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STRUCTURAL CHANGES IN INDUSTRY

Prepared by
the Global and Conceptual Studies Section
International Centre for Industrial Studies

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Explanatory notes

A comma (,) is used to distinguish thousands and millions.

A full stop (.) is used to indicate decimals.

Dates divided by a hyphen (1960-1965) indicate the full period involved, including the beginning and end years.

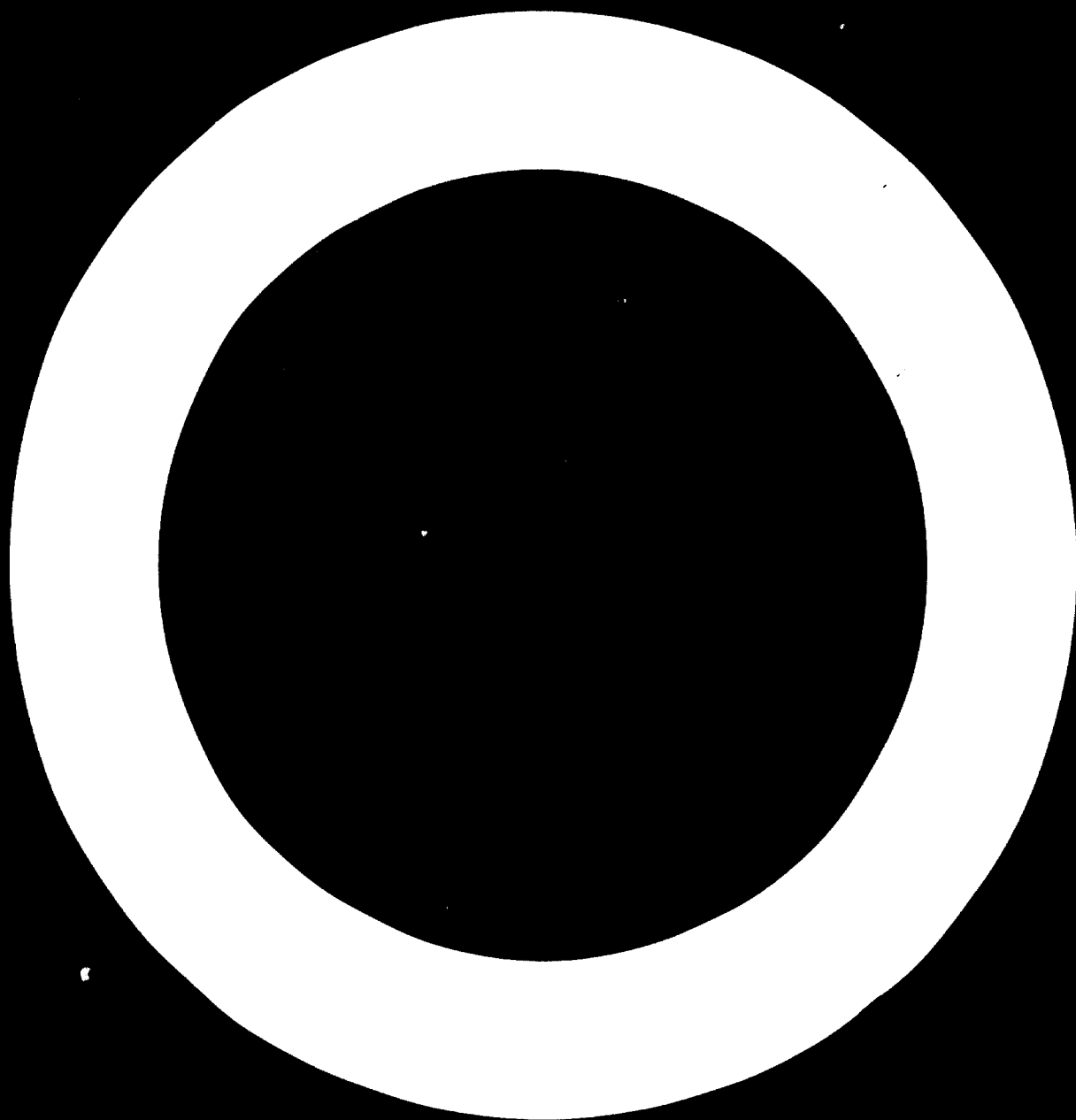
References to dollars (\$) are to United States dollars, unless otherwise stated.

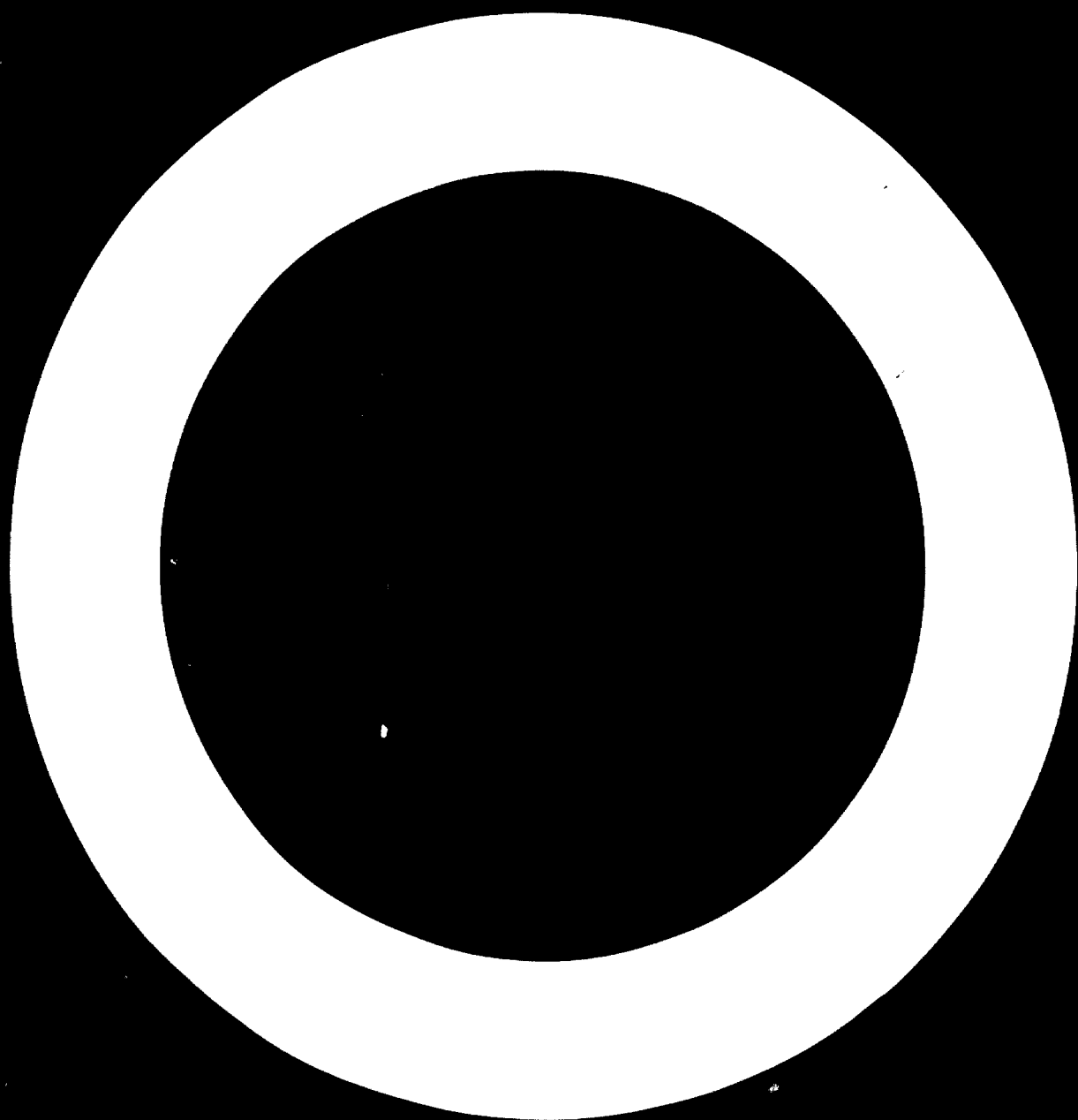
The following abbreviations are used in this study:

CMEA	Council for Mutual Economic Assistance
EEC	European Economic Community
ESCAP	Economic and Social Council for Asia and the Pacific
GNP	gross national product
ILO	International Labour Organisation
OECD	Organisation for Economic Co-operation and Development

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CONTENTS

<u>Chapter</u>	<u>Page</u>
INTRODUCTION.....	6
I. GENERAL FINDINGS AND CONCLUSIONS.....	9
The context.....	9
Developing countries.....	10
Developed countries.....	13
Issues pertaining to developing countries.....	17
Basic principles.....	17
Domestic policies and institutions.....	19
Stimulating redeployment by a greater range of actors.....	21
Co-operation with developed centrally planned economy countries.....	23
Less advanced developing countries.....	24
Co-operation among developing countries.....	24
Information on future structural changes.....	26
Further action by developing countries.....	26
Issues pertaining to developed countries.....	27
Adjustment policies.....	27
Public support for redeployment to developing countries.....	36
Issues pertaining to international action.....	40
Analysing and reporting on the industrial restructuring process.....	41
Redeployment services.....	41
Consultations.....	43
Reconciliation.....	43
II. STRUCTURAL CHANGES IN DEVELOPING COUNTRIES.....	45
Introduction.....	45
Implications of the Lima target.....	45
Country priorities.....	48
Sector priorities and prospects.....	54
Mineral processing industries.....	54
Agro-industries.....	58
Petrochemicals.....	58
Estimates of resource requirements.....	58

Industrial restructuring among developing countries.....	62
Direct foreign investment among developing countries.....	62
Technology exports between developing countries.....	59
Strategies of major actors.....	71
Actors, objectives and measures.....	71
Objectives of actors and the restructuring process.....	75
Issues for consideration by developing countries.....	76
III. STRUCTURAL CHANGES IN DEVELOPED COUNTRIES.....	79
Introduction.....	79
Main features of the restructuring process.....	80
Developed market economy countries.....	80
Overall trends in centrally planned economies.....	82
Main features of the restructuring process in industry.....	84
Sectoral changes in developed countries.....	84
Change in foreign trade patterns.....	89
Redeployment of industries from developed to developing countries as an element of structural change.....	99
Expected future developments of industrial sectors.....	102
Projections for developed market economies.....	104
Expected developments in centrally planned economies.....	110
Employment in developed market economies.....	111
General observations.....	111
Increased foreign trade and other factors influencing employment.....	113
Policies affecting structural change	115
Employment policy.....	116
Investment policy.....	117
Trade policy.....	119
<u>Annex.</u> UNIDO working papers on structural changes.....	121
Bibliography.....	123

Tables

1. Mineral processing potential.....	55
2. Current and projected mineral processing capacity of all developing countries as a percentage of recoverable mine production.....	57

3. Mineral processing potential in developing countries.....	57
4. Intra-regional direct investment stock in Latin America in 1971 and the latest available statistics.....	63
5. Intra-regional direct investment stock in Asia, 1976.....	64
6. Growth sectors of manufacturing industry between 1960 and 1973 in selected developed countries.....	85
7. Foreign trade patterns of the OECD countries and European OECD countries with the centrally planned economies and developing countries in 1970 and 1977.....	90
8. Rankings of industry sectors in selected developed market economies by revealed comparative advantages in trade with developing countries in various years.....	95
9. Rankings of industry sectors in selected developed market economies by revealed comparative advantages in total trade, or in trade with OECD countries or all developed countries in various years.....	96
10. Ranking of industry sectors in a number of developed countries according to growth projections.....	105

INTRODUCTION

Background

In the Note on Redeployment of Industries from Developed to Developing Countries (ID/CONF.4/9) submitted by the secretariat to the Third General Conference of UNIDO in connection with agenda item 5 (d), a brief review is presented of the approach adopted by the secretariat in its research programme on redeployment and restructuring, and of its major findings and proposals. As indicated in the Note, the programme is carried out in pursuance of General Assembly resolution 31/163 of December 1976, and includes studies of the following five interrelated elements:

- (a) The motives, plans and obstacles of individual industrial companies for redeploying part of their activities to developing countries;
- (b) The process of structural change in industry in developed countries, its past developments, major determinants and future prospects;
- (c) The prospects and plans of developing countries with regard to industrial development, manufactured exports and the scope and forms of international industrial co-operation;
- (d) The impact and implications of redeployment for developing countries;
- (e) Related matters concerning international trade and adjustment policies and various mechanisms for international co-operation.

The purpose of the research programme is to analyse the international and national restructuring processes in the industrial sector, to identify the major determinants of those processes, and to assess the objectives and constraints of the major actors concerned with regard to the course and pace of structural change. Based on the results achieved, it may then be possible to determine the degree of convergence and divergence of the objectives and motives of the various actors in the changing pattern of development.

The two major goals of the studies may therefore be described as follows:

- (a) Highlighting major development trends and disseminating information on the international restructuring process so as to reduce prevailing uncertainties for the actors;
- (b) Identifying constraints to, and formulating proposals for, increased international industrial co-operation on a more equitable basis, which might facilitate international economic and political development in the 1980s.

The secretariat is fully aware of the complexity of the task. However, by systematically pursuing its programme and periodically reporting on its findings to the international community, the secretariat should be able to

provide essential information on crucial issues relating to the restructuring process, and thereby help to foster non-disruptive structural change.

In carrying out its programme, the secretariat has sought and received substantial support and co-operation from individual Governments, research institutes, industry, trade unions and international organizations. Such co-operation is an essential element of the work of the secretariat for various reasons. First, it enables the secretariat to supplement its own studies through the data, research findings and other information to which the various bodies have access. Secondly, the exchange of information and direct contacts with national and international bodies play an important role in stimulating and co-ordinating research and debate. Dialogue between the various institutions is indeed both a prerequisite and an objective of the work of the secretariat. Finally, the support received enables the secretariat to pursue its programme in spite of severe resource limitations.

The secretariat is therefore attempting to maintain close contacts with the governmental and non-governmental organizations concerned, to disseminate all its working papers as they become available, and to present its findings directly in the form of lectures, conference papers, and meetings at national and international levels. An informal working group on restructuring, composed of researchers from industrialized countries, is meeting regularly under the auspices of UNIDO, the first seminar on redeployment held in 1979 with the participation of experts from developing countries is to be periodically followed up. In order to service other organizations and institutions, the secretariat is also regularly issuing a "List of papers relating to structural changes in developed countries".^{1/}

Aim of the report

The primary aim of this study is to present a detailed analysis of the essential aspects of the issues raised in the official Note submitted by the secretariat to the Third General Conference of UNIDO. In view of the brevity of the Note, it was necessary to provide additional information and explanations, concerning in particular the proposals for action by developed and developing countries and the proposals for international action.

^{1/} "List of papers relating to structural changes in developed countries", Issue No. 3 (UNIDO/ICIS.127).

The secretariat has drawn on all available data in presenting its findings and recommendations. However, in view of the complex and long-term nature of the secretariat research programme on redeployment and structural change, this study, by highlighting some of the major issues involved, can only represent a starting-point for future endeavours. In pursuing its studies, the secretariat hopes to describe in greater detail the areas of particular interest for international co-operation, and to suggest how improved co-operation may be achieved.

Structure of the study

Chapter I, which forms the main part of the study, summarizes the major research findings, and describes the specific issues relating to developed and developing countries and to international organizations. Chapters II and III supplement the first chapter. They contain factual information relating to structural changes in developing and developed countries, based on the research findings of the secretariat. Chapter II covers certain aspects of structural change relating specifically to developing countries, such as future forms of redeployment and characteristics of industrialization in developing countries.

Chapter III presents the findings relating to structural changes in developed countries, and reviews the findings of the specific country studies (see annex). It outlines, in particular, the major determinants of past and future developments, the prospects for structural change, the effects on employment and relevant government policies. Further detailed research results are given in the series of specific country and issue papers (annex) and the additional references in the bibliography.

I. GENERAL FINDINGS AND CONCLUSIONS

The context

The achievement of the Lima target of a 25 per cent share for developing countries in total world industrial production by the year 2000 should be seen primarily as a means of achieving increased and sustained overall economic growth in those countries, leading to improved social welfare through a relatively high growth of their most dynamic sector, the industrial sector. That implies gradual changes in the countries' economic and industrial structures and in the international division of labour.

For the industrialized countries the international division of labour has so far undoubtedly yielded significant benefits. In recent years, however, low overall growth and other problems in the developed market economies have given prominence to the emergence of developing countries as exporters of some manufactured products. There is a tendency within the industrialized countries to single out the manufactured imports from developing countries as the major disruptive force in their economies. As is shown in chapter III of this study, however, the central causes of the present economic situation in developed economies are to be found within those economies. Indeed, the influence of the economic restructuring of developing countries on overall developments in developed countries is clearly positive, not negative. It creates additional markets for capital and consumer goods of growing significance and contributes to a more efficient resource allocation.

Can a continuation and possible acceleration of the international restructuring process be regarded as generating mutual benefits for the two groups of countries? Obviously there is nothing automatic in that process. Nor does it follow, even if it is in theory a positive-sum game, that all will in fact benefit, or that the distribution of benefits will be acceptable to all parties. That depends on the degree of consistency of objectives, on the "rules of the game", on the time horizon in question and on global constraints both inherent in the restructuring process itself and external to it.

To treat developed and developing countries as homogeneous blocks is a simplification. The countries show differences in terms of stage of industrial development, size of territory and population, raw materials and energy resources, access to international communications, technological capacity,

economic and political systems (in particular as regards the role of the private versus the public sector) etc. Will the restructuring process favour only the relatively large and more advanced countries? Will international developments sharpen prevailing disparities between and within countries in the distribution of benefits to regions and population groups defined on the basis of age, profession, sex etc.? Will not increasing competitiveness, resulting from more export-oriented growth, cause a polarization among countries, sectors, enterprises and individuals?

Such questions point to the need to examine the determinants of structural change. The major actors generating and conditioning the changes are governments and government-related bodies, transnational corporations both in production and services, small and medium-sized or predominantly domestically oriented enterprises, labour organizations, financial institutions, consumer groups, and international groupings and organizations. The Lima Declaration and Plan of Action implicitly presupposes the existence of convergent interests among the actors. The international community should search for and utilize such convergences as may exist and conceive and implement equitable forms of international industrial co-operation. To this end, an examination of current and expected structures and trends in national and international production and trade is required.

Developing countries

The industrialization process in developing countries has so far been characterized by concentration. Globally, a small group of countries in Latin America and Asia account for some three fourths of all industrial production carried out in the developing world, much the same group has been the source of close to three fourths of the total increment in output since the mid-1960s, a somewhat larger group of rather different membership has provided most manufactured exports from developing countries, while most foreign resources connected with industrialization have been directed to those countries. At a generous estimate, the names of not more than twenty developing countries would be enough to complete the list of those countries where industrialization, measured by any criteria, has occurred on a significant scale. Within each of the main regions of the developing world, at most a handful of developing countries account for the bulk of industrial activity.

The sectoral pattern of production is closely associated with the size of the industrial sector. Those developing countries where total industrial activity is greatest are also those where the range and degree of sophistication of industrial production reach their peak. The more advanced the industrial sector, the fewer the developing countries providing the output.

On the evidence of the past two decades, the process of industrialization has shown glaring and growing inequalities within the developing world. The particular form it has taken has sharpened rather than narrowed the differentials among developing countries, not to mention its impact on internal inequalities. If industrialization is the motor of economic expansion, and if its form were in the future to be similar to that of the past, it is probable that fulfilment of the Lima target would be accompanied by ever greater splits within the developing world.

Foreign investment in developing countries has been designed to secure the following objectives: supplies of important raw materials, mineral and agricultural; access to developing countries' markets for intermediate and final goods; supplies of cheap labour to be used in production destined for the markets of industrialized countries; and, sometimes, access to the benefits of domestic financial incentives and freedom from legal interferences with production, e.g. environmental constraints. Investment by corporations producing industrial goods has been followed, in recent years, by investment from corporations providing industrial services: financial institutions, advertising agencies and management and engineering consultancy groups. The investments in production facilities have been concentrated by country and have led to substantial penetration of the more dynamic manufacturing sectors in developing countries. The power exercised by the affiliates of transnational corporations within the markets of developing countries is now significant, and is, in several cases, a major determinant of the structure of those markets.

The incorporation of developing countries into a steadily forming world system has taken place through various agents and instruments. The unifying feature of them all is that they tie the developing countries' users of foreign resources into the industrial integration scheme of the economic agents of industrialized countries. Initially, the foreign aid package severely circumscribed the freedom of choice of industrialists in developing countries with regard to the purchase of equipment supplies and the destination of output. The direct foreign investment process under the institutional form of transnational corporate organization bundled together a variety of industrial assets and made the material and financial use of them subject to the internal goals of the transnational corporations, thereby creating productive structures integrated transnationally but fractured domestically. More recently, the role of financial loan capital, particularly in those basic industrial sectors

usually under public ownership in developing countries, has been to secure guarantees through restricting the choices of developing countries as regards equipment suppliers, engineering consultants and management assistance. The net impact of this kind of incorporation has been to increase enormously the amount of industrial activity occurring on the territory of developing countries, but severely to circumscribe domestic control over inputs and outputs. The fact that many industries are not internally but externally integrated creates even bigger difficulties, since future decisions are mortgaged to present patterns of industrial organization.

