of any material inputs to the manufacturing system in LDCs.

Taking the same kind of indicator as was used for agriculture in the preceding section, and looking at the mining exports per capita, yields a different set of results. Botswana has a very high value due to the export of diamonds.<sup>9</sup> Of the remaining LDCs, only Mauritania has mining exports per capita of any size (\$US 90 in 1986). It is followed by Guinea (\$US 72), and Togo (\$US 36). Niger, due to its uranium exports is at a similar level. The remainder of the countries have either no exports of this kind or their per capita value is very low indeed. Although mining activities may be said to be on a small scale in LDCs, there are cases in which there are known mineral resources not yet exploited. In such cases, the prospect of downstream processing should be considered at an early stage. There is a case of early planning of possibilities, so that, for instance, requests for prospecting licences made to the Ministry of Mines should at once generate consideration by the Ministry of Industry of processing possibilities.

### 1.3.2 Inputs from the manufacturing sector itself

It is one characteristic of a modern industrial economy that many of the possible links between its different components do in fact take place, and that the different production and service activities in the economy depend on one another as suppliers and as markets. Indeed, the role of a manufacturing sector can be seen as providing several types of essential links so that the complex as a whole can have the maximum resilience to deal with external shocks and the maximum flexibility to take account of new opportunities. In some cases small and medium scale activity is seen as the best embodiment of these virtues, and is put forward as an appropriate policy choice for developing countries and particularly for LDCs. The point to be made here however is that diversification is the means by which the necessary flexibility can be achieved, and this is the principal reason for doing it: it offers long-term stability in a way in which an ill-considered employment generation policy, perhaps relying on only a few sectors, can never do.

A diversified manufacturing sector means that a wide variety of intermediate and final products are produced, and this means that new products may be

---

<sup>9</sup> Estimated at over \$US 1000 per capita in 1986, according to the Economist Intelligence Unit Country Report on Botswana, No. 1, December 1986.

developed because of the availability of the materials and components necessary for making them. The diversified manufacturing sector thus contributes to the availability of materials, the essential pre-condition for further development of industry. As Section 1.1 discussed, most LDCs have a highly skewed industrial structure, with a heavy concentration on food processing and on the clothing and textile sectors. The policy implications of such skewed structures are direct if in some cases unpalatable: they are that the necessary industrial inputs will have to be imported. In a few cases this can be achieved using sources within the region concerned. For this reason there are important grounds for encouraging regional co-operation. However it is quite usual that the countries of a regional co-operation framework have very similar industrial structures: the likelihood of being able to meet the input requirements of industrial development from within the sub-region are small.

There will be many LDCs and many essential products for which no solution of this kind is to be found. In the short term, responses to this problem will have to take the form of appropriate financing mechanisms with support from the international community. In general there is a need to make these specific to the needs of industry, rather than only balance of payments support, which has a natural tendency to reinforce the existing structure of foreign exchange use in a country and thus, for instance, to perpetuate the import structure of the commercial sector. This means that importers and wholesalers might continue to have preference for foreign exchange allocations thus squeezing out the industrialist anxious to start something new.

In general industry needs to be cordoned off from a general shortage of foreign exchange. This can be done through sector specific programme lending, through mechanisms such as export revolving funds, detailed commodity import programmes (which are sometimes a feature of bilateral assistance programmes), special balance-of-payments support schemes, and other methods. The need for foreign exchange allocations for intermediate inputs to be reviewed in the light of the potential for domestic or sub-regional production has demanding analytical and administrative implications. At the same time it is better to make some attempt at it than to have the allocations made without any reference to longer-term possibilities for their reduction. Finally on this subject it should be noted that the administrative overheads of any foreign exchange allocation system are heavy, and the allocation made is unlikely to be optimal. An adjustment to a free system cannot be made quickly, but it has to be a longer-term goal.

### 1.3.3 Labour

The problems of labour relate both to supply and to skills. In the absence of adequate transport and other infrastructure, there will be special constraints on the location of industry both in order to assure a reasonable supply of labour as well as to meet the normal transport requirements of the industry. The supply of labour will also be limited by characteristics of the regulatory framework such as the rights of workers and the responsibilities of the employer, as well as the degree to which women find it easy to enter the work force.

The skills problem is the most pervasive and far-reaching in its consequences. The lack of skills at every level, from professional engineers, managers and supervisory staff to technicians and experienced factory workers means that the industrial system not only operates imperfectly but that it does not act

of the implicit training ground that an efficient industrial system constitutes. Unfamiliarity with correct practices and procedures continues. The problem of human resource development is one of the principal focuses for international action in support of LDC industrialization.

Human resource development covers a wide range of activities both planned and autonomous. While it is the most crucial component of an industrial development strategy it is the most difficult to implement because of the number of targets concerned, who make up the industrial work forces, actual and potential. The number of persons at present engaged in manufacturing activity in the LDCs is about 1.6 million; all of them need some kind of training or skill upgrading to meet the requirements of world markets and technological change. The potential labour force, to meet the requirements of industrial expansion in many LDCs, will also need training. To this extent the foundations being laid at present by the educational systems suggest that the numbers under consideration are inadequate. Third level education figures for LDCs indicate that in total there are only about 740,000 in third level education, while the total population of LDCs is 400 million. Of these students, the percentage taking science and engineering subjects was less than 10 per cent in three cases, between 10 and 20 per cent in 13 cases, between 20 and 30 per cent in 5 cases, and only in two cases was the share over 30 per cent (Guinea, where it was 66.9 per cent and Mozambique where it was 36.1 per cent). Given the fact that the number of successful students actually choosing a career in industry will be much lower than these totals would suggest, the prospect for improved professional scientific and engineering skills in LDCs are not good, and dependence on expatriate labour and the lack of new, high quality investment is likely to persist. Professional skills are by no means the only ones needed, naturally, and the need for training and apprenticeship schemes emerges from almost every industry analysed by UNIDO.