International trade rules encourage the canalization of developing countries' exports of manufactures within the networks of transnational corporations. Access to the markets of industrialized countries is preserved when the activities and products of developing countries are handled inside the transnational corporations, but when the firms of developing countries attempt outside or independent activity in export markets, they face severe and unpredictable barriers.

Most of the industrial output produced in developing countries is sold domestically. Even in the most export-oriented countries, the ratio of foreign to total sales of all manufactures does not exceed one third. But most of that output is dependent on foreign industrial inputs of one kind or another. Even under rigorous policies of import substitution, sometimes carried out in the developing countries placing relatively heavy emphasis on exports of manufactures, the result has been more to change the character than to reduce the amount of industrial imports per unit of final output.

In the long term, international transactions are bound to be further influenced by the growth of the industrial capacity of developing countries. Impetus will be given to industrial redeployment among developing countries. Enough skills and capacities have now been mustered in the more industrialized of the developing countries to enable them to supply industrial assets to other developing countries. Equipment sales which were formerly the complete preserve of the enterprises of industrialized countries will now be subject to some competition from sources in developing countries.

The aim of industrialization policy should always be to try and generate a coherent structure with strong vertical and horizontal linkages. Sectoral aims, such as greater domestic processing of raw materials, the build-up of heavy industries, and the production of mass consumer goods, might best be viewed as complementary to the structural objective.

The industrialization plans of developing countries emphasize that they are determined to go ahead with rapid expansion of production capacity over a large range of sectors. In the more industrialized developing countries, the emphasis on heavy industries is pronounced, and all the industrializing countries are planning increases in production capacity in industries such as iron and steel, petrochemicals and other branches of the chemical industry, transport equipment and infrastructural investments. The aim is to achieve a more diversified, more coherent and more sophisticated industry structure in as short a time as possible. The substantial input requirements for such expansion, it is recognized, will involve those countries in intensive use of foreign resources. Their strategic preferences are, as far as possible, to obtain external resources with minimum direct foreign control of equity. The role of public sector enterprises in this endeavour is frequently underlined in the industrial development plans of developing countries.

Those developing countries which have, at present, weaker industrial structures are attempting to extend their activities in ways which will permit them to shift away from heavy dependence on labour-intensive forms of production. By and large they are countries in which such industries as food processing, textiles, clothing, leather and leather products, and some branches of electronics tend to be the most important industrial activities at the present time. The aim now seems to be to move towards metalworking industries and related activities which will permit a greater growth of technical and managerial skills. In those countries, as in the more industrialized ones, every effort will be made to increase the degree of local processing of raw materials and to secure access to foreign markets. But even where foreign resource requirements are substantial, there seems little doubt that rapid rates of expansion of industrial capacity will be registered in many sectors throughout the next decade.

Developed countries

In the developed market economy countries, the slower overall growth recorded in the 1970s tended to reveal a number of partly interconnected phenomena originating mainly in those economies and having a similar impact in all of them. The phenomena involve technology advances that radically change products and processes, changes in final demand, and energy and environmental constraints. It is also significant that some developing countries have begun to enter international markets with certain categories of manufactures.

As shown in chapter III, the major causes of labour displacement are technology developments, changes in final demand and trade with other developed countries. The share of developing countries of total manufactured imports in developed countries (market economies and centrally planned economy countries in Europe) was 6.2 per cent in 1974. For all OECD countries, the share was 9.7 per cent in 1977. Though rising, manufactured imports from developing countries are therefore still small. Manufactured exports from developed to developing countries have increased significantly. Indeed, the high import tendencies of developing countries mean that any increase in their export earnings together with the resulting increase in their ability to obtain credits leads to substantial export increases from developed to developing countries. As is shown in greater detail in chapter III and in other reports,^{2/} developing countries represent a large and expanding growth market for the industries of developed countries.

It should, however, also be recognized that traditional international trade patterns are being replaced by new trends in the international division of labour. Developing countries are increasingly processing their raw materials and are gradually finding substitutes for a wide range of previously imported industrial products. In international subcontracting arrangements, through affiliates of foreign companies and through an increasing number of domestic firms, developing countries are emerging as exporters of non-traditional industrial products, that is, more capital-intensive products as opposed to the traditionally dominant labour-intensive products. Exports consist partly of manufactured goods which have merely been assembled in developing countries, and partly of the products of a complete production process. In the course of their industrialization, developing countries will finance their manufactured imports to a growing extent with those manufactured exports. So far, only a few developing countries are improving their ratio of manufactured exports to manufactured imports, and at present only about 22 per cent of the imports are covered by exports of manufactures. Intra-industry trade between developed and developing countries and the internationalization of industry are increasing, however, and further growth may be anticipated.

One of the main findings in chapter III is that research and development, the early stages of the product cycle and highly qualified labour represent

^{2/} See country reports listed in the annex.

the main fields of comparative advantage to the developed market economies in relation to developing countries. Technological innovations in industrial products and processes are therefore likely to continue to have a significant influence on the employment, production and foreign trade structures of developed countries. At the same time, however, the nature of the interactions with developing countries is also affected. For instance, a large application of microprocessors in a number of traditional industries may not only have substantial effects on the structure and level of industrial employment, but may also reverse certain comparative disadvantages in relation to low-wage countries.

In present international circumstances, therefore, changes in any of the major industrialized countries will affect both national and international relationships. For this reason, it seems essential for developed and developing countries to try to co-ordinate the policies governing their participation in the changing international division of labour.

The industrial and trade policies of developed market economy countries appear to be directed to a large extent to supporting research and development, and company exports to and direct investment in developing countries. On the other hand, policies affecting the domestic market tend to be increasingly geared to maintaining existing structures through subsidies and protectionism in those fields where manufactured imports from developing countries have been shown to be competitive. Such policies would seem misdirected and may aggravate a long-run adjustment problem. Moreover, they may cause even more disruptions of the development process in developing countries. It is therefore important not to limit attention to individual industrial sectors, such as textiles and shipbuilding, because such an approach would reduce adjustment considerations to short-term defensive measures and could be used to "freeze" existing structures.

Hence, adjustment would imply, on the one hand, the actual management of structural changes, and, on the other, the identification and utilization of long-term convergencies of objectives in international developments. Increasing rigidities and constraints against an increased pace of the restructuring process are noticeable and should be taken into account in individual developed countries.

The most important adjustment constraint encountered by developed market economy countries is the high structural unemployment as compared with earlier years in the post-war period. Full employment is a clearly defined priority objective in practically all countries. Generally speaking, increased trade with developing countries has positive or negligible effects on employment, and would contribute to a better overall allocation of resources, higher growth and less inflation. Such negative impacts of imports from developing countries as exist (structural or frictional unemployment and the decline of certain activities) are very often concentrated in particular industries and regions or on specific types of workers.

In most developed countries, the economically weakest regions and branches, for which few alternative economic opportunities seem to exist, face the greatest adjustment problems. The negative effects of adjustment lead to political pressures on the government for defensive policies, while the positive effects do not in the same way strengthen governments in the implementation of adjustment strategies. It should in any case be recognized that a market-induced structural adjustment process may intensify the concentration of a country's economic activities in particular regions and companies, and that the socially weakest groups (in terms of skills, income, sex and age) in the society may be severely affected. It may be observed that labour in many developed market economy countries shows concern and resistance to any further increase in the occupational and regional mobility of workers, as would be required by a market-induced adjustment process.

Finally, it should be noted that enterprises in some developed countries may face certain financial constraints in connection with major transitions to new processes, products, energy sources and environmental protection devices. There are indications that company adjustments, especially if unforeseen, involve high risks due to uncertain future development patterns, large investment outlays for research and development and plant and equipment, and long gestation periods. The prevailing financial system in many developed market economies may be strained as a result.

The costs and constraints related to structural change are obviously particularly high when the adjustment pressure is unforeseen and requires a quick response. An awareness of the causes, costs, constraints and social implications would be a pre-condition for an effective policy. An active adjustment policy, anticipatory in nature, would be necessary for limiting further social disparities and disruptions.

On the basis of the above considerations and the findings reported in chapters II and III, a number of issues for consideration by the Third General Conference of UNIDO were put forward by the secretariat in its official Note submitted to the Conference. Those issues, which are analysed in the following sections, should be seen in the context of the following guiding principles:

(a) A first principle would be the encouragement of increased redeployment from more advanced to less developed countries. To this end, developed countries would need to adopt a set of consistent government policies, affecting both internal and external resource allocations and trade flows and covering industrial structure, labour, trade and official development assistance. Aided by the international community, developing countries would have to remove obstacles preventing redeployment;

(b) A second principle is the acceptance of the long-term nature of the redeployment processes and a commitment of the various actors to corresponding policies and measures;

(c) A third principle is the necessity of establishing a pattern of mutual benefit and equity when formulating specific co-operation schemes. This also implies the pursuance of "fair" policies and practices by the actors in trade and commerce;

(d) Fourthly, the individual actors in the redeployment process must recognize the sovereignty of nations and the legitimacy of the pursuit of national objectives and priorities in accordance with the particular economic system of each country. This implies a clear statement of national objectives and policies, and close international consultations. There is thus a need not only for internal consistency in the policies of individual countries, as laid down in the first principle, but also for those policies to take into account the national requirements of the other co-operating countries, in order to achieve an international harmonization of policies.

Issues pertaining to developing countries

Basic principles

Foreign resources can only make an effective contribution to the industrialization of developing countries when the countries themselves determine why foreign involvement is desirable and what purposes it can serve. The association of foreign resources with domestic industrial change is thus to be derived from a development strategy and not vice versa. A strategy for enhancing industrial capability, in its turn, should be a consequence of development strategy; the former is required for the contribution it can make to the latter.

To enhance industrial capability implies far more than increasing the volume of industrial activity carried out on the national territory. It means strengthening the capacity of domestic economic agents to generate, and control the deployment of, the financial, technological, managerial and

legal inputs vital to the functioning of an industrial system. There is a need for a qualitative improvement and not simply a quantitative expansion. With greater internalization of the control over industrial development processes, a country acquires a stronger bargaining capability and is in a better position to initiate rather than merely respond to moves for industrial redeployment.

Contemporary experience of industrialization in developing countries indicates that redeployment of resources among two or more countries does not take place as a neutral flow among equal partners. In current circumstances many developing countries participate from a position of weakness for the following reasons:

(a) Inadequacies in their internal organization and evaluation of redeployment, due in part to a lack of information on alternatives and in part to insufficient experience in the operation of laws and institutions designed to improve the flow;

(b) A seriously biased international framework, the acceptance of which severely limits the range of actions a developing country can take if it is to remain within conventional bounds and distorts those measures which are permitted.

To improve present conditions therefore requires concentrating on both national and international issues.

Attention could be focussed on the following areas for action, guided by the need for developing countries to acquire the maximum degree of knowledge about and control over the industrialization process in their territories:

(a) The scope and activities of domestic institutions and policies affecting redeployment;

(b) Increasing the understanding and use of existing channels of resource flow and the number of agents and forms involved in resource flows;

(c) Altering the international superstructure in which redeployment negotiations take place;

(d) Measures to promote much greater co-operation among developing countries in redeployment, that is, to encourage intra-group redeployment;

(e) Acquiring knowledge about possible future shifts in the international industrial structure and long-term strategies and what they may imply for the industrialization of developing countries.

Action along the above lines would offer a basis for an improved assessment of which resources are needed, when they are required, from whom they should be obtained, in what ways they should be acquired, and how they can be deployed at home so as to ensure that future transactions (where necessary) can be undertaken from a still stronger position.

Domestic policies and institutions

Policy formulation is based on the country's overall development strategy and priorities. Two types of policy affect the redeployment process: those directed towards screening, evaluation and negotiation of the import and use of foreign resources; and those aimed at the promotion of resource inputs (usually confined to direct foreign investment) and the search for alternatives. An active and effective approach requires that both should be present in government policy. In practice, this is not often the case. Countries stressing promotion and the search for alternatives tend to be weaker on screening and evaluation, while those with strong institutions to filter and bargain individual project proposals often give less attention to seeking out numerous alternatives among which to choose. Developing countries could consider combining the most useful elements of each (evaluation and search) so as to improve their joint contribution.

The recent practice in developing countries has been to establish laws which define foreign investment and technology, which set out the broad conditions governing their import, and which designate institutions responsible for implementing those laws. Most promotional activities have been aimed at describing the advantages a particular country offers to foreign investors and indicating the main kinds of investment the country would welcome. Both policies, however, have been handicapped by several obstacles which are, to a considerable extent, within the capacity of individual developing countries to remove. In either case, as noted in the Summary report of the Seminar on Forms and Impacts of Redeployment of Industries to Developing Countries, "developing countries should ensure that their policies related to redeployment are clearly articulated, stable in content over time, as far as possible, and permit an effective administration".^{3/}

The fragmentation of what foreign resource suppliers handle as a single package limits substantially the capacity of a government to evaluate the total impact of any redeployment project. It is a commonplace to say that foreign direct investment (establishment of production facilities in a developing country) involves various assets, of which financial capital may be the least significant, and that it frequently imposes restrictions on the subsequent freedom of action of the recipient country. It is less sufficiently

^{3/} Summary report of the Seminar on Forms and Impacts of Redeployment of Industries to Developing Countries, Vienna, 20-21 September 1979 (ID/WG.315/11).

realized that cash loans, especially those associated with large industrial projects, likewise bundle together many aspects of the project and impose restrictive clauses. Hitherto, while specific elements of projects have frequently been examined in detail and negotiated improvements to them have been made, the totality of a project and its impact on the economy is less frequently assessed. Industrial redeployment, whatever form it takes, generates effects on economies which run well beyond the current period. If developing countries fail to evaluate the total impact, advantages gained in specific areas may be lost.

The clear formulation of industrial development objectives supported by machinery to implement them is essential if redeployment is to complement national industrial strategy rather than to dislocate it. The Summary report of the Seminar referred to above also noted that "developing countries should increase their endeavours to identify and assess prospects and establish priorities for industrialization and on this basis set out the areas in which redeployment possibilities - covering inter alia technology and financial transfers - would be sought".^{4/} The formulation of objectives is a process which depends for its success on the ability to re-evaluate the role which distinct types of industrial projects are playing in the light of changing internal and external conditions. More particularly, if the growth in internal command over industrial resources of all kinds is taken as an index of coherent expansion, then projects must be monitored and where necessary adapted in the light of progress towards widening and deepening the domestic resource control. The mix of projects which a country wants to initiate will also, then, be subject to continuous amendment as will the criteria according to which the projects should be assessed. If the process implies institutional change, it should be remembered that this often gives rise to conflict. Though it may be difficult to set up a new institution, it may be even harder to dismantle, or alter the functions of, an existing one.

Many developing countries are severely hampered by the absence of information and its corollary, the presence of misinformation. To gather information involves certain costs, especially when it is by no means evident what value to place on different items. As such, there is a prima facie case for co-operation among developing countries in this area. Yet many aspects of

^{4/} Ibid.

information gathering are still best dealt with by individual developing countries themselves. In bargaining for a technology, a developing country itself must seek out data on the circumstances and options of the moment. Knowledge about financial market opportunities is likely to depend heavily on individual country initiative. Where large projects are involved, countries must try to find their own ways of handling the market linkages for final projects, finance, technology and other resources; otherwise, they will be compelled to accept the resource packages offered by others. Wide-ranging pre-feasibility studies can be a way of searching out and indeed creating information of this type.

The scope of institutions and policies will not be identical across countries. What all developing countries can do, however, is organize their own direction of change and implement the decisions consistent with it. Redeployment covers a wide variety of economic agents and ways of utilizing foreign resources. With an appropriate domestic organization, that variety can be turned to advantage. Redeployment should not only comprise production capacities, but also technical, research and development, and marketing know-how.

Stimulating redeployment by a greater range of actors

The predominant type of industrial redeployment has been between enterprises in developing countries and large corporations (producers and financiers) in developed market economies. Other possibilities exist, however. Thus, the Seminar on Forms and Impacts of Redeployment of Industries to Developing Countries^{5/} noted that "particular attention should be given to the promotion of redeployment by small and medium-sized companies in developed countries. In this respect, developing countries should prepare and diffuse pertinent information to the companies concerned".

There are several reasons why developing countries may be able to improve the appropriateness of their industrial co-operation arrangements if they expand dealings with small and medium-size firms of developed market economies. Those firms are in general more inclined to engage in minority joint ventures than are the large enterprises; the technologies which they use may in many (though not all) cases be more suited to the needs of industry in developing countries or easier to adapt; the financial conditions attached to their

^{5/} Ibid.

participation are less likely to be covert (transfer pricing) than those coming from transnational corporations; their bargaining power is likely to be much closer to that of local enterprises than in the case of transnational corporations; and some of the firms operate as providers of industrial services, the supply of which helps developing countries to unravel the investment-technology package.

At the same time, there are certain obstacles to the expansion of co-operation with those firms. Their very smallness suggests they are likely to rate the risks of foreign activity more highly than are transnational corporations. Given that the latter have dominated the redeployment process, the laws and institutions currently in operation in developing countries probably create some disincentives for the smaller enterprises, the pattern of behaviour of which are not the same as those of the transnational corporations, and which are far less adequately equipped to deal with administrative procedures. Moreover, international organizations, especially those responsible for project financing, have been far less inclined to encourage the involvement of medium and small firms from developed market economies in their industrial co-operation schemes with developing countries. Small and medium-sized firms also generally lack the international marketing organization which under the given conditions is crucial for exporting from developed market economies. In short, the whole emphasis of the current system towards bigness and how to cope with it places the smaller firms at a disadvantage. To a considerable extent, developing countries alone cannot alter the current pattern. What they can do is start to build networks of information with associations of smaller enterprises in developed market economies, and build into their evaluation of alternatives the advantages in terms of internal market structure that could be harvested from encouraging dealings with smaller foreign enterprises. The relative importance of such firms is likely to be greater in smaller developed market economies which, on the whole, are less important investors in developing countries. A move towards smaller enterprises could thus at the same time be a move towards diversifying sources of foreign involvement.

Given the limited information at present available on both current possibilities and past experiences, it may be necessary for developing countries to orient several of their specific promotional measures towards smaller enterprises. In particular, financial arrangements, such as co-investment

funds, could use their leverage to encourage involvement of smaller firms, while it may be possible to offer similar support to domestic enterprises engaging in joint ventures with such firms. Information should be as concrete as possible, with the accent on specific requirements of the enterprises in developing countries for external co-operation. The reason is that the small and medium-size firms are much less likely to be attracted by general considerations of market size, overall economic policy of the domestic government, and similar factors normally of considerable weight in arrangements involving transnational corporations. Moreover, as a fair proportion of the companies may be entering ventures in developing countries for the first time it is possible that their experience in handling such activities is no greater than that of local firms.

Co-operation with developed centrally planned economy countries

A greater exploration of co-operation possibilities with centrally planned economy countries is needed. The planned nature of those economies suggests that they should be able to provide detailed information on the availability of equipment, priority areas of industrial expansion (in general, the technologically advanced, high-efficiency branches) and expected involvement in foreign markets. The bilateral arrangements which characterize trade and payments with a centrally planned economy also have the advantage for developing countries that, through the mechanics of co-operation contracts, financing provisions can be incorporated into the agreement, thereby helping to alleviate foreign currency repayment problems. Thus far, insufficient attention has been given to devising ways of expanding the contribution of industrial resources from centrally planned economies to developing countries, and greater efforts should be devoted to this question. The long-term planning system of centrally planned economies should facilitate their active participation in the redeployment process. If any kind of production is foregone for the sake of a developing country, full guarantees would need to be given by both the enterprises and the government concerned that demand for the goods will be covered, in due time, with good quality and at an appropriate price. This can be done through bilateral agreements between the governments and enterprises involved.

Less advanced developing countries

The present framework may have a more serious impact on the less industrialized and smaller of the developing countries. Their individual bargaining power is not so great, and they are less able to twist the rules in their favour. For them, it is important that the minimum procedures provide them with some protection and above all with some institutional resource in terms of the provision of economic, technical and legal information. For this reason, the current negotiations on transnational corporations and technology (involving the revision of the Paris Convention on Intellectual Property and the Code of Conduct), and the UNIDO industrial consultations cannot be allowed to remain simply educational exercises. While there is more awareness of problems now than there was at the beginning of the decade, awareness is an asset which needs to be replenished and utilized. Permanent machinery must be created which developing countries themselves can develop and use to strengthen their bargaining power and, above all, to drive home the fact that redeployment is a two-way process embracing much more than the maintenance of a good investment climate by the recipient countries. The developing countries must have the means whereby the assets supplied to them can be used for their social advantage. If it can be shown that particular redeployment projects are not in the interests of developing countries but are in the interests of industrial country suppliers, it is the business of the international community, wedded as it is to the concept of a New International Economic Order, to protect the interests of the former.