#### 1.3.4 Markets and supplies

The need for imports creates many difficulties in the context of industrial development in an LDC. As well as the obvious need for foreign exchange, there are also a number of associated hidden costs, in terms of delays and uncertainties, which are often such as to raise the price of the product to an uneconomic level. These arise from the choice between maintenance of inventories and delays in receipt of orders, as well as the difficulties of obtaining information for the purpose of selecting the best source of the needed goods. The fundamental problem of under-utilization of capacity is often associated with a shortage of spare parts for the machinery used. In some cases the need to maintain inventories of spares in order to overcome supply difficulties adds further to the overhead costs of production.

These problems are common to most developing countries, but they are exacerbated in LDCs because of widespread weaknesses in the physical and commercial infrastructure. These weaknesses are such as to make difficult not only the assurance of regular supplies and services, whether from within or outside the country, but also to make equally difficult the process of marketing and distribution of the products. The problems can be summarized under the following headings:

---

\*This is a rough estimate using a variety of sources. It excludes all those in informal manufacturing or establishments whose total employment is below the national limit for inclusion in industrial censuses. Usually such censuses include only establishments with 5, 10, 20 or more employees.

Transport: this includes all types of transport, domestic and international;

Communications and information flows: this includes both telephone facilities and also media for information exchange such as newspapers, radio and television;

Financial services: this includes banking facilities as well as insurance, accounting, etc.

Imports problems are analogous in many respects to export problems, in that they amount to a separation or imperfect connection with the fast moving international industrial system.

Exports of manufactures face therefore all the associated problems of transport, finance and payments difficulties together with the additional problem of marketing. By this is meant the identification of opportunities, the investment necessary for the preparation and development of an appropriate product, the financing of export credits, the selection of agents, etc. In practice the choices available may be very limited ones. It will usually not be possible to set up independent marketing and distribution channels. The only option may be to sell directly to a wholesaler in another country. The nearest the manufacturer may come to a feeling for the export market concerned may be if an international sub-contracting arrangement is entered into. Such arrangements are most common in the textile, clothing and footwear sectors. They allow for some contact with trends in tastes and fashions in the developed countries, and may also lead to improvements in quality through transfer of expertise from the purchaser. Nevertheless these arrangements do not encourage development of the skills necessary to succeed in export markets. The experience of Haiti, for instance, where sub-contracting initially enjoyed dynamic growth, has been that it reinforces the country's dependency on the outside world and its vulnerability to external fluctuations. Nor does it have much connexion with the rest of the economy.

The role of design and of engineering services has been central to the success of international industry. Competition takes place on the basis of price, design and quality and the degree to which LDCs can master these challenges will determine the extent to which their industrial systems can develop as part of the international system. The quality aspect is one in which action is of central importance because without a sufficient level there is no hope of winning and holding a market share. The quality issue in a sense underlies all others in that it is concerned with a basic mastery of the technology and the associated skills.

### 1.3.5 Agro-related industries: the case of metal-working

Linkages with agriculture and mining are, for the manufacturing sector, not only a matter of processing the raw materials that they produce. These sectors can use a wide variety of manufactured goods: careful attention to these possibilities in the industrialization process can give assured markets for the manufacturing sector and provide the other sectors with inputs for which they would otherwise depend on imports. UNIDO has recently given extensive consideration to the metal working industry as it relates to the manufacturing

---

<sup>1</sup>"Presentation du Secteur Industriel Haïtien" Ministère du Commerce et de l'Industrie, Bureau de l'Entrepreneur et du Développement Industriel, Atelier sur l'Industrialisation des PMA, Vienne, Autriche, 16-24 Novembre 1989.

of agro-related products. This has been done as an implementation of the programme approach being adopted by UNIDO to the task of defining the technical co-operation requirements of agro-industrial systems, both within the framework of the Programme for the Industrial Development Decade for Africa (IDDA) and also with respect to the Special Programme for the Industrial Development of Asia and the Pacific with special emphasis on the Least Developed Countries.<sup>8</sup>

Some of the information collected on African LDCs presents a view of the kinds of metalworking and engineering facilities available in these countries. Beginning with the most simple facilities, forges are found in 26 of the 28 African LDCs. Stamping facilities are however found in only five. For machine shops, 9 LDCs had limited facilities and 19 had none at all. Foundries were present in only 15 of the 28 African LDCs, and mostly out of operation. Associated with these sparse metalworking facilities was a pattern of limited manufacturing capabilities in terms of agricultural tools and machinery. Thus manufacturing facilities for hand tools were found in only 20 of the African LDCs, for animal drawn equipment in only 9, and for simple power operated machinery in only three of the countries (Malawi, Mozambique, and Tanzania). No African LDCs have tractor assembly facilities.

From the point of view of agro-related metalworking industries, Asian LDCs may be divided into four groups.<sup>9</sup> The first would be those countries with an active agro-related metalworking sector, which are Bangladesh and Nepal. The second group is of those countries known to have or have had such a sector which is now dormant or working below capacity, or whose status is not known. This group includes Afghanistan, Lao Peoples Democratic Republic, Myanmar, and Yemen. The third group is of countries with little or no experience in this sector but which nevertheless have potential: it includes Bhutan, Vanuatu, and Western Samoa. The fourth group is of countries with very limited potential in this field: these are Kiribati, Maldives, and Tuvalu.

### 1.3.6 The industrialist and the investment decision

The above analysis of the industrialization system has to be supplemented by consideration of what an entrepreneur would call the "business conditions". By this he or she might mean the business climate (determined by government policy and the size and activity of other businesses) or else the degree to which infrastructure and essential services are available. These "conditions" powerfully influence the degree to which the simple industrial system described actually comes into being or functions effectively.

The conditions come into play at several points. Most notably the investment decision will be affected by the prevailing climate with respect to government views about the desirability of private investment or foreign private investment. But the effect of government policy is not only with respect to its overt aims. It is the quality of public administration, the likelihood of approvals being granted, the speed of decision making and the flexibility of individual administrators which are each a major factor in determining the

---

<sup>8</sup> Adopted by the General Conference of UNIDO in November 1989 under resolution GC.3/Res.18.

<sup>9</sup> "Preparatory Phase of the Special Programme for the Industrial Development of Asia and the Pacific. Agro-Related Metalworking Industry Sector. Report. Prepared by Peter C. Baker, Consultant and Frederikke Roelkjaer, Associate Expert. UNIDO, 11 April 1990.

success of any investment and thus the firm's willingness to undertake it.

Many of these aspects of government administration also have important effects on current as well as capital activity. For instance, the decision whether to hire or fire labour is often one attended by many government regulations, which may include the need to obtain a permit of some kind before a worker may be dismissed or before an expatriate worker may be hired. Price controls, especially if they are selective and targeted towards popular consumer goods, mean that a manufacturer may be unable to pass on price increases earlier in the production chain, or may do so only after exhaustive enquiries and delays.

Import licences and associated foreign exchange allocations are a frequent feature of the governmental regulatory framework which bear particularly hard on the manufacturing sector, which may be dependent on a range of essential imports that constitute intermediate inputs to the production process.

Production itself may be regulated by a system of licences. This may be intended to protect existing industries or to achieve some strategic priorities in industrial development. However its effect may be only to discourage any investment or to foster inefficiency at the expense of the consumer. It is all the more regrettable that such areas as health, safety and environmental protection, in which government action is most crucial, are the ones in which the administrative framework seems at its weakest.

The second set of "conditions" relate to fundamental questions of the size and functioning of infrastructure and the service industries. Transport and communications facilities are needed if the industries are to be efficiently supplied with their needed inputs and if domestic and external markets are to be successfully exploited. However the question cannot be considered only as one of a further set of necessary inputs (from the trade and services sectors) to the industry sector. The degree to which such facilities are present will also influence the investment decision. Moreover it will also determine information flows within the economy and thus the degree to which production is efficiently engaged in and the degree to which markets are effectively exploited. Knowledge of where needed inputs are cheaply available, knowledge about the presence of skilled labour within the community, and knowledge about the potential demand and the competition from other suppliers is of enormous importance for correct business decisions, but such knowledge can flow freely only if there are good communications (in the widest sense of the term) both within the country and with respect to the world outside.

Some foreign investment decisions are taken as a result of the special position an LDC finds itself in with regard to trade privileges. Thus considerable investment of Asian origin has taken place in Bangladesh, especially in the textile industry in order to take advantage of its MFA quotas.<sup>10</sup> Again, Lesotho, because of its access to EEC, United States and South African Customs Union (SACU) markets, has seen foreign investment in its industry, especially in textiles.<sup>11</sup> Botswana has also seen export-oriented investment from transnational corporations, intended to take advantage of Botswana's status in MFA terms, its access to the regional market, and its ability to export to the EEC under the terms of the Lome agreements. It is

---

<sup>10</sup>"Survey of Bangladesh". Financial Times, 26 March 1990.

<sup>11</sup>"Lesotho benefits from distorted trade environment". Financial Times, 4 October 1989.

also attractive to investment because of its emerging domestic market.

Foreign direct investment (FDI) is not usually directed towards LDCs. In fact the majority of foreign direct investment takes place among developed countries, and even with respect to developing countries, it is concentrated on a small number. As far as LDCs are concerned, their share is very small and shrinking. In 1980, these countries received almost 3 per cent of total FDI to developing countries, and in 1986, this share fell to 1.4 per cent. In fact Botswana accounted for more than half the total inflows to LDCs, the only other significant recipients being Chad and Rwanda.<sup>12</sup> In spite of this, FDI is still a strategy target of an increasing number of LDCs. Policy instruments for its achievement include incentives such as tax remissions, free repatriation of profits and capital, provision of facilities, etc. Bangladesh, Cambodia, Liberia, Sudan and Togo are among those countries which are creating export processing or free trade zones. However in some quarters there is still a trend away from industrial investment in Africa, at least: it is reported that nearly one-third of British companies<sup>13</sup> and about a quarter of French companies<sup>14</sup> with industrial investments in Africa disposed of their holdings during the last decade, and they are unlikely to return, in spite of more open attitudes to foreign investment in African countries and in spite of the new emphasis on the importance of the private sector both at the governmental and inter-governmental level.

One notable development in recent years in foreign investment mechanisms has been the growth of country funds and investment trusts specialising in developing countries. This has been at least partly due to the search on the part of investors for emerging markets in which the prospects for capital gains are thought to be greater than in the developed countries. These funds have largely specialized in the emerging industrial economies of Asia, such as Thailand, Malaysia, Singapore, Taiwan Province of China, etc. However a recent Commonwealth Fund includes two LDCs (Bangladesh and Botswana) in its target countries,<sup>15</sup> and a new Himalayan fund is targeted to investment in Nepal and Bangladesh as well as India and Sri Lanka.<sup>16</sup> Country funds can be seen as one possible mechanism by which the foreign exchange earned by expatriate nationals of LDCs might be mobilized for economic development in the home country (as is the case at present with funds specialising in developing countries such as India). Nevertheless, the investment problem for LDCs is not only one of mobilising the necessary foreign exchange for the initial investment. The need for management expertise and continuing support to meet recurrent costs means that mechanisms of the kind described would need to be elaborated to take account of these requirements.