Co-operation among developing countries

The build-up of industry in developing countries has generated some of the technical conditions through which redeployment among them is now taking place and can expand significantly in the future. A broad sharing of aspirations regarding future paths of industrial change, and a certain complementarity of resources and needs, in turn offer the political and economic incentives to pursue redeployment among developing countries. The existence of such conditions is one thing, but the detailed identification of the assets required for industrialization which could form the basis of co-operation, the purposes of co-operation, the methods which could be used, and the nature of the benefits derived, are another. There is an urgent need to examine those issues, and developing countries may wish to consider through what channels, including international organizations, such an examination could be undertaken. Regional

co-operation arrangements such as the Association of South-East Asian Nations (on which a study is currently being undertaken by UNIDO) should pay attention to this form of redeployment.

The following assets are currently available in some developing countries: the technical and administrative experience with which to handle foreign resource inputs; the capacity to produce capital goods and provide industrial services, particularly skills; the finance to support new projects; and raw materials critical to many industrial processes. The distribution within countries and among them, however, is extremely uneven, so that only in a few instances can a single developing country muster all the assets it needs from its own supplies. The problem, then, is how to organize co-operative projects of a kind where not merely the monetary benefits are distributed in an acceptable way, but where, much more significantly, a skilled industrial workforce is created in all the participating countries. Co-operative arrangements among developing countries should focus on programmes and projects designed to promote the growth of local skills. Systematic exploration of the prospects for increasing existing arrangements both on the enterprise-to-enterprise and on the government-to-government level, and an evaluation of the benefits from them and obstacles to them, have yet to take place in a significant way. Consequently, little is known about the steps that might be taken to increase the co-operative projects. Given that some of the schemes in operation appear to have generated good results, a clarification of what is preventing further schemes from being initiated more rapidly is needed.

The most direct benefit from expanding co-operation among developing countries is that the density and transparency of markets for key industrial assets will be increased, thereby facilitating the process of redeployment from industrial countries. But more important is the growth of the individual and collective self-reliance of the developing countries that can strengthen their internal control over the industrialization process. Redeployment cannot be treated as a goal but only as a way of promoting a qualitative improvement in industrialization in developing countries. The stronger developing countries become, both individually and collectively, the greater the chances that redeployment will take place in an appropriate context.

Information on future structural changes

Redeployment is a continuous process which frequently creates opportunities, but also generates costs. Developing countries need regular information about probable shifts in at least four aspects of the process: sectors and activities where industrial countries are planning to reduce their local production; new technologies and products which may be introduced in industrial countries and are likely to affect industrialization patterns in developing countries; changes in demand configurations and resource requirements in industrial countries; and expected developments in the strategies of the main actors. Hitherto, developing countries have played a mainly passive, rather than active, role in the redeployment process. As a result, the types of industrial activity located on their territories have not always suited local needs, and changes in those activities have occurred at times and in ways more advantageous to the economic agents of industrial countries than to the local economy. This is an aspect of the relationship between the more powerful and the less powerful entities in the world system; the latter are treated as the object of examination rather than the subject of change. The process of strengthening the participation of developing countries requires that developing countries should begin to observe and study the patterns of change within industrial countries, so as to be better able to cope with adverse changes and to take advantage of favourable ones.

The information requirements cannot be met without some commitment of resources to gathering, analysing and disseminating the information, possibly with the assistance of support groups able to show how the information can be put to use in specific countries and circumstances. Developing countries may wish to consider the most adequate ways of handling those requirements, drawing on existing resources within developing countries themselves, within international organizations, and in non-governmental bodies located in the industrialized countries. The range of support which might be forthcoming for such endeavours is potentially quite wide, since the groups affected by future shifts include substantial segments of the labour force in industrialized countries.

Further action by developing countries

In the Seminar on Forms and Impacts of Redeployment of Industries to Developing Countries held in Vienna from 20 to 21 September 1979, the following proposals were made for action by developing countries:

(a) Developing countries should ensure that their policies related to redeployment are clearly formulated, stable in content over time (as far as possible), and can be effectively administered. Special attention should be given to promotional measures, including measures by private and semi-private institutions, and to the promotion of redeployment by small and medium-sized companies in developed countries. In this respect, developing countries should prepare and diffuse relevant information to the companies concerned;

(b) Developing countries should investigate more thoroughly the prospects for industrialization, establish the necessary priorities, and determine the areas in which redeployment, covering inter alia technology and financial transfers, would be sought;

(c) Developing countries would need systematically to examine tariff and non-tariff barriers in developed countries affecting, in particular, the industries identified as having a redeployment potential;

(d) Developing countries should provide preferential treatment and incentives to foster redeployment among developing countries.

Issues pertaining to developed countries

Adjustment policies

Structural adjustment in industrialized countries would be significantly facilitated first of all by timely recognition and prospective analyses of the restructuring process by the actors, gaining, on a continuing basis, deeper insights into its changing nature, determinants, course, pace and implications. Secondly, it would be essential to analyse and evaluate rigidities and constraints that social, economic, security and other considerations represent for the actors in the restructuring of industry. Thirdly, there would be an obvious need for individual countries to determine their broad course of action, their long-term development objectives and strategies on the basis of likely scenarios. In that connection, the recognition of possible internal and external conflicts of interest would be of great importance. Finally, it would be necessary to conceive and apply consistent government policies and financial and institutional measures in order to facilitate and support the actual restructuring of production at the company level.

Four of the five above-mentioned requirements may be seen as a system of anticipatory adjustment measures that can be grouped in the following two categories: analytical instruments; and policies and measures to facilitate the reallocation of resources, including active employment policies.

The two sets of measures should be seen in the light of a number of possible steps to support industrial redeployment to developing countries. The specific economic system prevailing in a particular country will also be a decisive factor in considering the precise scope and context of a set of adjust-

ment measures. For most developed market economy countries, anticipatory structural policies could not be interpreted to cover structural planning by the Government or the issuance of official, possible self-fulfilling, prophecies, for instance through a rating of the performance of companies. Similarly, the Governments of most of those countries would hardly be in the position to engage, on a regular basis, in direct enterprise decisions or to guarantee the demand for specific products over extended periods. Centrally planned economy countries, on the other hand, would seem to be institutionally equipped more directly and systematically to guide the restructuring process within the framework of their national plans, although various other constraints as to the timing of the reallocation of resources, securing supplies etc. may exist.

The establishment of analytical instruments

As a basis for the formulation of anticipatory policies, analytical research and prospective analyses of structural changes would need to be undertaken in the individual developed countries on a continuous basis. This entails an assessment of the effects of the various determinants of structural change in industry and regular surveillance at national level of trends in industrial subsectors relating to the development of technology, final demand and international trade. It should be stressed that such research would not be directly concerned with prospects or market analyses of individual enterprises. It would focus on an assessment of major trends in the development of structural determinants. In addition to estimating market-induced trends, considerable attention would need to be given to normative indications. This implies that the policy-maker would attempt to formulate structure preferences. Indications of trends in government expenditure, actions affecting the consumption pattern, directions of public research and development (R and D) programmes, international industrial co-operation agreements etc. would be essential inputs into the analytical system.

An integral part of a structural surveillance scheme would be the regular dissemination of the findings to government, industry and labour organizations and the other actors mentioned previously, with the provision that the decision-makers should take full account of the relevant information. The information should be seen as particularly useful to the government in the assessment of the consistency and the effects of policies and actions. Companies would be able to use the information in formulating their adjustment decisions.

In some developed countries structural surveillance schemes have been recently established. In the Federal Republic of Germany, for instance, a reporting system on structural change was initiated by the government. It involves analytical work on recent structural changes by five independent economic research institutes and reporting on the findings to the Ministry of Economic Affairs.

A more elaborate surveillance scheme for servicing the decision-makers in government, industry and labour organizations would imply the use of a system of indicators relating to developments of particular relevance for specific industrial sectors. The most important indicators would be, cost-benefit calculations of protection, import penetration ratios, export ratios, actual and expected changes in prices and the supply of necessary raw materials, major technological breakthroughs and investments in the relevant export-oriented branches in low-cost countries. Based on such a set of indicators, an "early warning system" could be established that would facilitate timely responses by decision-makers to crucial developments. The system would require monitoring the set of indicators and projection of selected variables (output and employment) for a number of industrial branches.

Since most of the determinants of structural change have an international dimension, it would seem important to establish an international exchange of relevant data on the determinants. The developed centrally planned economy countries would obviously need to participate in the exchange by periodically disseminating to the international community relevant aspects of their specialization and co-operation plans.

Policies and measures facilitating resource reallocation

Rather than subsidizing ailing industries through protectionism, which, as chapter III and the country studies show, is counterproductive in the long run, and "exporting" adjustment needs to trading partners, a range of policies and measures would need to be established to ensure, on the one hand, adjustment through timely reallocation of resources in the domestic economic structure, and, on the other, the redeployment of certain industrial capacities to developing countries.

Structural adjustment policies for the domestic economy should be regarded basically as a means of restoring the viability of the industrial sector by helping economic units to change to other processes, products or locations,

as called for by changing parameters. The role of the Government in a market economy country would thus be to induce and support enterprises in undertaking the adjustment, and to ensure that social costs are minimized and national socio-economic considerations accounted for.

In applying policies, the following distinction might be made between various economic agents according to their ability to act and adapt: those which adapt themselves in any case; those which can no longer be adapted; and those which have prospects but require guidance or support for adaptation. Specific measures should obviously be directed towards the last category, whereas a more general policy framework would normally suffice for the first category. A major goal would be to assist enterprises in developing product differentiation leading to a larger intra-industry trade.

Various measures are already being, or may be, applied in individual developed market economies to support domestic adjustment by facilitating skill developments, the mobility of manpower, and the development and application of new technologies. Among such measures, the establishment of national or regional funds for financing adjustment has been seen by a number of governments as an appropriate instrument to supplement market mechanisms. Special research and development institutions have also gained importance. In one European country (Belgium), for instance, a national investment company was set up to assist in carrying out the required restructuring by providing managerial services on a temporary basis to companies facing serious structural problems. In another country (the United States of America), the advice and assistance rendered to companies are reported to cover, besides management, also technology, in particular production innovation, marketing and other related services.

The structural adjustment funds in operation in various countries are primarily aimed at providing financial means for company restructuring programmes. In some cases, an attempt has been made to create close links through the fund between domestic policies and development co-operation. The use of the fund would include provisions in this respect, requiring, for instance, a large set of pre-conditions to be met before a project can receive financial support. However, excessively complicated procedures occasionally seem to hamper the full use of the fund.

It has therefore been suggested that the fund should be administered jointly by the authorities responsible for industrial policies and by development co-operation agencies. Such an arrangement may contribute to attaining policy consistency. In any case, there seems to be a consensus that such a fund should be used for restructuring purposes in general, and not exclusively for those structural changes which can be proven to be originating from increased trade with developing countries.

The purpose here is not to suggest any specific additional policy instruments to be superimposed on the already prevailing policy mix, but to advocate that this mix be rationalized or improved where necessary by taking into account the requirements of a better international redeployment of industries. Thus, for example, where production factor markets are distorted through either policy or structural rigidities, the adjustment policy should aim at reducing such distortions. In addition, it should also contribute to improving the structure of incentives in such a way as to encourage the industries or branches of industries which can make a positive contribution both nationally and internationally. A crucial element is that such a policy should have an anticipatory element so that the selective use of incentives and disincentives would not only be appropriate, but also timely.

A regular exchange of experience and reporting on adjustment policies in individual developed countries and an analysis of their domestic and international implications, as well as their consistency with other policies and measures, would need to be undertaken at national and international levels. To this end, suitable institutional arrangements should be devised.

Due to adjustment constraints for social, security and supply reasons, a government may decide during a certain transition period to delay restructuring and to exempt specific manufacturing activities or locations from a further rationalization that would be required by technology and trade developments. Such a decision would need to be based on an analysis of the economic consequences not only for the country itself but also for its trade partners, so as to avoid a mere shift of possible disruptions. An official statement regarding the characteristics, timing and implications of such a policy, together with appropriate compensation for possible losses to developing countries would be needed.

In pursuing co-operation among international industries in the increasingly internationalized activities of production and commerce, autonomous actions by individual governments should be limited so as to prevent international disruption, trade-diverting effects, and especially stagnation in the development processes of developing countries. International co-ordination is therefore needed.

Developed, centrally planned economy countries have both the means and the experience of long-term planning as a basis for co-operation. However, an increasing contribution to the process of change in the international division of labour would mean that greater attention should be paid to the industrial development aspirations and requirements of developing countries in the national development plans of centrally planned economy countries, in which industrial expansion remains the dominant concern (in contrast to the growing preponderance of the service sector in developed market economies). Hence industrial co-operation, covering resource transfers, the provision of skills etc. and imports of the manufactures of developing countries, should play an increasing role in the long-term industrial strategies and plans of the industrialized countries in question. In the industrial specialization process of centrally planned economy countries, a direct linkage would thus be established with individual or groups of developing countries.

It would therefore seem essential to analyse long-term expectations for increased and diversifying co-operation between centrally planned countries of Eastern Europe and developing countries. The principal pattern of trade between those countries has been characterized in recent years by a high proportion of capital goods and intermediate products being imported by developing countries, whereas primary products and raw materials accounted for over 80 per cent of their exports to Eastern European countries. This traditional pattern seems to be undergoing changes to accommodate the long-term gradual industrialization process of developing countries, and new diversified patterns should evolve on the basis of mutual interest and commitment. To this end, it would be necessary jointly to identify those changes of a long-term nature.

Employment

A particular important element of the industrial restructuring process in developed market economies is the attempt to maintain full employment. Rapid technological development related to industrial products and production processes leads to an ever-increasing productivity of labour. Indeed, productivity increases have, especially in the last 10-15 years, been very dramatic, as the

country studies have repeatedly shown. Low overall growth and stagnating demand for manufactured products have led to rising unemployment, with its attendant financial and social problems. It is not evenly distributed over the whole of the working population; the unskilled, the young and women are particularly affected. Hence there is a need for national policies dealing with the unemployment problem in the context of a general adjustment of individual economies to changes in the world economy. In the preceding pages reference has already been made to increasing the adaptability and mobility of production factors. Certain more specific issues relating to employment will now be dealt with. More detailed information about employment will be found in chapter III.

Reorienting employment

First of all, mention should be made of measures that may contribute, in particular, to increasing timely labour absorption in new manufacturing activities. Several countries have indeed established retraining schemes for adapting labour to changing requirements (see chapter III). The close tying-in of such schemes with the above-mentioned early warning system should be considered. For the long-term adaptation of the labour force, it would be necessary at national level to identify the changing qualification requirements, and on that basis possibly to reorient the educational and training systems of the country.

Another potential sector for employment generation in the restructuring process is the services sector. The possibilities of increased employment in that sector should be considered. Services could be divided into the following three categories: consumer services which satisfy final demand; industry services which satisfy the demand of industrial principals or which are connected with industrial production sectors; and government services which cover both intermediate and final demand. Income elasticity of demand for consumer services is generally high, particularly for those services that are connected with increased leisure and various other personal services. However, it is quite likely that both increasing labour costs and high marginal rates of income tax on potential suppliers of services may constrain final demand. Hence, if those services are to be expanded, and there would seem to be significant potential demand for various services, appropriate government incentives would be needed for stimulating actual demand and supply.

Industrial services, mainly research, design, production innovation and sub-contracting, and the activities of marketing and consulting organizations, are likely to increase significantly in developed market economies. The increase will probably affect the actual services sector to only a limited extent, since most of the industrial services seem likely to be incorporated into manufacturing companies. Thus, the industrial products will have a higher content of services. Industrial services tend to require special qualifications that differ from actual manufacturing skills. An adequate and flexible educational system to meet changing requirements is therefore needed. The role of government would thus mainly lie in manpower and educational policies and measures and in a change in investment policies, covering both material and non-material investments.

The provision of public services by the government is an important determinant of the quality of life, or even living standards, in any society. A priori, the volume of employment in such services is most amenable to policy intervention simply because it is possible for governments to act directly through changes in the level and in the composition of public expenditure. However, in times of low overall economic growth, as at present, the Governments of industrialized countries are seeking to cut rather than increase public expenditure. In the short run, therefore, labour absorption in public sector services is likely to be small, unless new forms of financing, organizing and rendering those services can be conceived and implemented. In the long run, public services could in any case well be an important element in the adjustment process.

Reducing the labour supply

Population trends indicate that a decrease in the labour supply in Europe will become evident in the mid-1990s. Even now those developments should be duly taken into account. However, demand-oriented employment policies may temporarily have to be supplemented by a gradual reduction in the labour supply, which might partly compensate for the likely decline in demand for industrial labour and at the same time enable a more equitable distribution of employment. In recent years, discussions in a number of developed market economy countries have focussed on the possibilities of gradually reducing labour supply by regulating working times, longer vacations, part-time jobs etc. or of introducing expanded educational and training schemes. The latter possibility could also be seen as helping to meet the qualification requirements of the industrial restructuring process.

Further measures

These could include the following:

(a) A reduction of the working life by a delay in entry into the labour force or through earlier retirement;

(b) Work-sharing arrangements;

(c) Reducing the social cost of unemployment by discriminatory measures in favour of disadvantaged groups and regions;

(d) Due attention may also be given to reducing the opportunity costs of unemployment through increased basic unemployment benefits, better pension provisions (including earnings-related pensions), eligibility of the part-time employed to fuller pension rights etc. All these imply a willingness and the ability on the part of the State to finance such provisions, which again underlines the importance of the necessity to maintain a high level of economic activity, together with price and balance of payments stability.

It is clear that several of the above-mentioned measures require a re-valuation of the concept of leisure in relation to income. The better use of leisure may imply some investment by the economy in adult education, re-education etc., and provision of overhead social capital. The pattern of leisure use itself will have an effect on the overall employment situation through increased consumption of products such as: traded or non-traded (through foreign travel) labour-intensive commodities from developing countries; relatively labour-intensive products in developed countries; products of service industries; and capital-intensive durable consumer goods.

Workers participation

An essential aspect of the restructuring process is the need for a greater involvement of the labour force in the national and international decision-making process. This implies that labour organizations would participate in information gathering and dissemination, in discussions at the international levels and in decision-making relating to redeployment. The expected continuation of the present rapid pace of technological development and the changes in the traditional characteristics of branches, industrial processes, locations, comparative advantages, the position of manufacturing versus services etc. will have particular implications for the labour force and should therefore be reviewed jointly with the labour organizations.

Public support for redeployment to developing countries

In order to facilitate redeployment of industries to developing countries, it would seem essential that public support in developed countries should be provided to individual industrial companies. This would enable primarily small and medium-sized industrial companies, which do not possess the required experience and resources for initiating and carrying out on their own a transfer of investible resources, know-how etc. to developing countries, to become involved in industrial co-operation.

Small and medium-sized companies play a major role in the industrial sector in developed market economy countries. From various UNIDO surveys^{6/} it was also found that those companies indeed have significant potential for redeploying certain resources or activities to developing countries, but that various constraints in many cases hamper the actual realization of their potential.

In order to enhance the co-operation between small and medium sized industrial companies and developing countries, public support would be needed in the fields of finance, pre-investment studies, information on and contact with potential partners, packaging and supplementing of resources etc. A number of proposals for generally facilitating capital and technology transfers to developing countries, such as proposals for suitable credit and investment guarantee systems, have been put forward in the report on the Joint Study on International Co-operation.^{7/} Only a few of the specific issues can be mentioned here.

National industrialization funds for developing countries

A suitable form of official support to industrial redeployment, possibly directed primarily to the less advanced of the developing countries, might be the establishment in individual developed countries of a public fund for equity investment in developing countries. Such a fund would permit further investible resources to be borrowed on the capital market and could also pre-finance relevant market and pre-investment studies in developing countries. Another essential function would be to acquire and provide information on the potential partner and the host country in general to the interested company. The fund could be used to encourage industrial redeployment by providing the initial momentum that would enable interested entrepreneurs in developed countries

^{6/} See list of studies in the annex.