---

<sup>12</sup>"Foreign Direct Investment Flows to Developing Countries. Recent Trends, Major Determinants and Policy Implications". Background Study for the Special Advisory Group to the Director-General of UNIDO, Regional and Country Studies Branch, UNIDO, March 1990.

<sup>13</sup>"UK companies sell African investments", Financial Times 28 June 1990.

<sup>14</sup>"Meeting Point - Jacques Pelletier, France's Minister for Co-operation", The Courier, No. 117, September-October 1989, p.2.

<sup>15</sup>"Equity fund set up for emerging exchanges", Financial Times, 30 May 1990.

<sup>16</sup>"Himalayan fund aims to raise Dollars 100m", Financial Times, 19 June 1990.

### 1.3.7 Transport

Transport issues for LDCs are not wholly separable into domestic and international aspects. Firstly, there is dependence in all cases on imported fuel. Secondly, many facilities, such as airports, airlines, and ports, play a dual role, providing both internal and external links. Thirdly, investments in any new international facility, such as a port or an airport, requires corresponding investment in improving the national infrastructure if it is to be effective.

With respect to transport facilities, LDCs are seriously disadvantaged. The national airlines of LDCs have on average about 6.5 aeroplanes. This average is in fact distorted by a few larger national fleets such as those of Ethiopia (49) Nepal (18) and Sudan (15). In fact 17 of the national airlines have three planes or fewer. Having a national airline can in principle allow for the linking of industry in more disadvantaged areas of the country with more advanced centres: externally it can help in promoting exports and improving marketing communications. But fleets of the size mentioned, especially in geographically remote and dispersed areas, and with due allowances for downtime for maintenance purposes, mean that little can be achieved in this direction. Air transport is however the only practical alternative in many cases to overcome the kinds of locational and commercial isolation of industry in LDCs. Just how great this isolation is may be seen in terms of the connexions available in flights to the main economic centres of New York, Brussels, and Tokyo. No direct flights are available from any LDC to New York. For 17 LDCs, two changes of plane are necessary. With respect to Brussels, only 7 LDCs had a direct connection, 25 needed one change of plane and 10 needed two changes. For Tokyo, no direct flights are available, one change of plane is needed in 29 cases and two changes in the remaining 13 cases. The practical effect of this is that, taking stopovers and the infrequency of most services into account, that a potential investor from one of the commercial centres mentioned will have an appreciable degree of extra difficulty in assessing a potential investment in an LDC, let alone the difficulty of monitoring the progress of an investment on a regular basis. Equally, the industrialist in an LDC interested in exporting to developed countries will find the extra time needed because of the poor air connexions to be a further deterrent to an already difficult undertaking, both from the point of view of visits to potential markets and the shipping of products by airfreight.

Apart from these difficulties, the costs of air connexions are also an issue. The average business class return air fare from LDC capitals to commercial centres in developed countries is \$US 3050.<sup>17</sup> Not only are such fares high in relation to the incomes in LDCs, but they are often associated with foreign exchange restrictions such as to make air travel even more difficult as a means of promoting increased exports by direct contact with the markets.

Air freight rates are another burden on export possibilities: consideration of available rates suggests that they may be subject to several anomalies and inconsistencies at least as far as the LDCs are concerned. For instance the rates per kilogramme for shipments to New York are successively reduced for amounts in excess of 100kg, 200kg, 300kg and 1000kg. This is true for any LDC as origin. But with Brussels as the destination, such reductions are by no

---

<sup>17</sup> This is the arithmetic mean of all business class fares from LDC capitals to New York, Brussels, and Tokyo.



means uniformly available, especially not for the larger quantities. The result is that for many LDCs, especially African countries, marginal rates are not very different between the two destinations. In several cases where the geographical distance is considerably less, the rate charged is nevertheless more. Given the preponderance of LDC trade with the EEC, this result suggests that the degree to which manufactured exports may be disadvantaged should be carefully examined. A study of the effect of international transport costs and industrial development in the African LDCs (which used sea freight rates) has shown that even for coastal countries the transport factor may significantly erode a cheap labour advantage, but that for land-locked countries the effect may be catastrophic. Apart from a concentration on products with a high value to weight ratio, other conclusions drawn include that of the need to engage in processing activities that increase that ratio.<sup>18</sup>

### 1.3.8 Communications and Media

Whether within an individual enterprise or in an entire economy, the free flow of information is essential in order to optimize the allocation of resources and avoid inefficiencies. It also provides basic signals to entrepreneurs as to market requirements, available technologies and investment opportunities, and is therefore essential for the longer-term and self-sustaining process of industrialization. In practice, the information flow will be partly influenced by the transport system and the degree to which people are in contact with one another. Population density and the degree of urbanization are thus some fundamental variables for assessing the possibilities for industrial expansion. In addition, the internal road and rail networks, and the availability of cars and other forms of transport are also relevant. In general the importance of infrastructure has to be recognized not only from the point of view of the immediate needs of industry for the provision of supplies and the serving of markets, but also for the contribution it makes to the flow of information.

Other factors in this regard include the availability of telephones and media, especially such as newspapers. With respect to telephones, there are sharp differences among the LDCs. Presumably because of their small geographic size and relatively high degree of urbanization, small countries such as Djibouti, Kiribati, Sao Tome and Principe, Tuvalu, Vanuatu and Western Samoa are relatively well supplied with telephones (fewer than 100 persons per telephone). Other LDCs have a considerably worse figure. Expansion of this essential service in LDCs would offer opportunities for local manufacture of several inputs, especially in such items as poles, cables, fixing materials, etc.

Newspapers represent an important communication possibility, but most LDCs are badly supplied with them. At least nine LDCs have no daily newspaper, and only in Botswana, Myanmar and Lesotho are the circulation figures above 10 per 1000 of population. Expansion of printing and publishing activities would represent an important manufacturing contribution to overall growth, would have potential backward linkages to pulp and paper industries, and would make a significant long-term impact on the flow of information and the development of markets.

---

<sup>18</sup>Livingstone, I. "International transport costs and industrial development in the least developed African countries." *Industry and Development* No. 19, October 1986, UNIDO, Sales No. E 86 II B 6.

A related problem in connexion with the media is that of access to foreign media and journals. These are important sources of information on external markets, supply and demand possibilities of raw materials, patterns of industrial organization, availability of technologies, and, in fact, much information that is vital both for the individual industrialist and for the national policy maker. Yet the circulation of foreign media is often restricted, sometimes for foreign exchange reasons. Ordinary international or business newspapers, as well as trade and specialist journals, are hard to come by in many LDCs. UNIDO has for many years been building up its information systems and networks on technologies and investment opportunities, establishing focal points in each country and answering a growing stream of enquiries from all developing countries. But it is clear that such activity has to be complemented at the national level by encouraging the dissemination of industry related journals and media in LDCs. UNIDO would be ready to cooperate with publishers and bilateral agencies in such an activity.

Industrial capacity under-utilization is a characteristic of industry in many developing countries, and LDCs are no exception. Causes are many and include machine breakdown and shortages of raw materials or spare parts. However a frequent cause of under-utilization of capacity is the absence of a stable and reliable electricity supply. Electricity capacity installed in LDCs is very limited in relation to the population: the average for all LDCs is 23 kW per 1000 inhabitants, while for developing countries as a whole the figure is 156. Since many industrial processes and machines are totally dependent on electric power, no substitution to other forms of energy is possible as in the case of households. Given the inadequate levels of installed generation capacity, the systems frequently become overloaded, and breakdowns are common. In the absence of electricity from the national grid, many manufacturing firms in LDCs use petrol or diesel powered generators, which means that they are ultimately dependent on a resource from outside the country with which foreign exchange costs are associated. The wider energy questions relating to environmental degradation and depletion of resources must form part of any detailed analysis of the energy question in LDCs, but from the point of view of the needs of industry it is clear that there is a strong case for renewed concentration on the expansion of the national grid systems. It can also be said that exploitation of hydropower resources, such as is possible in at least 14 of the LDCs,<sup>19</sup> would also provide a stimulus to manufacturing activity, even in such areas as poles and cables, but in some cases also in the form of construction materials and simple turbine components.

### 1.3.9 International linkages

Linkage of LDCs industry with the international economic system involves a number of forms. The most obvious is foreign trade, whether with respect to the supply of imports for industrial inputs or to the production of manufactures for export. Other forms of international linkage include the use of expatriate labour, especially for skills in short supply nationally, technology transfer, foreign direct investment, and the acquisition of foreign services. These might be in such industrial service areas as testing, design, marketing, advertising, accounting, insurance and finance. These are increasingly important inputs into modern manufacturing and the international industrial system. As far as LDCs are concerned, their access to them is very limited. Even when they are available locally, they are often not used. For

<sup>19</sup>UNCTAD: The Least Developed Countries, 1990 Report, United Nations Sales No. E.90.II.D.4, p. 19.

instance in Haiti, the neglect of local engineering and management consultancies by industrialists has been specifically noted.<sup>20</sup> In some cases this is understandable: thus in Bangladesh local manufacturers of refractories, tableware and heavy-clay products were still relying on overseas testing laboratories; the Bangladesh Institute of Glass and Ceramics had facilities that are not being fully used because of a lack of trained personnel.<sup>21</sup> But in general, a neglect of local services and expertise has been observed in technical co-operation activities in LDCs.<sup>22</sup>

One important example of the significance of international services for industry is given by the banking system. Increasingly the international banks from developed countries put themselves forward as providers of a wide variety of financial services, including strategic management advice, the formation of joint ventures, capital markets activity, export credits, treasury management and the like. Many have invested heavily in communication systems and in acquisitions of related firms in investment management, stockbroking, insurance, etc., not to speak of those banks that take direct equity holdings in industry and are to a considerable degree involved in the long term planning and development of those industries. Yet these banks have a minimal presence in LDCs: banks from OECD countries are to be found in only 17 of the countries. The reasons for this may have more to do with a desire for national control of the banking sector, because analysis of the remaining countries shows that usually if there is no bank from an OECD country there is no foreign bank at all. Only in three cases where there is no bank from an OECD country is there any foreign bank present. Apart from government regulation, there may also be an inadequate perception of market possibilities on the part of the international banks. It is nevertheless to be regretted that dialogue between LDCs and international banks is concerned largely with debt rescheduling; there is scope for discussion of how these institutions could make a sustained and longer term commitment to the development of industry and the economy as a whole through closer involvement in the day to day business life of the countries to whom their money has been lent. Access to the international advice and services provided by these banks could make an important contribution to the efficiency and export performance of industry in the LDCs.

There is an associated problem under this heading which bears particularly hard on the development of links between LDCs and the international industrial system. This is of the costs with respect to foreign exchange transactions. These are sometimes regarded as excessive even among developed countries, but for the LDCs, the costs of moving between national currencies and those needed for international trade, such as the US dollar, can be very significant. A comparison of the bid and offer rates between LDC and hard currencies suggests that on average the spread applied for all LDC currencies is 81.59 per cent of the bid price. This compares with a spread of 2.17 per cent for the currencies of the seven largest OECD economies (G7 countries). Moreover the LDC average conceals further discrepancies: if one removes currencies tied to

<sup>20</sup>Ministry of Commerce and Industries, op. cit.

<sup>21</sup>"Analysis of Raw Materials for Non-Metals: Mineral Based Industries" DP/BGD/89/006, Bangladesh UNIDO DE-ED SER B/93, 29 July 1986.