^{7/} Industry 2000 - New Perspectives (ID/CONF.4/3, ID/237).

to obtain essential data, establish contact with the authorities in developing countries, secure assistance in the preparation of pre-investment studies, and enter into a financial commitment with the backing of the public fund. It would thus seem possible to combine the efforts of the entrepreneur and the resources of the public fund, on the one hand, with the local resources of the particular developing country on the other. The fund would be able to reduce the risks of the partners, and above all it would secure refinancing. It would also be possible to couple certain government controls and guarantees with the provision of capital to an investment project. In any case, a close scrutiny of the individual investment projects would be undertaken by the official fund agency to ensure that the project meets the basic criteria for which the fund was designed, and which would account for national economic benefits and costs for the host country. A similar proposal was put forward in Industry 2000 - New Perspectives, which outlined a trilateral industrial co-operation model with non-transnational corporations and defined the roles to be assumed by the host and home countries as well as by an international organization such as UNIDO.^{8/}

It would be crucial to define the ultimate beneficiary of the fund's resources and services. The fund should be designed to assist medium- and small-scale industrial companies only, and be directed primarily to the less advanced of the developing countries. To this end, special terms may be considered for the least developed countries. Another possibility would be to direct the funds to a particular region of developing countries.

Funds similar to the type described are already operating in several developed countries.^{9/} These funds are typically designed to act as a catalyst for the establishment of new ventures in developing countries. This is done through participation with share capital in joint ventures, loan grants and financing of pre-investment studies.

^{8/} Ibid., chapter 6.5.2, and a paper prepared for UNIDO by L. Hoffmann and H. Sanders, "Industrial co-operation in the field of small and medium-scale private foreign direct investment in low-income developing countries", Vienna 1979.

^{9/} Some of the funds are: The Industrialization Fund for Developing Countries, Denmark; the Netherlands Finance Company for Developing Countries; the German Company for Economic Co-operation, Federal Republic of Germany; the Swedish Fund for Industrial Co-operation with Developing Countries; the Commonwealth Development Corporation, United Kingdom of Great Britain and Northern Ireland; the Overseas Private Investment Corporation, United States of America; the loan arrangement for the development of the economy of developing countries, Norway; the Belgian Investment Corporation; the Overseas Economic Co-operation Fund, Japan; the Pacific Islands Industrial Development Scheme, New Zealand.

There are indications that such funds engaging in equity investment in developing countries might encounter difficulties in providing sufficient staff for the control function required by shareholders. Consideration might therefore be given to entrusting an international or regional institution with this function on behalf of the bilateral fund.

Within the European Economic Community (EEC) the Industrial Development Centre was set up to assist in establishing industrial co-operation between African, Caribbean and Pacific States in association with the EEC and companies within the Community. The main functions of the Centre are to provide information related to industry, finance and technology, to assist in the search for partners and in the establishing of contacts, to prepare pre-investment studies and to assist in contractual negotiations.

With the increasing number of bilateral, regional and international funds, it would seem appropriate to establish an international forum for more systematically reviewing and providing information on established funds and for exchanging experience among agencies of the funds. It can also be proposed in this context that the fund organizations should co-ordinate their work with UNIDO activities in this area so as to make possible a mutual utilization of information on redeployment opportunities and potentially interested partners in developed and developing countries. Such close linkages may substantially widen the scope for enterprise co-operation.

Official development assistance

Official bilateral assistance may be seen as a further essential form of official support to redeployment of industries. By increasingly directing bilateral assistance towards long-term industrial co-operation, it would be possible jointly with the developing country concerned, to supplement project-bound enterprise resource flows, for instance, by providing training and finance for an appropriate physical infrastructure in the developing country. Further areas of assistance could be, inter alia, the administrative infrastructure, building up management and engineering consultancy capabilities, and creating the basis for linking the agricultural and industrial sectors.

It can be expected that particularly for less advanced developing countries, programme-oriented official development assistance might supplement and catalyse enterprise co-operation if directed primarily to the special conditions of that group of countries and to small- and medium-sized enterprises, and if

the development assistance contains a minimum of specifications. Further study should be conducted on how such a packaging of co-operation measures might be arranged for different groups of developing countries without increasing tied aid.

Access to markets and marketing assistance

A basic requirement for the redeployment process is that developed countries ensure access to their markets for manufactures from the redeployed capacities in developing countries, especially if the transfer of capacity was conceived as mainly export-oriented industry for the original markets. It should be re-emphasized that, in relation to the consumption and total manufactured imports of developed countries, the manufactured imports from developing countries are extremely limited. The share of manufactured imports from developing countries in total manufactured imports of members of the Organization for Economic Co-operation and Development (OECD) was 9.7 per cent in 1977, and in those of European OECD members only 6.2 per cent (see also the section dealing with foreign trade patterns in chapter III). There is indeed significant scope for increasing those imports. In 1977, for example, manufactured exports from European OECD countries were 4.3 times higher than the corresponding imports.

However, small- and medium-sized companies in most developing countries, and in particular in the least developed group, tend to lack the experience, information and contacts to be able to utilize potential markets for their products in industrialized countries. Besides eliminating the market entry barriers and granting concessional access, it would be important for developed countries to provide assistance to developing country enterprises for marketing the products and for gaining access to distribution systems. To this end, in individual developed market economy countries a special marketing office could be set up to advise and assist developing countries (in particular the least developed of the developing countries) regarding market access for their manufactured products, especially those that emerge from an officially supported redeployment project. On request by a developing country, the office would carry out market research and provide information on regulations concerning market access, consumer tastes, various safety rules, feedback for adapting products of developing countries etc. The office should also be directly linked with the bilateral technical assistance programme of the country concerned. Consideration might be given to an international co-ordination and exchange of experience of such agencies under the auspices of the International

Trade Centre. In several developed countries, agencies of this kind, such as the Import Promotion Office for Products from Developing Countries in Sweden, are already operating.

Given the important role governments also play in regulating the flow of resources and commodities between market economy countries and in creating the policy framework for industrial and labour market development in individual countries, government co-operation agreements between developed and developing countries might be an effective means to ensure that resource and commodity flows between industrialized and developing countries are combined and based on long-term considerations. Government co-operation agreements would also contribute to minimizing international uncertainties for the two countries concerned. Guidelines could be laid down for the design of government framework agreements and their adaptation to the specific requirements of industrial co-operation between developed market economy countries and developing countries. In this respect, it may be possible to benefit by the experience gained in East-West co-operation and in the co-operation between developed centrally planned economy countries and developing countries. Specific measures for ensuring market access, such as buy-back arrangements and bilateral production sharing, could also be considered.

Issues pertaining to international action

Most of the crucial issues connected with restructuring and redeployment of industries directly concern individual countries or groups of countries, their governments, institutions and industrial companies. However, in the current process of increased internationalization of industrial production, there is also a growing need for international action to ensure that restructuring proceeds in a consistent and non-disruptive manner for all countries. Such action may include the following measures: the compilation and exchange of relevant information on the course of and constraints to industrial redeployment; the use of intermediaries between national decision-makers; and the setting-up of an international forum which may partially transcend the authority of individual states. Proposals along those lines are put forward below for consideration by the international community.

Analysing and reporting on the industrial restructuring process

In order to obtain an overall view of current and expected changes in the international division of labour, and to provide regular information to decision-makers in developed and developing countries, it is essential to institutionalize the preparation of prospective analyses on structural changes and the dissemination of findings at international level. To this end, UNIDO should continue its studies on restructuring in close consultation and co-operation with other international and national bodies. Those studies would cover the five inter-related elements listed in the introduction to this study.

In the recent Seminar on Forms and Impacts of Redeployment of Industries to Developing Countries,^{10/} it was recommended that UNIDO should devote particular attention to the following matters:

- (a) Examination and identification of structural changes in industrial sectors in developed countries on a continuous basis, including the study of an early warning system;
- (b) Identification and compilation of specific redeployment capabilities and preparation and publication of information relating to such capabilities;
- (c) Review and monitoring of structural changes, resource transfers and major constraints, including changes in tariff and non-tariff barriers specifically relating to redeployment, through studies and the development of appropriate indicators of structural change and redeployment, with regular reporting of findings to the Industrial Development Board and the international community;
- (d) Analyses and review of the requirements, conditions and institutional arrangements for promoting redeployment.

In carrying out its tasks, UNIDO would ensure the consolidation and dissemination of the studies on a regular basis to decision-makers in developed and developing countries.

Redeployment services

As previously mentioned, there is a considerable need at company level - especially in small and medium-sized enterprises - in developed countries for up-to-date information on plans, investment priorities and policies in developing countries and for guidance and assistance in establishing contact with potential redeployment partners. Similarly, companies, development corporations and other entities in developing countries appear to lack information on potential partners in industrialized countries and on alternative sources for technology, know-how, management and investible resources. It has already been

^{10/}"Summary report", op. cit.

suggested that efforts should be made by developed and developing countries at national level to collect and disseminate such information and to facilitate the actual redeployment process. While it would admittedly be at the level of individual countries that the major efforts would need to be undertaken, there is nevertheless significant scope for international action in this field as well. In fact, experience in the UNIDO secretariat shows that an international exchange of information on co-operation opportunities can play an essential role in fostering enterprise co-operation. The international measures would thus significantly supplement national action in the more advanced of the developing countries. Similarly, information on potential redeployment from developed countries (market and centrally planned economies) and from the more advanced of the developing countries would be disseminated to developing countries. In view of the complexity of the task, it is understood that UNIDO would rely to a large extent on the activities of corresponding national bodies such as the proposed national industrialization funds, the UNIDO investment centres and other industrial and commercial entities in developed market economy countries.

In UNIDO, the Investment Co-operative Programme Office and the Technology Group are at present engaged as contact brokers between interested parties in developed and developing countries. Due consideration should be given to the possibility of further expanding those activities. Such an expansion would imply that information on development plans, envisaged investment projects, technology requirements and relevant regulations and conditions in individual developing countries should be collected and passed on to potential partners in developed countries, including both market and centrally planned economies. In centrally planned economy countries, the chambers of commerce may be one of the major contact points. In developing countries, the investment boards, development corporations or planning authorities could serve the purpose.

It is expected that the gradual building-up of an informal information network could greatly enhance international industrial co-operation. The proposed expansion of UNIDO activities in this field may serve as a central point for the various bilateral redeployment institutions and funds. Those activities might also contribute to the initiation and realization of trilateral co-operation agreements involving more than one developed market economy or centrally planned economy.

Consultations

The continuous non-disruptive process of international restructuring of industrial production would, for economic, social and political reasons, require an institutional arrangement of regular consultations between the partners in development. The UNIDO system of consultations (see document ID/CONF.4/6) should be gradually expanded so as to assume responsibility for this function. The system of consultations could provide a forum for an international exchange of views and information on the gradual restructuring of world industrial production, thereby helping to concentrate the attention of the actors on the long-term nature of restructuring. It is therefore essential not to confine the consultations to a sectoral approach, but to add a broader dimension.

Reconciliation

It cannot be ruled out that individual developed countries, for social and political reasons, may wish to halt or delay the restructuring of their industries so as to safeguard domestic employment and production in specific industries or regions. Contrary to the basic requirements of an internationally non-disruptive restructuring process, a country may therefore seek to impose policies which restrict imports from developing countries.

The unexpected imposition of trade barriers may have a serious impact on exporting developing countries. Because it is especially difficult for companies, with the exception of transnational corporations, to re-direct exports or diversify production, major disruptions in sales and in foreign exchange earnings are likely to occur. In a situation characterized by a fragile industrial structure, balance of payments difficulties and a heavy debt burden, a reduction in exports may cause severe disruptions for the economy as a whole.

A further consequence of the closure of export markets is the discouragement of foreign investment in the developing countries concerned. In the redeployment surveys of developed countries, companies indicated that uncertainty about policies concerning reimports of redeployed products was one obstacle to proceeding with the redeployment process.

There is a need for international co-operation with a view to preventing, limiting or, as a last resort, compensating for possible disruptions of the economic life of developing countries affected by protective measures. Such co-operation would involve an assessment of the costs to those countries

and the implications, direct and indirect, of the envisaged protective measures. The duration and objectives of the measures would also need to be examined. Consideration should therefore be given to the establishment of an appropriate forum for co-operation along those lines, preferably within an existing international organization.

II. STRUCTURAL CHANGES IN DEVELOPING COUNTRIES

Introduction

The aim of this chapter is to present a brief description of the industrial development plans of some developing countries. The emphasis is thus on possible future restructuring of their industry rather than on the impacts of past re-deployment. The information available is by no means as detailed as is desirable, but the material presented does give an overview of sector priorities, project plans and possible foreign resource requirements in the coming years.^{11/} The secretariat will present more detailed information in a series of working papers on industrial restructuring in developing countries which will be published subsequently.

The second section of the chapter summarizes, in highly condensed form, various implications of the Lima target. The third section looks at some priorities relating especially to the more industrialized of the developing countries, and section 4 presents statistical material on major industrial sectors. In section 5 recent data on industrial restructuring among developing countries is summarized, and section 6 considers, again very briefly, the possible strategic objectives of some of the main actors in the restructuring process in developing countries. The last section deals with some of the possible issues for consideration by developing countries in the light of their industrialization aims and the availability of domestic and foreign resources.

Implications of the Lima target

The broad implications of the Lima target have been set out in the UNIDO Industrial Development Survey,^{12/} which indicates that the achievement of the target with regard to manufactured value added would imply an annual growth rate of 10.5 per cent in manufactured value added for the developing countries from 1975 to the year 2000. According to that scenario, 12.5 per cent of world manufactured value added would at the end of the century be generated in Latin America, 9.5 per cent in South and East Asia, 1.8 per cent in West Asia and only 1.5 per cent in Africa. On a per capita basis, Latin America would have a manufactured value added more than four times that of South and East Asia and more than nine times that of Africa. But even the Latin American figure,

^{11/} Unless reference is made to other sources, country data have been taken from the relevant national development plans; for full references to these, see Implementation of the Lima Declaration and Plan of Action; The Country Situation and Contribution of International Organizations (ID/CONF. 4/4, ID/238).

^{12/} World Industry Since 1960: Progress and Prospects (United Nations publication, Sales No. E.79.II.B.3, ID/CONF. 4/2).

though approximately twice the 1975 proportion, would represent only about 40 per cent of the estimate for the industrialized countries. The trade implications of this scenario would call for manufactured exports to increase faster than manufactured value added in developing countries (a recent forecast suggests an average annual rate of about 12.2 per cent between 1975 and 1985), while manufacturing exports among developing countries would have to rise even faster.

The composition of the industrial exports of developing countries would likewise alter with a general shift towards more highly processed goods and greater intra-branch exchange. Those developing countries (the large majority) which currently have only limited exports of labour-intensive manufactures would significantly increase their share of trade and could become exporters to the smaller group of semi-industrialized countries which at present account for most developing country exports of industrial goods.

Achievement of the Lima target under this scenario would require a massive investment outlay of approximately one third more as a proportion of gross domestic product (GDP) than has been observed in the recent past. It would appear most unlikely that resources on such a scale could be provided from the internal supplies of developing countries alone.

The sectoral studies so far undertaken by UNIDO suggest likely development prospects in certain important branches of industry. At the present stage of empirical investigation, however, it is not clear to what extent the individual sector estimates are compatible with each other or with the fulfilment of the Lima target as described above. Most of the industry studies themselves present alternative scenarios on the basis of varying assumptions about future conditions in the industry. The figures presented below therefore only hint at some of the broad implications of the Lima target.

For the agro-industries, a growth rate of about 7.8 per cent a year for the 1975-2000 period is targeted. Given that projections up to 1985 show that the developing countries' share of world output will alter little as compared with the 1975 figure of 13 per cent, the growth rate in the last 15 years of the period would have to be extremely high. To reach the targets set would thus require a drastic change in the location map of those industries; at present the location of agro-industries corresponds neither to the distribution of the population nor to that of the raw materials. The UNIDO study^{B/} of the

^{13/} "Draft world-wide study on agro-industries: 1975-2000" (UNIDO/ICIS.65).

sector suggests that investments of approximately 130 billion dollars would be required for the creation of new agro-industries.

In certain sectors, such as vegetable oils and fats, and leather and leather products, developing countries could well account for more than half of world output by the end of the century. Attainment of such market shares, however, would imply a movement towards a higher rate of production in those industries and generate significant demand for foreign financial and technical inputs. For agricultural machinery, the central problem is not that of achieving an aggregate rise in production, but rather of determining what types of equipment should be produced within developing countries. At present about 90 per cent of the hand tools, and 40-60 per cent of the simple machines used are produced in developing countries, but their total value as compared with world output of agricultural machinery is very small. At present the developing countries' share of world production is probably around 5 per cent.

In recent years, the situation in the iron and steel industry has changed very rapidly in developing countries, and further change is expected. The developing countries' share of world production of iron and steel in 1977 was approximately 11 per cent, and they are expected to increase their steelmaking capacity by about 12 per cent a year up to 1985. UNIDO has calculated that actual output in that year (on the assumption that production growth at 8 per cent per annum remains below growth in capacity) would be around 140 million tons, or about 15 per cent of the global estimate. On the further assumption that the increase in output remains close to 8 per cent per annum up to the year 2000, total production of developing countries in that year could be around 380 million tons.

Data on the petrochemical industry suggest that, depending on the assumptions employed, the share of developing countries in world output by the end of the century could range from 18 to 35 per cent. Whichever assumption is used, the relative share would be greatest for the production of plastics and least for the production of rubber. In the case of fertilizers, production capacity in developing countries would also grow at differential rates depending on the type of fertilizer considered, with expansion of potash production being the fastest, followed by nitrogenous fertilizers and phosphorus. By the end of the century, fertilizer output in developing countries could be around 31.6 per cent of the global total, but that would require developing countries to maintain an average installation rate of 72 new plants per year between 1982 and 2000.

The capital goods sector is also extremely varied. Developing countries at present account for only 3 per cent of the value of world capital goods production, but preliminary investigation by UNIDO suggests that the global share could reach around one sixth by the year 2000.

Country priorities

In order to obtain an indication of the desired industrial development pattern of developing countries, the secretariat periodically examines the development plans, future sector priorities and major investment programmes of individual developing countries. Some of the main findings for some of the more advanced developing countries are summarized below.

Brazil

In the current national development plan, the priority industrial sectors are those of capital goods (especially heavy equipment), basic electronics, and basic inputs (non-ferrous metals, petrochemicals, fertilizers, paper and pulp, cement, iron and steel, alcohol and caustic soda). In iron and steel, domestic supply is expected to rise from 13 million tonnes in 1978 to 15.6 million tonnes in 1980. The objective of the sectoral programme is to promote self-sufficiency. The domestic supply of capital goods is expected to make a significant contribution to project execution. The expansion of capital goods production has indeed been very substantial in recent years and is likely to continue to be rapid.

Expansion in progress includes the completion and further modification of the Aços Finos Piratini scheme, thus making it possible to produce 300,000 t/a. The expansion of the Usiminas project and the establishment of Acominas and Mendes Junio are the most important iron and steel projects currently being implemented. In addition, financial negotiations for reorganizing the Turarao plant have been completed.

For non-ferrous metals the industry programme aims at self-sufficiency in the more common products by 1983 together with planning, establishment and development of the special non-ferrous metals industry during that period. Aluminium production capacity in 1977 was equal to about two thirds of apparent consumption and it is planned to increase that proportion to 73 per cent by 1980 and 86 per cent by 1982, when production capacity should reach 503,000 t/a. For zinc, capacity should reach 100 per cent of apparent consumption by 1980. Expansion of the Companhia Mineira de Metais and establishment of the Paraibuna and Morro Aguda projects are critical for achieving this goal. In 1980 primary

copper supplies will reach around 58 per cent of domestic demand, and in 1982 full self-sufficiency should be attained with a production capacity of about 336,000 t/a. The self-sufficiency ratio for lead production should reach 89 per cent in 1980. For nickel the ratio should be around 53 per cent. The latter figure would require a new plant to begin operation in 1981 and allow installed production capacity to reach 12,000 t/a by the following year.

The Brazilian petrochemicals programme also aims at the achievement of self-sufficiency by the beginning of the 1980s, and several major projects for the production of dichloroethane, polypropylene, aromatic derivatives and olefin derivatives have begun production within the past 18 months or are about to begin production. The National Fertilizer Programme has set 1980 targets of 1.4 million tonnes for nitrogenous fertilizers, 1.6 million tonnes for phosphate fertilizers and 1 million tonnes for potassium products.

Brazil is considered to have great potential for becoming a major producer of paper products with possibilities for exports of certain types of products. For the production of cellulose, the value of investments required to meet the planned expansion of production capacity by 1980 is approximately 16 billion cruzeiros, of which around 3.4 billion are expected to come from foreign sources. About 45 per cent of total financing would be supplied by the National Economic Development Bank.