<sup>22</sup>UNICEF "Technical Co-operation in the Development of the Least Developed Countries" A/CONF/147/PC/1/ANN/9, TD/B/AC.11/31/ANN/9, 21 February 1990.

a currency of regional importance (such as the CFA Franc) then the spread for the remaining currencies is on average 142.9 per cent. Such spreads are so high that they can have only a deterrent effect, and it would seem that this question would bear closer examination<sup>23</sup>. The results might suggest that reconsideration of such obstacles to transactions between LDCs and other countries is necessary and would be of benefit to all parties concerned.

## 2. ISSUES FOR POLICY ACTION

The condition of industry in LDCs is such that action is needed under a number of headings, and these actions involve not only the international community but the LDCs themselves. However, it would be a mistake to think that by this is meant that LDCs governments will necessarily bear the brunt of the burden. Many of the defects in the system can only be remedied at the enterprise or community level, although no one enterprise can do the job. There is also an important regional aspect to the search for solutions.

The regional aspect is important because of the possibilities offered by regional integration for improved development through mobilization of resources, economies of scale, access to markets, import substitution strategies, exploitation of complementarities and the other well understood benefits of successful co-operation. It must however be recognized that regional co-operation can still bring benefits in the absence of grand strategies for economic and monetary union. The most notable is the area of trade. A country needs its neighbours as markets: this is so in the absence of wide-ranging trade agreements. In a number of cases, economic progress in LDCs has been seriously disrupted by the loss of neighbouring markets. For instance industry in Nepal has suffered from disruption of its access to both the Indian market as well as international markets (due to difficulties in trans-shipments through India). The same applies to the Gambia with respect to Senegal, and the Central African Republic has been affected by a levy on transit traffic through Cameroun.

### 2.1 Human resource development

The dimensions of the human resource development problem are such that concentration of resources on the central problems to achieve the greatest multiplier effects are of particular importance. In general, the increasing thrust of technical assistance activities has to be towards developing national capabilities in assessing training needs and in providing suitable training. These national capabilities must not necessarily be seen only in terms of some centralized institution part of the governmental apparatus. Initiatives from chambers of industry, manufacturers associations and industry sector associations in providing training also have to be supported and encouraged. With these priorities, the implications are that international involvement in actual training should increasingly concentrate on very specialized training areas, where national capacities cannot be established within a reasonable space of time. Where direct assistance in training takes place it should be preferably organized at a regional level, in order to take best advantage of the economies of scale involved and to bring the regional participants together in the discussion of common problems.

<sup>23</sup>The figures are based on rates obtained in Vienna, Austria, and will certainly be influenced by the regular volume of transactions involving LDC currencies and the Austrian schilling.

Elements of a strategy for human resource development have to include the aspects identified in the preceding sections in the discussion of the industrial system and the likely organizational and technological characteristics of the future industrial structure of the country concerned.

**Quality:** this is a consequence of all good training but it needs to be targeted as an explicit objective.

**Management:** these skills have to be dispersed through new and more flexible methods. A busy self-starting entrepreneur does not have time to go on residential courses. There is also scope for increased management productivity through computer applications.

**Technical education:** what is needed is a combination of basic skills and flexibility to reflect the increasing pace of change in industrial technology and structure.

**Maintenance and production engineering:** this is essential to reduce spare parts inventories and the under-utilization of capacity.

**Mobility:** legal and social security frameworks that encourage worker mobility and thus skill diffusion and new skill acquisition.

**Knowledge access:** this plays a central role in human resource development, and needs to be assured on a continuing basis. Trade and technology information are essential for industrialists. Access to international sources is at present very limited.

## **2.2 Resources for strategy formulation and implementation**

The striking wave of change in public policy towards the role of the state in economic activity that has been observed in both developed and developing countries is now an established fact that has led to a perhaps irreversible change. Attention has perhaps understandably focused on the privatization process and analysis has included the degree to which state enterprises should be rehabilitated before privatization takes place. Other considerations have been those of the ways in which entrepreneurial spirits can be encouraged in cultures where these are not regarded as particularly important. However the major problem, of what should be the future role of the state in the formulation and implementation of industrial policy, has not been addressed, except to the extent that it has been delimited by a series of negatives.

Strategy formulation and implementation is not in fact a task that any developed or newly industrialising country leaves to market forces. The increasing technological content of industrial structural change, and its effects on the pattern of international change, have meant that governments in such countries have paid ever growing attention to these questions. Ideas of what would be a desirable future industrial configuration for the country have been the main driving forces behind a series of measures and initiatives such as government-sponsored industrial R&D institutes and programmes, industrial consortia and networks formed with the encouragement of governments, trade regulation measures designed to protect existing industry or to give it time to take the necessary measures of technological upgrading necessary to withstand the impact of foreign competition.

Whether we are talking about traditional normative approaches or not, the planning question always resolves itself into a sequence of individual steps on which decisions have to be taken. These do not necessarily result from the grand design: they may instead derive from international problems, or from urgent decisions to be taken in the trade, finance, agriculture or other sphere. What often seems to happen is that major decisions of this kind are taken (in other ministries) without due attention to the needs of industry. Often the Ministry of Industry will have less than a leading role in policy formulation. It may have some sectoral experts but there are few channels through which their expertise can have influence on policy decisions. In fact, only six LDCs have a separate Ministry of Industry. In the remaining cases Industry is part of a Ministry that deals also with one or more other topics. Usually Industry is combined with Trade. In only two cases does it appear to be directly linked to planning and economic development.

The more general problem is that the division of ministerial responsibilities reflects present realities rather than the desired result. Agriculture and perhaps mining will be important ministries, while industry will not be. And yet if the sector is to receive appropriate emphasis in national policy, and if measures that affect the prospects for industry are to receive proper analysis from this point of view, then it is essential that there exist an appropriate body at the national level which has the resources to undertake serious analysis and the authority to achieve serious consideration of its recommendations. The role of the ministry has to be an active one, so that the strategic priorities of industrial growth can be determined and the legislative and institutional support for industry can be directed in support of these priorities.