Ecuador

Recent measures have been taken to establish and develop the automotive industry in the context of the sectoral development programme being carried out by the Andean Pact member countries. Co-production and assembly agreements have been signed with Venezuela. Under those agreements, Ecuador will in future manufacture heavy trucks, even though production of those vehicles had not originally been assigned to the country under the automotive sectoral programme. The Government has completed the evaluation of bids for the production of passenger cars and categories of trucks originally assigned to the country. By 1983 the production of vehicles and automotive components will be worth an estimated \$300 million, or no less than 24 per cent of Ecuador's gross industrial product. The value of vehicles and components exported in the same year is expected to reach \$250 million, which means that cars and trucks will become the most important of all manufactured exports in that year and the second most important of all exports. Approximately 10,000 jobs will be directly created in the industry, and considerable impetus should be given to associated industries and to national technological development as a result of the mastery of such

technologies as casting, forging, precision machining, stamping, and the heat treatment of metals, all of which are new to Ecuador.

Two petrochemical complexes are to be built as a result of assignments to Ecuador within the Andean group, and work on them is currently at the study and promotion stage. The ammonia-urea complex will have a capacity of between 1,000 and 1,500 t/d. The other project is for petroleum cracking and will take advantage of local supplies of crude petroleum. Pharmaceutical production facilities are being established in the country by foreign companies, probably as a result of an incentive programme.

In the iron and steel sector a project is to be implemented using the direct reduction system and having an installed capacity of 400,000 tonnes of steel per year.

Egypt

Industry and mining currently account for about one fifth of GDP. Under the five-year development plan for 1978-1982, a substantial expansion of already important industries such as food processing, cotton textile production and petroleum refining is envisaged. The priority sectors in the plan include foodstuffs, chemicals, engineering products, metallurgy and building materials. Foreign co-operation in those sectors is welcome, and the Government has a relatively favourable policy towards the encouragement of private sector investment from abroad.

India

In India, capacity and production targets for 1982-1983 have been fixed under the current plan, which provides output estimates for some sectors up to 1987-1988. The figures indicate that plan priorities, particularly for public sector investment, are directed towards petroleum, steel, coal and fertilizer industries. Joint and co-operative projects are expected to contribute to significant expansion in the fertilizer, cement, paper, textiles and other industries. For the plan period up to 1983, mining and manufacturing value added was expected to grow at a rate of 5.3 per cent per annum, and in the subsequent five-year period at 6.8 per cent per annum. A general strategy to increase exports of engineering products is discernible. The principal products are expected to be metal products, plant and machinery, transport equipment and consumer durables. The institutional machinery for creating and sustaining manufacturing exports has already been established and no major difficulties

are expected in this regard. In certain fields, however, it will be important to improve the level of manufacturing technology and increase plant size in order to obtain adequate production costs. That seems to be particularly the case for cement, iron and steel and rubber goods.

Indonesia

The principal growth targets drawn up for the 1979-1984 programme involve an expansion of food processing at a rate of 8.5 per cent per annum, textiles at 13.9 per cent, building materials at 10.6 per cent and steel at 15 per cent. Petrochemicals, nitrogenous fertilizers, diesel engines and some branches of the automotive industries are also priority sectors.

Kenya

In a UNIDO country study on Kenya,^{14/} a list of industrial projects proposed for the period 1979-1983 is provided. The list includes a wide range of projects, involving both private and public investment, though no information is given regarding the likely extent and form of possible foreign contributions. The major sectors within the priority industries identified by the Government are food, beverages and tobacco, textiles, clothing and leather, wood and wood products, paper and paper products, and then certain of the more basic industrial goods such as industrial chemicals, basic metal industries and fabricated metal products. The emphasis, therefore, is on the processing of locally available materials and on a gradual move towards production of industrial inputs.

Malaysia

The manufacturing sector is expected to increase its GDP share from 14.4 per cent in 1975 to 16.8 per cent in 1980 and 26.2 per cent in 1990. Though greater emphasis will be given during the next decade to the manufacture of industrial machinery and transport equipment goods, the production of intermediates and consumer goods will still be the dominant feature of manufacturing in 1990. The industrial priorities are resource-based industries, especially those linked to timber and rubber, the food industries, and in general those industries which lead themselves to backward and forward integration with existing industries.

^{14/} "Redeployment of industries from developed to developing countries: its scope and application to Kenya" (ID/WG.315/1).

Mexico

The industrial development plan, which covers the period 1979-1982 and subsequently the period 1982-1990, establishes 70 priority industries. These industries were designated on the basis of a detailed evaluation scheme and designed to respond to a series of basic objectives. Those objectives include the production of essential consumer goods, the development of industries competitive in world markets, additional processing of natural resources, and the integration of the industrial structure through the development of capital goods production. Two priority sector categories have been identified. The first category comprises mainly industries producing foodstuffs or supplying machinery or equipment to those sectors considered to be strategic, that is, contributing strongly to employment and vertical integration of manufacturing. The second category includes the remaining activities which generate basic consumer goods and industries producing widely used inputs. The anticipated growth rates for most of those sectors exceed 10 per cent per annum for the period up to 1990.

Nigeria

The third national development plan covered the period 1975-1980. During that period the manufacturing and crafts sector was projected to grow at around 28 per cent per annum, and mining and quarrying at about 11 per cent per annum. The priority sector included iron and steel, petrochemicals, agro-industries and building materials. There is substantial scope for expanding industrial capacity in the above sectors and in cement, fertilizers, pharmaceuticals, dairy products and plastics. Nigeria is seeking international co-operation for several projects, particularly in the fields of nitrogenous fertilizers, petrochemicals and liquified natural gas.

Pakistan

Under the fifth plan, priority is being given to production of basic industrial and agricultural inputs and to the development of selected capital goods industries.

Republic of Korea

Industrial priorities during the present plan period (1977-1981) emphasize skilled-labour-intensive industries such as machinery and shipbuilding, and the establishment of capital-intensive industries, including iron and steel, non-

ferrous metals and petrochemicals on scales large enough to ensure international competitiveness. For light industry, the accent will be on product diversification and quality improvements. Promotional policies are designed to encourage and assist the introduction and local adaptation of advanced foreign technologies, and investment in research and development activities by private enterprises.

For the machinery industry, policy is to be oriented towards improvement of product quality and international competitiveness. Imports of advanced foreign technology are encouraged, but the purchase of plants on a turnkey basis is discouraged. Domestic equipment production should increase on the basis of local sources of finance. In electronics, every effort will be made to promote the import of advanced technology. To this end, a research institute for technological development in electronics will be established within a new industrial estate for the production of 57 strategic items, including semi-conductors and computers. A product development fund of \$60 million has been created to serve this purpose. Advanced foreign technology will also be imported to encourage local development of new shipbuilding technology and design capability in that field. Major projects include the construction of two new shipyards with capacities of 1.2 million gross tonnes and 150,000 gross tonnes. In the iron and steel industry, top investment priority is given to the expansion of the special steel sector. For non-ferrous metals, investment plans include the construction of a large-scale copper refinery with an annual production capacity of 50,000 tonnes. The latest smelting techniques will be imported in an effort to raise the level of technical sophistication in the industry. Plans in the petrochemical sector include a special industrial estate to be developed in the Yecheon area, where a naphtha cracking centre with an annual capacity of 350,000 tonnes of ethylene and nine related plants will be built. The existing naphtha cracking centre in the Ulsan district will be increased from the present annual capacity of 100,000 tonnes to 150,000 tonnes, and four related plants will be either constructed or expanded in capacity.

Turkey

In the fourth five-year plan the share of industry in GDP is expected to rise from approximately 23 per cent in 1977 to 27 per cent in 1982. The priority sectors in the plan include electric power generation, fertilizers, iron and steel, electronics and telecommunications, machine tools, and other export-oriented industrial sectors. The planned distribution of investment shows

about 31 per cent going to manufacturing and another 6 per cent to mining, while three fourths of investments within the manufacturing sector are devoted to expanding the output of capital and intermediate goods. Particularly large investments were planned in chemicals and petrochemicals, agricultural machinery, electrical equipment and wood products. Foreign co-operation, especially in the above-mentioned priority sectors, is welcome under certain conditions. As far as possible, output should be export-oriented, and every effort made to reduce dependence on imported raw materials.

Sector priorities and prospects

Mineral processing industries

A UNIDO study^{15/} has shown that developing countries have good prospects in the mineral processing industries. Some have already drawn up plans to process mineral resources hitherto largely exported in crude form. In the following tables 1 and 2, the opportunities for further processing of seven non-fuel minerals are indicated. These minerals account for about three quarters of developing countries' exports of all non-fuel minerals.

As reflected in table 2, the processing of all seven minerals is expected to increase by relatively small proportions (save for nickel and zinc) of recoverable mine production in the next 3-4 years. Nevertheless, developing countries as a group have firm short- and medium-term plans to process a larger proportion of their minerals. In table 3, the investment requirements, employment data and likely exports connected with those plans are shown. Investments in the iron and steel industry amount to about three quarters of the total. Many countries have drawn up long-term (5-10 years) programmes for the development of their steel industries.

It appears that the capacities of individual plants will be notably increased in future. Thus it is expected that integrated steelworks with a capacity of 4-10 million t/a may gain in importance. At the same time, relatively small-scale steelworks of less than 0.5 million t/a (using direct reduction) are likely to play an increasing role. By 1982, steel production in developing countries may rise to more than 20 per cent of world production, compared with 7 per cent in 1977. This forecast assumes, however, that a direct reduction process based on solid fuel can be used.

^{15/} "Mineral processing in developing countries"(UNIDO/IOD.328).

Table 1. Mineral processing potential
(Thousands of t/a)

Products, processes and countries	1977 potential	1983 potential
<u>Alumina</u>		
Guinea*	5 865	7 017
Jamaica*	4 120	3 820
Surinam	2 175	2 175
Guyana*	1 425	1 540
Indonesia*	650	73
Brazil*	565	1 100
Dominican Republic	565	565
Malaysia	<u>475</u>	<u>475</u>
Total	15 840	16 765
<u>Aluminium</u>		
Jamaica	3 565	3 565
Guinea	3 285	5 108
Surinam	1 675	1 675
Guyana	870	1 087
Indonesia*	325	336
Dominioan Republic	283	283
Malaysia*	240	240
India*	200	340
Brazil*	<u>100</u>	<u>600</u>
Total	10 543	13 234
<u>Copper smelting</u>		
Philippines*	317	304
Papua New Guinea	<u>180</u>	<u>180</u>
Total	497	
<u>Copper refining</u>		
Zaire*	392	392
Philippines*	314	301
Chile	314	430
Papua New Guinea	178	178
Peru*	71	49
Namibia	<u>69</u>	<u>69</u>
Total	1 338	1 429

Table 1 (cont.)

<u>Steelmaking</u>		
Brazil*	70 400	109 000
India*	32 400	35 900
Liberia	21 600	28 400
Venezuela*	19 300	16 700
Chile	9 300	9 300
Mauritania	8 600	8 600
Peru	<u>6 400</u>	<u>6 400</u>
Total	168 000	214 300
<u>Lead smelting and refining</u>		
Peru*	126	47
Iran	50	64
Morocco*	<u>42</u>	<u>32</u>
Total	218	143
<u>Nickel processing</u>		
New Caledonia*	64	65
Botswana	<u>33</u>	<u>33</u>
Total	97	98
<u>Tin smelting</u>		
Bolivia*	18	6
<u>Zinc smelting</u>		
Peru*	366	183
Iran	104	126
Bolivia*	77	17
Mexico*	<u>62</u>	<u>23</u>
Total	609	349

Note: An asterisk (*) indicates firm plans for capacity expansion. In some cases, the 1983 processing potential is shown even though it may be smaller than the minimum economic plant size.

Source: "Mineral processing in developing countries" (UNIDO/IOD.328).

Table 2. Current and projected mineral processing capacity of all developing countries as a percentage of recoverable mine production

Process	1977	1983
Alumina refining	32	42
Alumina smelting	14	19
Copper smelting	84	85
Copper refining	62	63
Steelmaking	23	29
Lead processing	95	100
Nickel processing	59	79
Tin smelting	92	94
Zinc processing	55	81

Source: "Mineral processing in developing countries" (UNIDO/IOD.328).

Table 3. Mineral processing potential in developing countries

Mineral	Capital (billions of dollars)	Labour (thousands of jobs)	Potential export value (billions of dollars)
Bauxite, alumina, aluminium	38.8	137	12.60
Copper	1.7	6	0.56
Iron ore, iron, steel	137.8	840	40.30
Lead	0.2	1	0.05
Nickel	1.0	1	0.29
Tin	0.1	1	0.03
Zinc	<u>1.0</u>	<u>3</u>	<u>0.25</u>
Total for 7 minerals	180.6	989	54.08

Source: "Mineral processing in developing countries" (UNIDO/IOD.328).

Agro-industries

Little information could so far be obtained on planned projects in the agro-industries. It seems that a total of 91 investment projects planned by transnational corporations over the next ten years in 29 developing countries. The presence of a local or regional long-term market, the availability of raw materials, and a stable political climate seem to be the major investment incentives.

Petrochemicals

According to a recent OECD study,^{15/} roughly 100 steam-cracking projects were under discussion or construction at the beginning of 1979 in 55 developing countries, though industry sources suggest that perhaps only half of the projects will have materialized by 1990. While in a petrochemical complex the basic engineering for the down-stream units is frequently handled by the foreign plant supplier (who usually brings the whole package of process, product and know-how), chemical engineering contractors play a crucial role in the up-stream units. In 1979 more than 70 per cent of the turnover of chemical engineering contractors was with developing countries. A listing of several of the firms at the end of April 1978 showed that their workload at the time was at least \$15 billion, but it may be reasonable to suppose that the actual figure was as high as \$25-30 billion. Applying the above-mentioned 70 per cent share for developing countries, a very rough estimate of the value of demand from developing countries to chemical engineering contractors alone would be about \$20 billion.

Estimates of resource requirements

Estimates of the foreign resource requirements for developing country expansion in various sectors are very limited. Given that changes of technology, scale, utilization rates, and other technical variables, not to mention bargaining over specific project arrangements in individual countries, affect the estimates, it is clear that even the figures available can represent only extremely broad orders of magnitude. A few estimates will nonetheless be presented to illustrate the approximate values involved.

^{16/} Transfer of Technology in the World Petrochemical Industry (Paris, OECD, September 1979).

If the plans and prospects for enlarging the capacity of the mineral processing industry in developing countries are to be realized, substantial investment will be required. The aggregate investment requirements for the seven minerals are around \$180 billion, which compares with a projection of some \$60-70 billion for all developing country investments in mining and mineral processing during the period 1977-1990. The \$180 billion figure is rather more than three quarters of the present total annual investment in all developing countries for all purposes.

The UNIDO study of the leather and leather products industry^{17/} provides certain estimates of capital requirements for increasing the capacity of developing countries in this sector. As the majority of developing countries would have to import the equipment, it is estimated that foreign currency requirements could rise as high as 52 per cent of the total capital requirements for a standard tannery (which, in 1977, cost more than \$15 million). Moreover, the running costs in foreign currency terms could also be half or more of value added because of the high cost of imported chemical inputs and the servicing of capital. Total foreign currency requirements simply for planned expansion from 1975 to the year 2000 would, according to the scenarios adopted, amount to \$3.7-4.7 billion.

A UNIDO study (UNIDO/ICIS.65) has shown that a capacity expansion of agro-industries from 1973 to 1985 might cost approximately \$60 billion if the aim were to provide a basis for reaching the Lima target by the end of the century.

In the fertilizer industry, fixed capital requirements for conventional methods of production are extremely high, varying from \$0.3 to \$0.5 million per person employed in a large nitrogen fertilizer plant. The nitrogen and phosphate investment costs alone amount to \$83 billion, and it is expected that the foreign exchange component might reach about 60 per cent of the total. Estimates for the five-year period ending in 1980 show that the ratio of foreign to domestic expenses for new fertilizer plants during that period was about 60:40. A number of investment institutions require that the equity to loan ratio for fertilizer plants should be in the range of 1:1 to 1:2. Case studies on ten plants recently constructed in developing countries show that either Governments or public sector enterprises have been the major actors in domestic financing and have spread their involvement between equity and loans. This evidence suggests

^{17/} "Summary of the draft world-wide study of the leather and leather products industry: 1975-2000"(UNIDO/ICIS.43).

that, applying the above proportions to the total of \$83 billion of investment requirements, the \$50 million of foreign exchange would be mostly loans and supplier credits.^{18/}

If the Lima target is to be achieved, the investments in new steel works in developing countries over the next two decades could reach \$475 billion. On the basis of various calculations regarding sources of finance, the foreign exchange portion of the total could be about 70 per cent, or more than \$330 billion, with the major part coming from export credits. There is no doubt, as is confirmed by a UNIDO study^{19/} of the sector, that the major public international and private transnational financial bodies will exercise an ever-increasing role in the organization of new capacity. In practice, the supply of engineering services, capital goods and know-how is frequently linked with the provision of finance. This implies that the problem of decomposing supply sources for complex investment projects is severe.

In the petrochemical industry, estimates of investment requirements for the period 1980-1985 suggest total expenditures by developing countries of approximately \$42 billion. No breakdown of these figures as to foreign and domestic components could be made, among other reasons because what is supplied domestically varies so much according to the level of technology already attained in the country and the supply of finance. The OECD study mentioned earlier^{20/} shows some of the variation. Thus Saudi Arabia has a capital structure with 50 per cent local participation for its proposed projects, but currently has to rely entirely on foreign engineering and equipment sources. Mexico, which has made major advances in the sector, not only limits foreign participation to 40 per cent in recent projects, but also provides part of the detailed engineering and 60 per cent of the equipment. Somewhat similar patterns are observable as far as engineering and equipment are concerned in both Brazil and the Republic of Korea. Singapore may obtain about 50 per cent of equipment from local sources, but will import all of its engineering requirements.

The figures mentioned give a very rough idea of the orders of magnitude involved in forecast or planned industrial expansion in developing countries in the years ahead. Undoubtedly there is a need for far more precise data at industry and country levels for use in drawing the implications of efforts made

^{18/} "Second world wide study on the fertilizer industry: 1975-2000" (UNIDO/ICIS.81).

^{19/} "L'industrie siderurgique mondiale (seconde etude)" (UNIDO/ICIS.89).

^{20/} OECD, ibid.

to achieve the Lima target. Yet some observations can be made at this stage. First, in all the basic industrial sectors considered, that is mineral processing, agro-industries, fertilizers and petrochemicals, numerous developing countries are planning major expansions of capacity, and large numbers of projects are currently under construction or have been proposed. Even if a sizeable number of projects may never be implemented, productive capabilities in those sectors will no doubt expand rapidly in the coming years. Secondly, some of the larger and more industrialized developing countries are planning to reach self-sufficiency levels of production for certain key industrial products within the foreseeable future. Thirdly, in several instances supplies from those countries will also be sold on world markets. Such is the case in particular for petroleum producers and those relatively industrialized developing countries with small domestic markets. It also applies in various sectors to some of the major developing industrial countries, including Argentina, Brazil, India, Mexico and the Republic of Korea. Since only a relatively small proportion of the exportable supplies are covered by buy-back agreements or can be otherwise marketed through the captive channels associated with direct foreign investment, there will be a growing need for market access in the coming decade. Hence, besides the problems connected with exports of relatively labour-intensive items, a new class of market access problems is on the horizon.

Fourthly, the available evidence suggests strongly that foreign co-operation in these sectors will take the form principally of the provision of technology through equipment supplies and plant and process know-how, the supply of loan capital through export credits and other routes, and only to a much more limited extent through direct foreign investment. Admittedly this conclusion is biased by the industries discussed, but they are major industries whose contribution to the gross industrial output of developing countries in future years is likely to rise rather than to fall. While patterns of direct equity control, captive market channels and the more traditional issues connected with the transnationalization process will continue to be acute in several other sectors, the problems in the areas considered here are changing. Fifthly, public sector involvement is expected to be of major consequence. This is in part due to the State's financial commitment (especially in equity), and in part to the organizational and technological procurement policies which public sector corporations may follow. The degree to which technological skills can be internalized and the degree of vertical and horizontal industrial integration of the economies will be determined significantly by public sector policies in this area.

Industrial restructuring among developing countries

This section focuses on recent patterns of industrial redeployment among developing countries, in particular in the form of direct foreign investment and exports of technology. No attempt is made to discuss the very important resource flows through portfolio investment, grants and loans which have been made by the petroleum producing countries. Several of those operations have led to new initiatives in developing countries, not only for the production of industrial goods, but also for the provision of industrial services. A more complete picture would be obtained if such programmes were taken into account. However, the purpose here is to examine the new flows in the international system which stem from the industrial capacity and skills already available in developing countries.

Direct foreign investment among developing countries

Statistical findings

It is scarcely surprising that no systematic evidence is available on direct foreign investment on a global basis among developing countries. The following tables 4 and 5, however, give figures on the intra-regional direct investment stock in Latin America and Asia. The statistics do not reveal several important things such as: sectoral distribution; the allocation of foreign equity, e.g. majority and minority shareholders; whether or not the investments genuinely come from domestically owned firms in developing countries or are made by affiliates of transnational corporations; the degree to which public sector corporations may be involved; and the rates of investment growth. All those subjects require further research. Moreover, the figures shown may underestimate total flows due to inadequacies in reporting systems, failure to take account of relatively old direct foreign investments, and the impact of exchange controls on the ways in which firms seek to disguise the true extent of their foreign investments.

The figures indicate that at present probably only a small number of the more industrialized developing countries are investing abroad, and that proximity, socio-cultural and geographical factors may influence investment decisions. Intra-regional direct foreign investment in Asia is much higher than in Latin America. Investments from Hong Kong are greater than those from other developing countries. By far the largest recipient is Indonesia, where the 1976 stock from six other countries in the region of the Economic and Social Commission for Asia and the Pacific (ESCAP) amounted to almost \$1,3 billion, on approximately

Table 4. Intra-regional direct investment stock in Latin America in 1971 and the latest available statistics (Millions of dollars)

Country of origin	Host country										
	Argentina 1974	Brazil 1971	Brazil 1973	Chile 1974	Colombia 1971	Colombia 1975	Ecuador 1971	Ecuador 1970	Mexico 1974	Venezuela 1970	Venezuela 1974
Argentina	-	7.5	13.3	0.1	0.1	0.9	-	4.5	5.3	-	11.2
Brazil	9.1	-	-	5.2	0.4	2.0	-	4.4	7.2	-	1.6
Chile	-	-	-	-	0.1	0.1	-	-	-	-	0.7
Colombia	0.9	-	-	-	-	-	2.7	7.9	-	-	1.2
Mexico	1.0	2.6	6.9	5.3	1.4	7.5	-	4.0	-	-	4.7
Peru	0.9	-	-	0.8	0.3	0.8	-	1.4	3.6	-	-
Uruguay	2.2	8.3	12.0	-	4.6	4.7	-	-	-	-	2.1
Venezuela	0.1	4.2	9.0	1.7	10.5	19.3	3.4	10.3	1.8	-	-
Latin America Free Trade Area	-	-	1.0	-	0.3	0.3	-	-	3.5	-	-
Subtotal	14.2	22.6	42.2	13.1	17.7	35.6	8.1	32.5	21.4	6.7	21.5
Bahamas	-	21.7	66.0	-	13.7	10.0	-	-	-	-	-
Bermuda	-	12.2	39.0	-	0.7	1.0	-	-	-	-	-
Netherlands Antilles	-	75.2	192.0	-	13.4	20.2	-	-	-	-	-
Panama	80.6	80.1	275.0	-	36.4	53.7	-	4.0	119.3	-	-
Others	-	-	39.0	-	1.2	3.9	-	-	-	-	-
Total	-	211.8	653.2	-	83.1	124.4	-	36.5	-	-	-

Source: United Nations Centre on Transnational Corporations.

Table 5. Intra-regional direct investment stock in Asia, 1976
(Millions of dollars)

Country of origin	Host country or territory			
	Hong Kong	Indonesia	Philippines	Thailand
Hong Kong	-	728.3	14.2	10.9
India	-	19.4	-	2.4
Japan	56.8	1 216.6	124.2	74.5
Korea, Republic of	-	107.4	-	-
Malaysia	-	42.7	-	5.0
Philippines	3.4	272.1	-	0.9
Singapore	13.4	115.6	-	2.2
Thailand	29.7	-	-	-
Other Asian developing countries	7.3	102.9	3.1	22.1

Source: United Nations Centre on Transnational Corporations.

the same scale as direct foreign investment in Indonesia from Japan. In Asia there is a fairly clear-cut separation between countries supplying and countries receiving, but in Latin America some of the larger countries may be involved in two-way traffic.

In a UNIDO study on India,^{21/} some evidence is given of redeployment to other developing countries. Bilateral industrial ventures have been promoted by India in Afghanistan, Bhutan, Indonesia, Mauritius, Nepal, Thailand, the United Republic of Tanzania and other countries. Recent experience in India has shown that the performance of Indian joint ventures is encouraging, and that they have contributed to the achievement of the objectives of extending development co-operation to other developing countries, and creating opportunities for exports of India's capital goods, technology and know-how. In particular, India has been attempting to promote regional technical co-operation and co-operation with countries from the Afro-Asian and Latin American groups. Multilateral technical co-operation includes: design manufacture and supply and installation of machinery and equipment for turnkey engineering projects; supply of complete plant and equipment for industries such as cotton and woollen textiles, cement and sugar mills; structural production, power transmission lines, blast furnaces etc.

^{21/} "Redeployment of industries from developed to developing countries" (ID/WG.315/8).

By the end of 1977, the number of approved projects was 322, of which 135 were completed and 82 were in various stages of implementation.

At that time the value of Indian equity was estimated at approximately Rs 500 million (about \$80 million) which were thought to be yielding earnings through dividends, technology fees, managerial fees and royalties of roughly Rs 158 million (about \$25 million). More than 60 per cent of the machinery exported to launch the joint ventures concerns industries such as textiles, sugar, cement, chemicals and paper machinery. More sophisticated items such as electric motors, transformers, switch-gear equipment and related engineering products account for about 25 per cent of the exports for setting up joint ventures.

Figures for the cumulative stock of direct foreign investment by the Republic of Korea as of the end of 1977 show that approximately two thirds was in Asia, 19 per cent in North America, some 10 per cent in Africa and about 4 per cent elsewhere. One fifth of the investment was in manufacturing, with the average size of projects in that sector about double that of the rest of the sample. The growth rate of the stock between 1976 and 1977 was 25 per cent, and plans suggest that growth rates now may be even higher. It seems that developing countries in the Middle East, Africa and Central and Latin America will receive an increasing share of Korean capital. In most cases, the Republic of Korea provides manufacturing technology, part or all of the capital requirements, and increasingly more semi-processed products. It can be assumed that investments by the Republic of Korea are designed to penetrate new markets or overcome protectionist barriers in existing markets, and to procure stable supplies of raw materials. Both kinds of investment are backed by the Government. Companies of the Republic of Korea are establishing manufacturing operations both in countries that may erect barriers to their exports, and in those judged good export bases for penetration of protectionist markets. This means international companies can expect to face rising competition from Korean products manufactured everywhere, not simply Korean exports.

Studies of the Latin American experience show that joint ventures are of great importance and that more than 80 per cent of these are bilateral operations. No fewer than 21 of the 25 countries of Latin America have been recipients of intra-regional direct foreign investment, and a study of 200 joint ventures shows that they follow a strong "zoning" pattern, that is, 80 per cent of the regional investors in the north of Latin America also come from the north, while in the south the corresponding intra-zone proportion was 89 per cent.

Of 177 instances where the sector of operations of joint ventures was identified, three quarters of these were in manufacturing. Considering the relationship between private and public sector direct foreign investment, about 69 per cent of the joint ventures were purely private sector operations, and almost certainly the vast majority of the joint ventures in manufacturing are among private corporations. Public sector direct foreign investment in the Latin American context tends to be in large-scale projects in the infrastructure and basic industry sectors.

Intergovernmental agreements of both a bilateral and multilateral nature within the region have facilitated much of the direct foreign investment. For example, the Rio Plata Basin treaty signed ten years ago provided for substantial co-operation between Argentina and Paraguay, including the establishment in June 1974 of a permanent office for investment and industrial complementarity. Some of Brazil's investments in developing countries outside Latin America have also been supported by such a framework.

The implications of direct foreign investment among developing countries

The role of this type of investment can be considered under four headings, namely the incentives involved, its advantages and disadvantages, and its obstacles and implications. In examining those points it should be borne in mind that most of the investment is not made by transnational corporations. This implies that several of the problems arising from the package nature of the investments of transnational corporations are unlikely to occur with flows among developing countries, at least in the immediate future. Yet it does not necessarily follow that the latter type of investment will be preferable to the former; both have to be analysed in their context.

The incentives for investing firms seem to be based on the following factors. First, inadequate domestic effective demand pushes firms abroad. Secondly, the commercial policy of industrialized countries influences the location of production among developing countries. When specific country quotas and other non-tariff obstacles are important determinants of the volume and origin of trade, it is hardly surprising that firms try to circumvent these obstacles by switching the location of their production. Hong Kong firms in the textile sector, for example, have engaged in this movement for some time, shifting production to Sri Lanka, Thailand and various other locations. Thirdly, the search for cheaper labour is by no means confined to the behaviour of

industrialized countries, and the cheapness of labour varies within developing countries. It appears that especially in Asia there is some relocation of production in response to this stimulus. The more industrially advanced Asian countries are beginning to lose their comparative advantages in labour-intensive branches such as textiles and clothing through rapidly increasing real wages. Fourthly, diversification of risk is likewise a stimulus to moving abroad, particularly where a major component of risk is the import, export and foreign exchange policy of the home country government.

One study of Thailand^{22/} compared the motivations of firms of developing countries and transnational corporations for investing in that country. Observation of the results suggests that the two groups of firms were responding to quite different incentives. For the transnational corporations, a handful of motives (threats to existing markets, high technology production, and marketing expertise) were overwhelmingly important. For firms of developing countries, however, risk diversification came on top of the list, and this was closely followed by other factors such as small home markets, high local returns, threats to existing markets, experience with labour-intensive technology, and the presence of family or home country business associates in Thailand.

The extent to which investments between developing countries are advantageous obviously depends on who is being considered and what the alternatives are. The evidence so far available suggests that some tentative generalizations on the question of who reaps advantages can be made with regard to production techniques and input utilization of the recipient country, and to financial flows across national boundaries.

With regard to the important question of the appropriateness of technology, it appears that the type of equipment, the scale of production and the use of local labour are closely related. Hong Kong firms, in their operations abroad, have made considerable use of second-hand machinery regarded as no longer suitable for conditions in Hong Kong because of wage rises there and the lowering of labour productivity measured in cash terms. Since international markets for second-hand machinery are poorly developed, one way of utilizing the equipment (instead of scrapping it) and simultaneously employing labour in other developing countries where wages are much lower than in Hong Kong is to make foreign investments involving the use of that equipment. More generally, data on capital to

^{22/} D. Lecran, "Direct foreign investment by firms from less developed countries", Oxford Economic Papers, October 1977.

labour ratios in Indonesia and Thailand show that in the former case the ratios for investors from developing countries were about half of those for investors from industrialized countries in comparable industries, while in the latter case the ratios for investors from developing countries were about 40 per cent lower than for either transnational corporations or local firms. In addition, figures for Thailand also show that capacity utilization by investors from developing countries is much superior to that of other groups of entrepreneurs, and that the import content of raw materials used is much lower for investors from developing countries than for either local firms or transnational corporations.

Evidence suggests that, as far as production processes are concerned, investors from developing countries may provide more appropriate technology than investors from industrialized countries (or even local entrepreneurs in the same industries). The financial impact of direct foreign investment between developing countries appear, from the limited evidence available, to be relatively favourable. For Thailand it was found that the recorded rates of profit repatriation for investment firms of developing countries were only about one seventh of the rates for transnational corporations; that royalty fees as a percentage of sales were 15 times higher for transnational corporations than for enterprises of developing countries; that, as noted above, investor firms of developing countries had a much lower propensity to import raw materials; and that investors from developing countries imported less than half of the equipment they used from OECD sources, while 90 per cent of equipment imports by industrialized countries were from the OECD region. With reference to the last point, since equipment from the OECD is almost certainly much more expensive than equipment from other places, it is more than probable that investors from developing countries spend less in foreign exchange for machinery than do other enterprises.

There are significant obstacles to investments between developing countries, by far the most powerful of which is the prevailing structure of international relations. The pattern of communications, interpreted in the broadest sense, gives a considerable advantage to investors from industrialized countries. One of the areas in which agencies of the United Nations system, and especially UNIDO, must concentrate their endeavours is precisely that of balancing the flows of information available to the enterprises of developing countries.

Three kinds of entry barriers of a legal, economic, and cultural nature exist in addition to the major structural deterrent. Legal barriers work both in supplier and recipient countries. In the former there are, for well known and generally well justified reasons, impediments to the export of capital, above all in cash form. In recipient countries the problems are intimately connected with the structure of direct foreign investment controlled by transnational corporations. Countries have had to create complex legal forms in order to counteract the effects of such investment. In so doing, they have created barriers to investments between developing countries.

Economic obstacles are intimately concerned with inadequacies of information and with the needs of recipient developing countries. Since the large majority of investments are joint venture arrangements, the basic problem is always to find suitable partners. In that respect, the cost of the search for information can be substantial compared with the expected size of the projects. With regard to the types of investment sought by developing countries, whenever the accent is placed on high technology or obtaining access to the markets of industrialized countries as a consequence of the investment deal, investors from developing countries may always be at some disadvantage. A more adequate assessment of this possibility must await further evidence. Trade barriers may also complicate investment decisions.

The cultural barrier to entry is part of the problem of gaining acceptance for the products of developing countries in other developing countries. Sometimes an investor from a developing country may co-operate with a firm of an industrialized country simply to obtain such a "seal" of approval.

Technology exports between developing countries

The forms that technology exports between developing countries may take are obviously the same as those adopted by industrialized countries, that is turnkey plants, patent licences, agreements, management contracts and so on. The supplier countries are much the same as those involved in direct foreign investment, and there are also some fairly marked patterns of regionalization in the direction of flows. Data on Argentina for the 1973-1977^{23/} period show that the total value of technology exports amounted to close to one tenth of the total value of the country's manufactured exports. Almost all the exports were

^{23/} J. Katz and E. Albin, De la industria incipiente y la exportación de tecnología: la experiencia argentina en la venta internacional de plantas industriales y obras de ingeniería, Monograph No. 14, IDB/ECLA Programme of Research on Science and Technology, Buenos Aires.

intra-regional and covered a wide range of industrial technologies. Argentina is in a position to meet some of the more complex technological needs of its neighbours. Data on the Republic of Korea^{24/} likewise suggest that the range of technological goods which can be provided is fairly large. The leading position which Korean companies have in the construction industry is largely due to a well integrated command of plant design, construction and maintenance, which has undoubtedly helped to provide a basis for some of their turnkey sales. The two countries differ in the extent to which foreign firms are associated with their turnkey sales. In the case of Argentina, few contracts went to the affiliates of transnational corporations, yet in value terms those contracts accounted for more than half of total export receipts. In the case of Korea, however, the exporting enterprises are frequently the conglomerates which occupy such a powerful position in that economy. There are also very important differences between the two countries with regard to government support. In Argentina, rather little has been provided, while in Korea, the coherence of government and large private corporation policies ensures support.

Although in a turnkey operation the buyer deals with a single seller of the whole technology package, the seller may not be, and usually is not, able to operate alone. Complementary agents in the form of consulting engineering firms, international trading companies, and financing and insurance groups are necessary. The first of these effectively functions as an intermediate technical agent. Through knowledge of capital equipment supplies and engineering processes, their role may be essential for smaller firms to win turnkey contracts. Trading companies play a similar function with regard to marketing, transport and legal arrangements, and their services are obviously vital to the effective initiation and operation of turnkey deals among smaller companies. The sales themselves cannot take place unless there is adequate risk coverage, including the supply of credit. Here the role of financing and insurance groups is critical to both the buyer and the seller. In Korea the integrated nature of the production and distribution conglomerates together with continued strong state support ensure that problems are handled fairly smoothly. In Argentina, however, neither of those conditions exists, and it is thus likely that the extent of turnkey sales is less than would be expected on the grounds of technical capabilities alone.

^{24/} Y.W. Rhee and L.E. Westphal, "A note on exports of technology from the Republics of China and Korea", November 1978.

In India there has been a substantial expansion in recent years in exports of engineering goods and capital equipment, partly as a result of increasing turnkey sales, but also of direct foreign investment and the international activities of Indian consulting engineering firms. This has been arranged through: co-operation with international contracting organizations either by making joint bids or through seeking subcontracts from those organizations; association with other Indian public and private groups to make joint bids abroad; nomination of experts through technical service agreements; and the search for consultancy assignments to foreign project execution authorities. Arrangements have also been made with international contracting companies for the purpose of obtaining subcontracts from them, and with certain foreign companies for joint exploration of redeployment opportunities in third countries.

In India, much of the above-mentioned progress is a result of the policies of technological protection pursued over the past 25 years. Public sector support has been vital in the learning process and has accompanied the growth of private skills. Without such assistance, probably no country will be able to become an effective user, producer and exporter of technology. Compared to the few currently exporting developing countries, newcomers in the group have the advantage that the sources on which they can draw have grown. This does not guarantee an easier path, though it does provide a wider range of alternatives.

Industrial redeployment among developing countries is thus taking place, apparently has several advantages as compared with traditional channels of redeployment, and could well be the bridgehead for effective co-operation among developing countries. Future work on redeployment should pay far more attention to the implications of industrial redeployment, bearing in mind the possible co-ordination of redeployment measures by developed countries with other measures of industrial co-operation between developing countries.

Strategies of major actors

Actors, objectives and measures

The major actors in the redeployment process are: transnational corporations engaged in production; transnational corporations in the financial sphere; smaller industrial firms in some sectors which engage in international production or provide important industrial services, above all of a technological or legal nature; Governments of industrialized countries; and Governments of developing countries. The strategic relationship among those groups is characterized

by the changing interplay of affinities and antagonisms, co-operation and conflict. In such a situation, the most important issue is not always, or even chiefly, that of winning or losing, but rather of retaining the capacity to make relatively independent choices, even if those choices are less than ideal. Indeed, for developing countries as a whole, a key feature of industrialization is precisely its contribution to the achievement of a less subordinate position in the international arena. Forms of redeployment which create more manoeuvring space in the medium to long term will be supported, and those limiting the future range of choices for developing countries will be less welcome.

The groups of actors mentioned are not homogeneous. Competition among Governments of developing countries interested in promoting labour-intensive, export-oriented activities is already apparent. There is, however, a need to distinguish between the main sectors in which specific actors operate. The strategies employed can vary widely depending on the production characteristics of the industry, and these in turn affect the forms which industrial redeployment can take. Finally, it should be stressed that various other groups may also be important. In particular, labour or labour organizations (including professional associations) either in developing or in industrialized countries may have an increasing influence on redeployment in future.

Transnational corporations seek first and foremost global profit maximization with minimization of risks. They have hitherto regarded developing countries as providers of raw materials, export platforms, and fast-growing markets in which, through direct foreign investment, sales could be boosted. Very little of the crucial overhead activities of the transnational corporations, especially with regard to product and process design and innovation, are undertaken in developing countries; those key sources of corporate power have never been redeployed. The relative significance of each motive depends on the sector, as noted above. For a given developing country, the different kinds of redeployment may all be occurring simultaneously in distinct sectors, which implies that, given the diverse motives of the transnational corporations, the developing country itself may have to adopt diverse sectoral strategies. Developing countries, in dealing with transnational corporations, must strive to obtain not only satisfactory financial conditions, but also, and more importantly, access to technological assets.

Much less attention has been paid in the past to the objectives of transnational financial bodies and to the impact of their strategies on the redeployment process. The financial transnational corporations are becoming more important, in part because developing countries are looking for non-equity sources of capital. Those corporations also strive for global profit maximization and risk minimization, but they are not in the business of making technological innovations. The strength of such corporations lies precisely in their capacity to put together the huge sums needed to finance investment projects for which it is still difficult to generate sufficient cash resources in practically all developing countries, with the exception of the capital surplus petroleum exporters. Yet the twin aims of profit maximization and risk minimization often compel the financial transnational corporations to take a deep and active interest in the technological organization and management of the enterprises for which they provide loans. Thus, the manufacturers and equipment suppliers of industrialized countries can work in close co-operation with the suppliers of funds to organize large-scale redeployment operations. This type of project packaging differs from the direct foreign investment of the 1960s and the first half of the 1970s, when the packages were predominantly internal to the manufacturing firm. The latter type of package will continue to be significant in the redeployment process, especially in relatively low technology sectors, in sectors where entry by enterprises controlled by developing countries is difficult, and for long-established investment activities. They will also be important in developing countries that are less geared to the expansion of basic industrial goods or have a weaker bargaining position. In such cases, the transnational finance groups will play a lesser role.

Smaller enterprises in industrialized countries are not in a position to commit substantial finance capital and have not built up a large global network of affiliates. Their objectives - though in principle generally not different from those of the transnational corporations - therefore tend to be more limited in scope.

Governments of industrialized countries have an obvious interest in the process of redeployment to developing countries. The restructuring of their own economies is perceived to be intimately related to the industrial expansion of developing countries in which the latter are conventionally regarded as having a comparative advantage. Since restructuring has political, social and electoral, in addition to financial, costs, Governments of industrialized countries feel compelled to minimize those costs through controls over trade,

thereby affecting sales opportunities for developing country exporters and ultimately holding back (or redirecting) investment in developing countries. Such policies operate not only through national decisions, but also through the structure, content and machinery for implementation of multilateral accords. On the export side, the support offered to investors (through guarantee and insurance schemes) to firms tendering for international contracts (through guarantees of their capacity to provide supplier credits) and to exporters more generally (through national commercial offices, trade fairs etc.) is eloquent testimony to the importance of expanding influence in foreign markets. Most measures offer relatively larger subsidy elements for business in developing countries. However, redeployment is expressly restricted to certain sectors and certain countries. This happens in all sectors which are considered strategically sensitive and to countries regarded as "unfriendly".