In this context, the question of technology policy is a central issue. There are no general solutions to it. Technology policy is not only a matter of creating institutions or national information centres. In fact these would on their own be probably very ill-focused instruments. At the institutional level the need is for specifically targeted action focusing on selected key problems. It has to be intimately linked with the examination of what the desired industrial structure is to be. For LDCs, the most important considerations will be the need to economise on foreign exchange, to create small-scale industries, to keep machines operating, and to make as much use as possible of natural resources. The necessary improvements in infrastructure and services, together with the industrial requirements of such development, will also determine the kind of technology development required.

### 2.3 Linkages and rural development

Actual and potential linkages constitute the main building blocks of economic development. Because of the heterogeneity of manufacturing compared to other sectors, the number of potential linkages both within the sector and with other parts of the economy is enormously large. Partly because of their number and variety, such links cannot be planned for. The most that can be done is to create those conditions in which the potentials may most readily become realities. In LDCs in particular, many of the intra-industry linkages will derive from import substituting activities, where inputs to an industrial process will be obtained from a new domestic producer.

The other linkages, with agriculture, mining, and services, may at first sight appear to be easier of realization. But the prospects are crucially dependent on the development of appropriate infrastructure and services.

It can therefore be seen that the set of problems of linkage so far discussed are closely related to those of rural development (especially, but by no means exclusively to those of agriculture industry linkage) and to small scale industry development (both because of the limited scope for the state in achieving a diversified manufacturing sector and because of the need to encourage entrepreneurship as widely as possible). Nevertheless there are special characteristics of these two questions which derive from the fact that the subjects under discussion are those of location and of scale.

With respect to location, the availability and quality of essential infrastructure, services and energy supplies is clearly of the first importance. In general, these questions have to be brought to the centre of the discussion on industrial development in LDCs, and the needs of industry have to be fully considered in the design and planning of infrastructure, energy and transport projects. (The contribution to be made by industry in such cases will be addressed in a later section.) Equally important however is the need to bring the potential needs of industry to the forefront. In some cases for instance, the extension of the national grid to a particular location may be carried out in order to reduce the dependence of one industry on a petrol powered generator. However, it would be appropriate to consider also the potential effect on the establishment of new industries and the possibilities of hand- or water-powered activities also making use of the new electricity supply.

With respect to scale, the need to diversify through the establishment of as many industries as possible is only part of the story. It may be difficult or impossible to mobilize investment capital except in small amounts, acting as a conclusive deterrent to the establishment of large-scale production. A number of small establishments also mean that the risks of failure are more widely spread, and thus that several industrial failures will not mean the end of all industrial possibilities.

## 2.4 International support

### 2.4.1 The programme approach

The problem of aid co-ordination is one which has been addressed by the international community at several levels, through intergovernmental bodies such as the DAC, the Governing Council of the UNDP, and at the national level in LDCs through Round Table Conferences and the continuing activities of UNDP Resident Co-ordinators. However, co-ordination probably needs to be more active. The screening and cross-checking of projects between donors is in practice of great importance: at the same time this of itself will only eliminate inconsistencies from within a narrow set of choices. The reconciliation of projects and programmes from different sources is only a first step towards real co-ordination. What is needed is the co-ordinated preparation of programmes, from which individual projects then derive. This means a much closer involvement of the LDC concerned in the process, as is stressed in the UNCTAD 1989 Report on the LDCs. However, an LDC often lacks the information base and analytical resources to carry out such programming exercises on its own, especially given the increasing internationalization of sectors such as industry. In some cases this is also true of bilateral donors, whose development assistance agencies may have limited staff for project appraisal, let alone programme development. This means that particular importance attaches to the role of the sectoral agencies of the United Nations system. UNIDO has for some time now been developing the programme approach

to its technical assistance activities in the field of industry, where analysis of the problems and priorities of a sector lead to a series of discrete but interrelated projects to deal with the problems of its development. This work has led to specific actions in the field of agriculture-related industry development within the framework of the Industrial Development Decade for Africa, and it has been carried out in close consultation with FAO.

Industrial planning projects offer an important resource for implementing a programme approach. UNIDO has considerable experience in technical co-operation activities, including in a number of LDCs. Detailed and extensive consideration of the industrial resources and options of the country concerned can include data collection, strengthening of institutional capabilities and the identification of strategic emphases for industrial growth and the policy instruments needed to achieve it. These activities offer considerable scope for the identification of external assistance requirements in the framework of a national industrialization strategy.

Another relevant example may be UNIDO's work in the field of regional policy issues, which has led to the development of an integrated industrial development programme for the Preferential Trade Area for Eastern and Southern African States (PTA). The object of such activities is to provide a coherent portfolio of projects which can be financed from several sources. Nor do they necessarily have to be executed by UNIDO. They do remain, however, a consistent set, and address major elements of the country or region's industrialization strategy.