A glance at the sources of sales and profits of the transnational corporations shows that a high and growing share of revenues comes from foreign operations of all types. Given forecasts of future income and industrial output increases in the OECD and elsewhere, the contribution of developing countries to such foreign-generated returns will undoubtedly continue to show a relative increase. The very logic of corporate expansion provides the impulse towards transnationality.

In their industrial development plans Governments of developing countries have committed themselves to industrial growth as a spearhead of economic advance. A wider and deeper industrial base is to be created, ideally capable of simultaneously providing mass consumption goods to satisfy basic needs, and basic industrial goods to equip the countries concerned with the muscle needed to struggle on more equal terms in the industrial arena. What the Governments seek above all from foreign resource suppliers is their participation in amounts and on conditions compatible with domestic development objectives. There should, ideally, be a symbiosis between external assets and internal advance.

One of the ways in which Governments of developing countries seek to promote industrialization is through the creation of public sector corporations for both producing and trading purposes. In theory, the activities of such enterprises should conform to Government wishes and be compatible with the policies of similar enterprises. In practice this is not always so, and there are well documented instances of different public sector companies operating at cross purposes. One reason for this phenomenon is that they are often exhorted to

strive for domestic self-sufficiency in final output, and to achieve this quickly they may be enticed to import the most advanced foreign technology. Here they can easily conflict with other domestic firms which are mandated to encourage local technologies.

Objectives of actors and the restructuring process

The effectiveness of co-operation in industrial redeployment depends essentially on the range and size of the assets at the disposal of the various parties, a certain coincidence of information and interest which induces them to utilize the possibilities for positive sum games, and the staying power of the participants, that is, their determination and ability to remain in the game. The larger entities - the transnational corporations, transnational finance enterprises, many public sector corporations and several private sector firms in developing countries - thus have, in a deeper sense, a shared future. While these entities may bargain over many things, they may need each other as well as their respective governments, to ensure that the opportunities are created in the first place. They may, among other things, try to limit support to smaller and medium-sized firms, as support is tantamount to weakening the barriers to entry. This implies that developing and industrialized countries might have to pursue such policies against substantial opposition.

The degree to which the smaller providers of industrial services will in fact be able to remain independent is one of the more significant aspects of future strategy changes. If transnational corporations (in manufacturing and finance) continue along the path of internalizing control over key industrial assets, the probability is that they will initiate more drastic restructuring of their home economies in order to absorb suppliers of industrial services, and become more predatory with respect to potential suppliers in foreign markets. All developing countries can do about this sort of vertical integration is to try to limit it within their own economies. Once again, the issue is one of countervailing power or, more precisely, of generating the critical mass of concentrated industrial power with which to carve out an independent path.

The impact of the interplay of strategies on developing countries affects the conditions under which additional industrial capacity is created, the possibility for using that capacity, that is, the extent of demand and access to markets, and the economic and social returns stemming from expansion.

Future developments may therefore be marked by the following important trends. First, some transition may take place, much more pronounced in the large and more industrialized developing countries, towards the import of asset packages with a much smaller equity element in finance and a still greater emphasis on technology. Second, rapid capacity growth will place substantial demands on foreign loan capital. Third, in the next decade the emphasis will switch to loosening the ties which limit the freedom of industrial borrowers to choose their own plant contractors, equipment suppliers and management consultants. Fourth, it will be increasingly attempted to build market access provisions into foreign resource contracts in order to deal with possibly chronic problems of underutilization of capacity during long periods. The pattern of globalization of products will, in any case, link resource supply to sales of the products in foreign markets. This, indeed, is one of the ways in which developing countries will try to make their own bilateral channels in response to the growing fragmentation and canalization of international trade. Fifth, the composition of the output of developing countries will be designed to meet the dual aims of expanding supplies of basic consumer goods and building up internal capacities for basic industrial goods. The thorny issues of appropriate production systems and appropriate products will thus grow in significance. Sixth, there seems little doubt that the provision of employment opportunities will remain a severe task in the light of the other trends. The scale of modern industry is such that unless the labour force can be given the chance to acquire greater skills, the capital intensity of output, even with huge rises in capacity, will preclude the reduction of unemployment. Seventh, market structures can be expected to show greater degrees of concentration partly due to technical conditions and partly due to the need to compete in what is essentially an international setting. In such circumstances, government strategy in developing countries must ensure that the distribution of benefits from the new activities is not in the direction of greater accumulation by a few, but rather of greater availability to the many.

Issues for consideration by developing countries

The importance attached by developing countries to the issue of industrial redeployment was expressed at the Fifth Meeting of the Heads of State or Government of the Non-Aligned Countries, held in La Habana in September 1979: "The Heads of State or Government emphasized the role of redeployment of industries as a form of international industrial co-operation including resource transfers aimed at establishing productive capacities in developing countries with

a view to increasing their share in the total world industrial production based on their natural resources, development objectives and other socio-economic considerations. They further stressed that redeployment should not be used solely as a pretext for either obtaining access to the abundant and cheap labour in developing countries, or for the transfer of obsolete and polluting industries. Redeployment should be carried out in accordance with overall national objectives, priorities and aspirations of developing countries and should not be associated with the expansion of transnational corporations in developing countries. It should be seen as part of a process designed to promote the transfer of technology to developing countries. The consultation mechanism at present under way in UNIDO should be strengthened and all countries must participate in order to achieve the redeployment of industrial capacities on a dynamic basis to developing countries and the creation of new industrial capacities in these countries."^{25/}

If the industrialization aims of developing countries are to be achieved under the above-mentioned conditions, it is imperative for the developing countries themselves to work out appropriate industrial restructuring policies. It would appear at present that the critical problems for developing countries involve access to markets, technology, finance capital and, in several cases, to ways of building up management skills. Any one project may involve only some of those elements, and for certain developing countries one element may be more important than others. In most cases, however, they will be the key items around which redeployment negotiations will revolve.

Wherever industrial assets may be obtained from abroad, developing countries will have to seek the most suitable sources of supply and to integrate those assets into their domestic industrial structure. There can be little doubt that for the more advanced and capital-intensive industries, the transnational corporations will be the major source of foreign assets. Sometimes those assets will be provided through foreign investment, either in joint venture form or through the establishment of transnational corporate affiliates, but on other occasions it may be possible to obtain the technological assets and loan capital without the direct investment process. In every instance however, the most important consideration is for developing countries to define their needs precisely, to understand what can or cannot be obtained through careful negotiation, and then to ensure that the arrangements are properly implemented.

In this respect the clarity and consistency of developing country policies is both vital to them and of great importance to foreign suppliers of industrial resources.

Throughout the restructuring process it should be remembered that bargaining skills, alternatives, information, and favourable or unfavourable economic conditions are not irrevocably "given" to a developing country. There are many by now well-known means by which a country can increase its scope for obtaining more satisfactory redeployment projects. Those means involve certain costs, but the potential returns of an active search for, and thorough analysis of, options are high.

Developing countries can, therefore, take the initiative in gathering, analysing and disseminating information about industrial ventures in which they are interested. The establishment of investment centres, the use of investment missions, trade fairs, and various other familiar procedures are open to countries trying to expand the range of choice as fully as possible. Another significant factor is the involvement of governments in multilateral conventions and in organizations which influence attitudes towards, and procedures followed in, the provision of foreign resources for industrialization. Developing countries as a group can and should use their collective bargaining power to ensure that such multilateral arrangements reflect their interests to the greatest extent possible.

With regard to industrial restructuring among developing countries themselves, the evidence currently available does seem to suggest that there may be substantial opportunities for joint ventures and similar arrangements in certain fields of basic industrial goods and capital goods, as well as in several branches of non-brand-name consumer goods. Finance for such investments could come, in part, through loans from developing country financial institutions associated with the capital surplus petroleum-exporting countries or in part through loans from international financial syndicates. Through either route there may be opportunities for triangular redeployment schemes. There should be scope for industrial co-operation among developing countries, given the similarity of their problems and industrialization experience. Such co-operation would make it easier for developing countries to improve their restructuring arrangements with industrialized countries.

III. STRUCTURAL CHANGES IN DEVELOPED COUNTRIES

Introduction

In this chapter some of the main features of, and matters relating to, structural change in industry in individual developed countries are considered. It is based on country studies carried out by the Secretariat in co-operation with the national research institutes, and on various other available studies. At the time of writing (December 1979), the Secretariat had carried out studies on the following countries: Australia, Austria, Belgium, the Federal Republic of Germany, France, Hungary, Sweden and Switzerland. The individual studies have been or are being issued in separate reports (see list in the annex). At present, studies are being carried out through the Secretariat on structural changes in the United Kingdom of Great Britain and Northern Ireland and the United States of America. Those studies will shortly be published. The additional available research results that were used for this report refer to Canada, France, Italy, Japan, the Netherlands, the United Kingdom and the United States (bibliography).

The aim of the studies initiated by UNIDO was first to identify the major trends and determinants of industrial restructuring in those countries as revealed] by the changing production composition by branch. Secondly, the studies were to analyse the identified trends in terms of their significance for the changing division of labour between developed and developing countries. Thirdly, an attempt was made to assess the validity and significance of identified determinants of past structural changes and their bearing on future developments in the manufacturing industry.

In summarizing the findings for general presentation, the Secretariat sought to provide a brief profile of the restructuring process of the individual countries, and to derive certain conclusions and findings for the group of countries as a whole.^{26/} It is essential to note that in the presentation of past and future structural changes the aggregation of industry branches is so high that it necessarily conceals a number of structural changes within the branches. Especially in heterogeneous branches, a closer investigation would reveal large differences in growth between the sub-branches and/or the technologies applied in various industries.

^{26/} Unless reference is made to other sources, the country data were taken from the above-mentioned studies.

First of all the main features of the restructuring process in the economies, in particular the manufacturing sector, are described. Future trends are then outlined, and a brief review is made of the industrial employment situation in developed market economies, an aspect of the adjustment process to which considerable attention is devoted in discussions of the subject. Finally, some of the major policies which affect structural change in the countries concerned are briefly described.

Main features of the restructuring process

Developed market economy countries

The main features of structural change in developed market economy countries might be summarized as follows. First, in the 1960s and 1970s the service sector, as compared with manufacturing and agriculture, gained a larger share of total value added. While manufacturing increased its share in the 1960s, during the 1970s it lost ground in relation to services. Second, economic growth slowed down considerably during the 1970s, and that slow-down has brought to the surface certain structural problems which were more easily manageable in the earlier period of high growth. Third, the share of the total labour force employed in manufacturing has tended to decline. That decline has been most pronounced, relatively speaking, in the United Kingdom and the Netherlands, the former being also the country where the proportion of the labour force employed in manufacturing remains relatively high. Fourth, rising productivity has been by far the greatest cause of structural change in manufacturing. The increase in productivity has in turn been the outcome of substantial technological changes in the production process itself and in fields of industrial activity not directly related to production.

Besides the technologically-induced rise of productivity, there are several other factors that condition the structural changes. The emergence of new products and of induced changes in income distribution have helped to generate major shifts in the composition of demand for both consumer and capital goods. Moreover, shifts have also taken place in the level and pattern of international demand, thereby encouraging alterations in the product mix of domestic output and in the structure of foreign trade. Relocation of parts of industrial production to other countries has contributed to internal structural change in developed market economy countries. Greater competition

and specialization among those countries, affecting their market shares at home and abroad, has fostered the relocation process.

Whereas the international division of labour has hitherto been characterized by trade between primary commodity producing countries on the one hand and final industrial goods producing countries on the other, international trade is now changing its structure, as manufactured products from developing countries increasingly enter international markets. Moreover, the division of production processes into sub-processes and the possibilities of shifting the latter to other locations has led to a considerable increase in both intra-industry trade and in trade between developed and developing countries. Thus, in addition to international trade in commodities based on comparative advantages in factor composition, there is now a trend towards the sharing of production by companies of different countries based on the countries' comparative advantages in producing inputs for the final products.

The level of and changes in the exchange rates of developed countries have also affected the restructuring process in some countries. With the shift away from fixed rates during the 1970s, the competitive edge held earlier by countries with strong currencies tended to diminish. In recent years all developed market economy countries have also been affected by increasing price levels of raw materials and energy. Calculations of the determinants of labour displacement in developed market economy countries demonstrate that productivity increases and competitive pressures generated by other developed countries have been much more significant causes of structural change than imports from developing countries.

Although it could be argued^{27/} that during the next few decades the process of economic growth could continue without reaching absolute physical limits (involving, for example, chronic shortages of raw materials), available evidence suggests that a qualitative change in economic development is necessary. Future development would need to be oriented towards the search for new technologies and greater environmental protection. To this end, the development of alternative sources of primary energy and raw materials, and of new technologies for their utilization can be expected to gain importance. Qualitative growth would also include the development of new concepts and technologies in agriculture and agro-industries to avoid the long-term destruction of arable land and to ensure protection against toxic products.

^{27/} See, for instance, Facing the Future (Paris, OECD, 1979).

Developments in electronics and the application of biological and biochemical research results are expected to produce substantial changes. More stringent legislation on environmental protection and devices is likely to encourage growth of new industries producing equipment to protect against pollution. Such legislation could also lead to the total abandonment of some existing products and processes or to their relocation.

Future growth is likely to be associated with a relative increase in the role of the service sector, affecting both consumers and industrial services. In future, industrial services will probably be increasingly provided from within the industrial corporations, rather than as separate items on the open market.

Differences in population trends between developed and developing countries, such as the faster growth rates of population in developing countries, which imply a relatively younger age structure, will affect restructuring of production in future through their influence on patterns of demand in the two groups of countries.

Overall trends in centrally planned economies

Structural changes in the economies of the developed centrally planned economy countries are determined mainly by the priority given to the development of the industry sector. It has been emphasized that due to the centrally planned organization of those economies, "the State determines the necessary degree and directions for structural reorganizations and carries these reorganizations out purposefully and systematically in advance, without waiting for disproportions to arise".^{28/} On the basis of their development plans those countries establish long-term development objectives and priorities and co-operating programmes among members of the Council for Mutual Economic Assistance (CMEA). One of the main development objectives is a systematic change from extensive production technologies and industry sectors to more intensive ones. Priority is given therefore to those sectors which make a more efficient use of available resources and those sectors which entail scientific and technological progress.

In satisfying the above-mentioned general objectives, each individual country is integrated on the basis of its specific characteristics and resource endowments into the long-term co-operative programmes.^{29/} The centrally planned

^{28/} "The influence of structural changes in the economy of socialist and capitalist countries on the development of east-west trade and industrial co-operation", paper presented at the Seminar on the Future of East-West Co-operation, 1979-1985, Vienna, 5-7 March 1979, p. 3.

^{29/} Ibid. p. 5.

economy countries, recognizing the necessity of international specialization and co-operation in industrial production, thus intend to expand their participation in the international division of labour through co-operation within the group of CMEA countries, through improved industrial co-operation with the developed market economy countries and increased relations with the developing countries.^{30/} It is realized that the long-term programmes of industrial development must be adapted to the advantages of the international division of labour.^{31/}

In a recent study on current and future trends of structural change in developed centrally planned economy countries and the division of labour between centrally planned economy countries and developing countries,^{32/} UNIDO examined changes in trade patterns between those two groups of countries. The changes relate to the trade composition of industry sectors and subsectors, and the roles of trade between the different trading partners. With regard to the prospects for future trade changes between the developed centrally planned economies and developing countries, the findings show that apart from an increase in imports of oil and raw materials, CMEA industrial imports from developing countries will mostly consist of processed raw materials and tropical

^{30/} cf. Schagalov, G.L., "The methodical problems of defining the perspectives of industrial development, considering the advantages of the international division of labour", presented at the Seminar on Forms and Orientations of International Co-operation in Relation to Long-term Growth Patterns, held in Warsaw, 10-16 May 1979.

^{31/} "Foreign trade must be considered as an alternative to the use of domestic resources of production in case of industrial development decisions on the satisfaction of certain needs of the national economy". Schagalov, *op. cit.*, p. 2.

^{32/} UNIDO, "The industrial division of labour between the European centrally planned economies and the developing countries", in preparation.

food, labour-intensive engineering products and spare parts. Those product categories might account for 35-40% of imports by the end of the 1980s.^{32/} On the basis of an assessment of past industrial co-operation and of the prospects for future co-operation, increased attention should be given by both centrally planned economy countries and developing countries to a growing co-ordination of their respective long-term industrial plans and programmes, so as to take full advantage of opportunities for dynamic industrial co-operation. To this end, a systematic exchange of information on their expected industrial development patterns would be needed.

Main features of the restructuring process in industry

Sectoral changes in developed countries

In practically all country studies the same group of industry sectors showed a strong downward trend in recent years. Those sectors are textiles, clothing, leather and footwear and in some countries iron and steel and shipyards. An analysis of total demand shows a shift from consumer goods industries to capital goods industries in developed countries. For instance, in the case of the Federal Republic of Germany, the share of consumer goods industries in total demand fell between 1965 and 1975 from 34% to 31%, whereas the share of capital goods industries increased during the same period from 36% to 38%. This trend can also be confirmed in general by looking at the growth sectors of the countries belonging to the European Economic Community (EEC).

The growth sectors in the developed market economies between 1960 and 1973 were mainly chemicals, rubber and plastics, electrical apparatus and motor vehicles,^{34/} as reflected in table 6 below. In Belgium, Italy and The Netherlands, ores, iron and steel belong to the growth sectors, but that is not the case in the Federal Republic of Germany, France and the United Kingdom. In the latter countries, precision instruments, data processing and telecommunications are

^{33/} Regarding the foreign trade patterns between developed centrally planned economies and developed market economies, see the section of this chapter dealing with changes in foreign trade patterns.

^{34/} "Sectoral change in the European economies from 1960 to the recession", Report of the Group of Experts on Sectoral Analysis, Commission of the European Communities, Brussels, 1978.

Table 6. Growth sectors of manufacturing industry between 1960 and 1973 in selected developed countries

	Federal Republic of Germany	France	Italy	Netherlands	United Kingdom
Belgium					
Miscellaneous industry	Chemical products	Chemical products	Chemical products	Chemical products	Minerals, building materials
Equipment products	Precision instruments, data processing	Electrical equipment	Motor vehicles and other means of transport	Rubber, plastics	Chemical products
Chemical products	Electrical equipment	Motor vehicles	Ores, iron and steel	Electrical equipment	Precision, data- processing
Rubber, plastics	Rubber, plastics	Agricultural and industrial machinery	Miscellaneous manufacturing industry	Ores, iron and steel	Electric equipment
Ores, iron and steel	Communications	Communications	Rubber, plastics	Motor vehicles	Rubber, plastics
	Banking, finance and insurance				Communications
	Motor cars and other means of transport				Motor vehicles

Source: "Sectoral change in the European economies from 1960 to the recession", report of the Group of Experts on Sectoral Analysis, Commission of the European Communities, Brussels 1978.

among the growth sectors. The rubber and plastics subsector of the chemical industry was a growth sector in all the listed countries except France. Motor vehicles were also listed among the growth sectors in those countries, with the exception of Belgium. In France and Italy that sector had growth rates high above the average, whereas in the Federal Republic of Germany, the Netherlands and the United Kingdom was the lowest growth sector.

The growth sectors are generally characterized by comparative advantages in foreign trade, that is, the share of exports of those sectors was higher than their share of imports. Capital accumulation in those sectors was also higher than in the rest of the economy. The growth industries showed both a high growth of productivity and a growth in employment, whereas in industry as a whole, productivity increased as a result of output growth and a fall in employment.

In the studies on structural change undertaken by UNIDO, an attempt was made to detect more recent changes and further characteristics of growing industries. It was found that machinery was no longer a major growth sector. Generally, growing industries use much highly qualified labour, whereas declining industries for the most part are characterized by a relatively low level of labour qualification.

Changes in the sector composition of manufacturing industry were accompanied by a changing structure of the labour force. On the one hand, there is in general an increasing share of white collar workers engaged in non-production fields and a declining share of blue collar workers mainly engaged in production fields. Such a trend implies that management, organization and information processing etc. are gaining in importance in industrial activities. On the other hand, there is a trend within the group of white collar workers towards a higher degree of qualification.

The past restructuring process in a number of countries is briefly described below.

Australia

An overall reduction in employment in Australian industry as a whole could be observed. This is an indicator of the declining importance of manufacturing in the Australian economy since the 1960s, and was principally caused by improved labour productivity. Textiles, clothing and footwear are the main declining branches.