#### 2.4.2 The industry contribution to development projects in other sectors

The need for co-ordination is important not only within the industrial development activity itself, but also because there are important possibilities for stimulating local manufacturing in LDCs through the considered use of development projects in other sectors. Examples of this include large scale agriculture, health, education, and infrastructure projects. These form the bulk of the ODA targets within LDCs, and industry, as already noted, has not been regarded as a first priority for technical co-operation activities in most LDCs. However, technical co-operation in the sectors mentioned will inevitably involve the use of manufactured products as material inputs. These products will usually be imported. Yet there may be considerable scope for using some of the technical co-operation activities to stimulate local industry, by encouraging or even taking into consideration the possibility that the manufacturing sector in the LDC concerned (or in a neighbouring LDC) might be in a position to supply at least a few of the products needed by the project. Analysis suggests that there are several reasons why this does not take place at present.<sup>24</sup> There is usually insufficient information readily available, even within the country, about the kinds of products that are or could easily be manufactured there, and there is insufficient consideration of the issue of local industry's potential contribution by all those concerned with the project, including governments, bilateral donors, multilateral organizations, project managers, etc. There are of course practical difficulties in purchasing procedures, and there are also

<sup>24</sup> "Industrialization in the Least Developed Countries: The Potential Role of Development Projects in Other Sectors", UNIDO PPD/R 27, 19 June 1970.



considerations of quality and cost to be taken into account. Nevertheless it is clear that a potentially important stimulus to industrialization in LDCs is not receiving sufficient consideration. Better information systems, and a new approach to project formulation and implementation could lead to significant benefits for the manufacturing sector in LDCs, through linkage with the wide variety of technical co-operation activities under way in these countries.

### 3. CONCLUSION

The present paper has explored some of the characteristics of industry in the LDCs, and some of the obstacles in the path of progress in industrialization in the future. The analysis is a preliminary one, and will have to be further developed in the context of a widespread reassessment now under way in both developing and developed countries of the role of the state in industrial development and the role of development assistance in the achievement of self-sustaining growth. The conclusions to be reached at the Second United Nations Conference on the Least Developed Countries will provide a basic framework for such analysis. Nevertheless, it is possible to summarize the preliminary conclusion of this present paper as follows:

A. Given the number and dispersed locations of LDCs, there is a temptation to see them as being too diverse for any common solutions for their economic development to be proposed. However, manufacturing in the LDCs does exhibit a number of problems which are almost uniformly present and on which a degree of common action could be devised.

B. All LDCs have small manufacturing sectors and their industrialization prospects rest on the creation of new industries.

C. Establishment of new industries means that the supporting environment in terms of policy framework, industrial supplies and services, infrastructure and market access all have to be greatly improved.

D. With respect to the policy framework, the major issue at the national level is to recognize that in spite of the small size of manufacturing activity, it offers in many cases the only long-term growth prospects and that whether this will ever come to pass is being determined by decisions being taken in other areas at the national level.

E. An immediate implication of this is that industrial growth has to be nearer the centre of discussion on national policy, either through a greater importance for a ministry of industry or through industrial policy becoming a major part of economic development planning.

F. The potential role of industry in the development of agro-industrial complexes needs further examination in terms of the potential linkages between agriculture as a supplier of the manufacturing sector and as a user of manufactured products. From this point of view, there must be increased concentration on the agro-related metal working sector, and also on fertilizers, pesticides and fisheries development.

G. In view of the magnitude of industrial development required in LDCs, a primary concentration will have to be made on providing the right environment within which industry can grow, rather than concentrating capital and human

resources (especially administrative resources) on one or two large investment projects.

H. With respect to the policy framework, this means both a greater emphasis on the overall industrial configuration that is being sought, rather than emphasis on individual projects. It also means a reduced role for the state, and a reduced diversion of management resources, in terms of administrative overheads both for the government and for the private sector.

I. Given the limited degree to which efficient markets have developed in most LDCs, and the pressing nature of the economic problems with which they are faced, there will remain for the foreseeable future much scope for government initiative in new industrial development. This can be both to encourage the involvement of the emerging industrial entrepreneurs and also to provide reassurance to potential foreign investors.

J. To achieve the necessary economies of resources, whether domestic or external, for industrial development a major concentration of public policy should be in terms of supplying the appropriate transport, communications, energy, services and information facilities needed by the manufacturing sector.

K. The needs of human resource development for industry imply extensive activity in institutional development for the specific skill requirements of modern industry. New methods of training will need to be applied.

L. Technological development in LDCs will be conditioned by the major development priorities and industrial emphases chosen, and should therefore concentrate on the agro-industrial complex as well as electrical power generation and distribution, communications and information technologies, and transport system. Institutional development in this connexion will need to concentrate on assisting diffusion of existing technology rather than a large-scale search for new solutions.

M. Although official development assistance is of enormous economic significance for LDCs, only a very small amount has been directed to the manufacturing sector. Consideration should be given by the donor community as to means by which this could be increased. This would be especially necessary in terms of attention to priority areas of industrial growth and their contribution to the satisfaction of basic human needs and overall economic development.

N. Considerable scope exists for involvement of local industry in development projects undertaken in other sectors of LDCs. This can be achieved through the development of better information systems as to the capabilities of local industry as well as through the explicit consideration, at national and international level, of such possibilities.

O. Given the importance of many international services, such as air transport, shipping, banking services, media and telecommunications, for the industrialization prospects of LDCs, it would be desirable for more explicit consideration of these questions, especially through the furtherance of dialogue between the different interests involved. Given the relatively small importance of LDCs to international systems of this kind, it is felt that more accommodation of LDC needs could be carried out relatively painlessly, and that the international companies involved could, perhaps in a dialogue with

donor governments, be encouraged to contribute to a reduction in the comparative isolation of LDCs from the international economic system.

P. The considerable experience that now exists at national and international level of the application of different strategies and policy instruments to both LDCs and other countries industrialization needs to be analysed in the light of knowledge of the ways in which industrial systems develop through the initiation and the growth of individual enterprises. As set out in the UNIDO paper submitted to this conference,<sup>25</sup> the need to analyse in depth the industrial systems of the LDCs is being recognized through the intended preparation of a detailed Plan of Action for Industry, with recommendations on actions to be taken at the sectoral, national and international levels.

---

<sup>25</sup>UNIDO Contribution to the Second United Nations Conference on the Least Developed Countries: Industrial Development of Least Developed Countries in the 1980s and Prospects for the 1990s". A/CONF.157/PCO/ABLE.13, TEMPAC/UN/ABLE.13, 21 March 1990