Austria

Austria has until recently held an intermediate position in the international division of labour, a fact which emerged from both analyses of foreign trade and an attempt to identify the determinants of revealed comparative advantages of branches of Austrian industry in relation to various foreign country groups. Its intermediate position has started to change. A tendency to greater similarity with the economically most advanced countries has become apparent.

Canada

In the current adjustment process Canadian firms usually face two options: either firms adjust by eliminating inefficiencies in their operations, by modernizing or revitalizing their plant and equipment, or by reorganizing and moving into more viable lines of production ("adjusting in"); or companies shut down operations because of inability or unwillingness to pursue the restructuring of their existing production facilities ("adjusting out"). Strong adjustment pressure may be found in sectors such as textiles, clothing, footwear, common electrical products and parts of the metalworking industries.

Federal Republic of Germany

An analysis of recent employment changes in the industrial structure showed that in the vast majority of industries increases in labour productivity and technological changes have taken place. Employment fell in all industries except plastics during the 1970-1976 investigation period.

France

France experienced a continuous high economic growth in the 1950s and 1960s and a continuous low growth with rising unemployment, mainly in the industrial sector, between 1975 and 1979. The survival of non-competitive industries and the pressure of too many low-skilled labour-intensive industries in a high-wage country were main causes of the structural problems of France. The highly qualified labour sectors remained relatively weak.

A survey of adjustment in the 1974-1979 period shows that the growth rate of steel and foundries, shipbuilding, textiles and wearing apparel, shoes and leather industries was more than 2 per cent below the average for the manufacturing sector. On the other hand, industries such as electrical products, electronics, mechanical machinery, aircraft, transport and rubber have had a growth rate 2 per cent above the average.

Hungary

Industrialization in Hungary after the Second World War was based mainly on the development of heavy industry. From the 1960s, the concentration of production factors in the heavy industry decreased, and chemicals were given priority as a development sector. In 1977 the chemical industry reached approximately the same share in the industry of Hungary as in the developed market economies. In the 1950s the light industries and food industry were pushed to the background but have expanded since the beginning of the 1960s, with the food industry attaining a relatively high share in gross industrial production. The food industry, textile and leather, including clothing and footwear, are now tending to decline, although the tendency is not so strong as in the developed market economies.

The research findings indicate that the problems of the industrial structure of Hungary are a commodity structure that is too extensive, the production of outdated articles and insufficient co-operation and specialization among firms. Too much raw materials, energy and labour are needed.

Japan

Until the early 1970s the expansion of heavy industry was a dominating factor in industrial growth, although the highest industrial growth rates in value added occurred in office, computing and accounting machinery, plastic products and shipbuilding. Low rates were registered in the pulp, paper and paperboard, spinning, clothing, textiles and leather industries. After 1973 industrial production declined, but in early 1978 prerecession levels were reached again. From late 1973 until the end of 1977 employment in total manufacturing decreased by nearly 1 million, although the food, leather, secondary textile products and publishing and printing industries showed employment increases. The highest job losses occurred in primary textile, wood, rubber and metal products.

Switzerland

As in most other developed countries, employment in manufacturing has been decreasing. Employment fell in all branches except the following, which have increased their share in the total industrial labour force: food, beverages, tobacco, subgroups of the paper industry, printing and publishing, rubber, plastics, chemicals, metal goods and machinery.

In both centrally planned and developed market economies, the increasing interdependence of the world-wide trade in manufactured products has been noticeable in recent years. An analysis of comparative advantages in foreign trade and of structural changes in the sectoral composition of individual developed market economies shows that sectors improving their position in the international division of labour account for much of the structural changes in the sectoral composition of a country's manufacturing industry. Comparative advantages and their determinants were therefore used in studies of some developed market economies to make projections of the future restructuring process. Those projections are summarized in the section of this chapter on expected future developments of industrial sectors.

Change in foreign trade patterns

Main trends

An analysis of the international division of labour, which in the past was characterized mainly by trade between primary commodity producing and capital and consumer goods producing countries, shows an increasing importance of intra-industry trade. The change from inter- to intra-industry trade was made possible by breaking down production processes into a number of subprocesses, which were shifted to different geographical locations on the basis of process requirements and the comparative advantages of the various countries in producing inputs. As a result, the composition of international trade in commodities cannot be explained only by reference to comparative advantages in factor composition related to the final products.

The above-mentioned trend in the international division of labour is reflected in table 7,^{35/} although the level of aggregation is quite high.

The change in the division of labour between the OECD countries and developing countries is reflected mainly in the increased share of manufactured imports from developing countries in total OECD imports (without SITC section 3, mineral fuel) from developing countries in recent years. The share was increased by 33 per cent in 1970 to 43 per cent in 1977. The share of manufactured imports from centrally planned economies in total OECD imports from that group of countries remained stable during the same period (39 per cent). Manufactured imports of the OECD countries from developing countries were four times higher in both

^{35/} Showing the rough trade flows (according to SITC sections) in absolute values (in millions of \$US) in order to make it possible to identify all relations (vertical and horizontal structure, changes, and balances) in one table.

Table 7. Foreign trade patterns of the OECD countries and European OECD countries with the centrally planned economies and developing countries in 1970 and 1977

SITC section	Imports										Exports									
	1970					1977					1970					1977				
	OECD	CFE	World	Rest	World	OECD	CFE	World	Rest	World	OECD	CFE	World	Rest	World	OECD	CFE	World	Rest	World
0,1,2,3,4,9	41 530	4 188	35 286	5 779	86 783	122 130	16 313	16 777	337 467	38 201	160	7 282	3 748	40 371	125 517	6 645	27 399	7 443	167 594	
(3)			(15 069)					(127 137)												
5	13 426	385	673	228	14 712	47 831	1 695	1 228	52 927	17 616	1 034	4 602	821	19 073	45 269	4 126	16 306	2 608	68 209	
6	36 568	1 355	5 970	1 746	45 639	73 731	4 288	15 489	3 920	123 428	36 101	2 245	3 345	1 547	49 238	96 920	3 276	33 254	3 518	143 668
7	53 521	458	958	68	55 005	172 711	1 944	8 240	463 183 558	53 313	2 470	17 796	4 104	77 691	165 537	11 137	25 031	10 361	272 166	
8	15 823	410	2 484	36	18 753	51 639	2 273	15 816	423 70 151	15 422	401	2 857	574	13 354	49 046	1 283	11 302	1 567	53 128	
5-8	119 338	2 608	10 085	2 078	14 109	374 808	10 200	4 718	430 264	117 452	6 158	34 600	7 146	165 356	356 872	25 822	146 593	18 054	347 341	
Total trade	160 868	6 796	45 371	7 857	220 892	496 938	26 513	223 065	20 115 767 531	159 653	6 318	41 882	10 894	214 747	482 389	32 467	174 582	25 497	714 235	
0,1,2,3,4,9	29 428	3 460	20 962	2 246	56 706	20 689	13 131	89 781	6 033 199 634	23 317	946	2 648	1 242	28 153	73 536	2 752	11 988	3 530	36 806	
(3)			(9 924)					(58 584)												
5	10 623	337	418	81	11 459	37 523	1 519	1 169	357 40 568	9 422	738	2 691	545	13 447	36 364	3 410	9 615	1 062	50 451	
6	27 261	1 054	3 641	1 343	33 299	75 873	3 375	8 015	89 334	26 835	1 706	4 569	803	33 974	67 981	6 599	17 735	1 344	102 659	
7	34 418	417	323	49	35 207	112 882	1 798	2 678	164 117 522	33 218	2 154	3 201	2 227	46 803	103 377	8 331	33 553	4 325	162 186	
8	10 712	332	878	21	11 950	38 743	1 782	6 302	87 47 006	11 627	324	1 561	388	13 300	38 319	1 333	4 767	778	46 890	
5-8	83 021	2 140	5 260	1 494	21 215	265 021	8 475	18 255	294 430	31 163	4 282	10 310	3 064	109 101	257 034	19 172	77 570	2 509	362 186	
Total trade	112 449	5 600	26 222	4 440	148 711	355 710	21 606	108 036	8 712 434 064	104 489	5 328	26 660	5 206	136 274	305 879	22 725	83 459	11 020	458 200	

European OECD countries:

Source: OECD, Trade by Commodities, Analytical Abstracts Series B, 1970, 1977.

Notes: 1. Key to country groupings: OECD (1970) = European OECD, Canada, Japan and United States; European OECD = Austria, Belgium, Denmark, Finland, France, Germany, Federal Republic of Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, Turkey, United Kingdom; CFE = Centrally planned economies in Eastern Europe and Asia; Developing = Developing countries in America, Asia, Europe, Middle East and Oceania; Rest = Australia, New Zealand, South Africa and unspecified.

2. Key to SITC Section code: 1 = Food and live animals; 2 = Beverages and tobacco; 3 = Textile base materials, except fuels; 4 = Mineral fuels, lubricants and related materials; 5 = Animal and vegetable oils and fats; 6 = Chemicals; 7 = Manufactured goods classified chiefly by material; 8 = Machinery and transport equipment; 9 = Miscellaneous manufactured articles; 0 = Commodities and transactions not classified according to type

nails, tubes and wires in the iron industry; cables, pumps, centrifuges, office machines, roller bearings and cooling equipment in the mechanical goods industry; bulbs, lamps, television sets and radios, electric machinery and recording tapes in electric industries; fertilizers, antibiotics and inorganic acids in the chemical industry; and miscellaneous articles from various industries such as furniture, houseware, cutlery, watches, clocks and cameras. ^{36/}

Although many developing countries exporting mainly primary commodities, the number of those exporting manufactured products and the range of export products has increased significantly. There is a clear tendency of developing countries to diversify their range of competitive manufactured products on international markets. While their exports are still dominated by textiles and electronic products, a gradual changeover to other items is taking place. Moreover, labour-intensive export goods seem to be supplemented by products with capital-intensive technologies.

Intra-industry trade between developed and developing countries is dominated by new rather than older industries and consists mainly in intra-firm trade of transnational corporations and trade arising from sub-contracting arrangements. Among developed countries themselves a tendency towards both increasing intra-industry trade and increasing competition may be noted. A possible reason is that there is decreasing scope for inter-industry specialization between developed market economies with similar factor-endowments.

The shifts in price relations of imported energy and raw materials further accentuate international developments, as developed countries are under pressure to increase their exports to developing countries to offset the cost of such imports.

^{36/} The basis for this paragraph is O. Gulbrandsen's paper, "The evolution of the international division of labour" (UNCTAD, October 1978) and UNIDO studies on structural change, which analysed changes in foreign trade using a breakdown of industry sectors according to the SITC.

Comparative advantages in foreign trade

The index of revealed comparative advantage^{37/} assumes that differences in competitive conditions are revealed by the actual trade flows (export-import relations) of different branches. It also assumes that protectionist measures, transport costs, consumer preferences etc. remain constant. In spite of those limitations, the index is one of the best available measures for quantifying comparative advantages between countries. In the country studies on structural change, the index is therefore used to measure the comparative advantage of industry sectors in relation to different country groups: OECD countries, countries of southern Europe, centrally planned economies and, mainly, developing countries.^{38/}

In the case of Austrian industry, it was found that basic industries such as iron and steel, paper, foundries and labour-intensive industries, including leather, clothing and textiles, have high comparative advantages in trade with other OECD countries. However, it can also be observed that the comparative advantages of those sectors have a slight tendency to decline. The sectors presently having comparative disadvantages are the machinery, chemical and transport industries. In the trade of Austria with developing countries and with centrally planned economy countries in Eastern Europe, the situation is completely different. Branches such as machinery, chemicals, electrical products and transport equipment show high comparative advantages, while in the clothing and leather industries low and declining values of the revealed comparative advantage indicator are to be found.^{39/} In textiles, Austria still has comparative, though decreasing, advantages vis-à-vis the latter country group, while with regard to developing countries the high comparative advantages in machinery, transport equipment and (mainly) electrical products are also declining.

^{37/} This concept was introduced by B. Balassa in 1965. In principle the following equation was usually applied to calculate an index of comparative advantages;

$$RCA_{it} = \ln \left(\frac{x_{it}}{\sum_{i=1}^n x_{it}} \right) / \left(\frac{m_{it}}{\sum_{i=1}^n m_{it}} \right)$$

Where RCA_{it} is the revealed comparative advantage indicator of industrial sector in year t , x_{it} is the value of exports of industrial sector i in year t , m_{it} is the value of imports of industrial sector i in year t , and n is the number of industrial sectors in a country. See "Trade liberalization and revealed comparative advantage", The Manchester School of Economic and Social Studies, vol. 33, No. 1 (1965).

^{38/} The results of the calculations of the revealed comparative advantage indicators are summarized in tables 8 and 9.

^{39/} The trade patterns of the Netherlands present a similar picture. Industries in the Netherlands have a great revealed comparative advantage vis-à-vis other developed countries in sectors such as dairy products and foodstuffs, whereas with regard to developing countries its advantage can be found in metal products and machinery.

years than manufactured imports from centrally planned economies. Intra-OECD trade in manufactured products remained stable during the period considered.

OECD exports to developing countries consist mainly (84 per cent in 1977) of manufactured products, machinery and transport equipment being the most important group (49 per cent in 1977). The same is true of OECD exports to the centrally planned economies: in 1977, 80 per cent of exports consisted of manufactures, the bulk of which was capital goods.

The greatest increase in the share of the total import market of the OECD countries was achieved by developing countries. Their share in total manufactured imports of the OECD countries rose from 7.5 per cent in 1970 to 9.7 per cent in 1977, while the share of the centrally planned economies increased from 1.9 per cent to 2.4 per cent. In the European OECD countries alone, the shares rose from 5.7 per cent to 6.2 per cent, and from 2.3 per cent to 2.9 per cent, respectively. The highest increases in imports by European OECD countries from developing countries were found in machinery, transport equipment and miscellaneous manufactured articles, while in imports from centrally planned economies the highest increases were to be found in miscellaneous manufactures and chemicals.

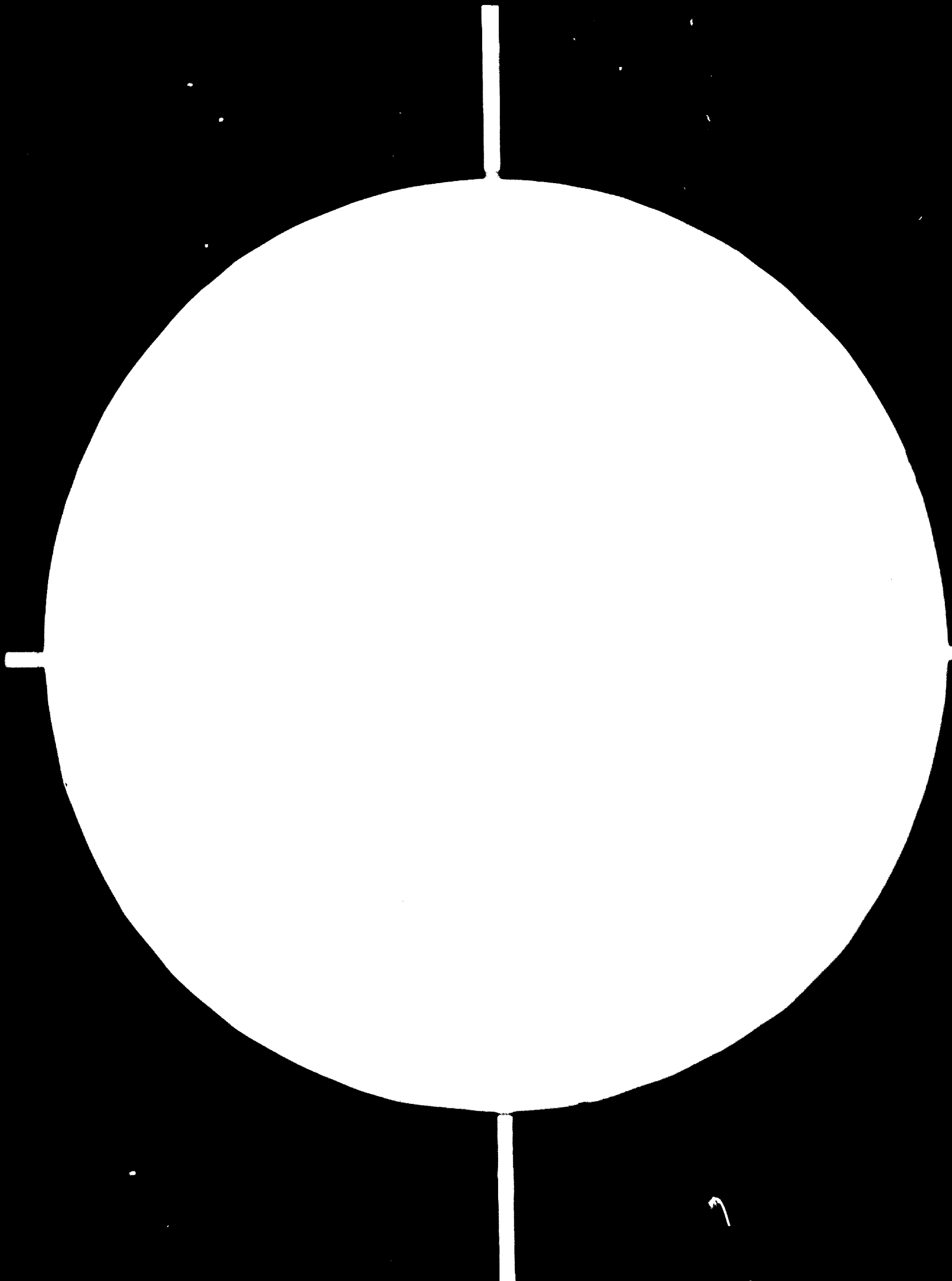
For OECD countries, both developing countries and centrally planned economies are gaining importance as export markets. Though total exports and imports of all OECD countries are nearly balanced in both of the years considered, manufactured exports of the OECD countries to developing countries were 3.5 times higher in 1977 (3.4 in 1970) than the corresponding imports. The difference was not so great for the centrally planned economies: 2.4 in 1970, and 2.5 in 1977. With regard to developing countries, a comparison between exports and imports of manufactured products of the European OECD countries shows a different picture: in 1977 their manufactured exports to those countries were 4.3 times higher (3.4 in 1970) than the corresponding imports.

The most important commodity groups in the expansion of manufactured exports from developing to developed countries have been textiles, footwear, leather, clothing, iron and steel, mechanical goods, electric products, chemicals products of the wood and metal processing industry and instruments. Among those sectors may be observed a range of products that have a small but rapidly expanding share of the market. Those products include the following:

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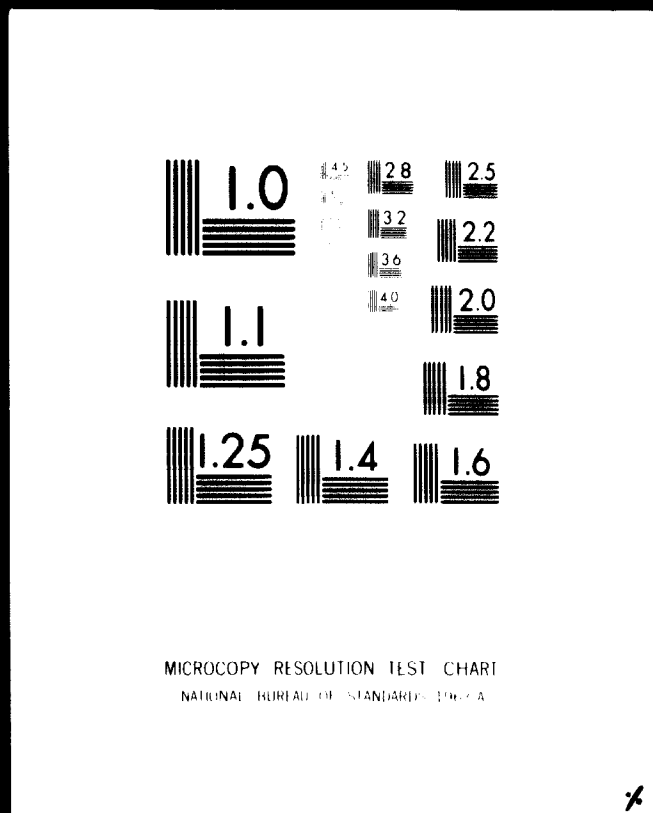


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The results show that Austria is among those developed countries that at present have an "intermediate" position in the international division of labour. The trends also show that on the one hand, Austria is becoming increasingly similar to the more advanced OECD countries, while, on the other hand, imports of manufactured products from developing countries are gaining importance.

The pattern of the Federal Republic of Germany contrasts with that of Austria. It shows great revealed comparative advantages in roughly the same sectors (mainly machinery, transport equipment, chemicals) over both OECD and developing countries. For Austria, revealed comparative advantages in those sectors are only to be found vis-à-vis developing countries (see tables 8 and 9). Hence the two countries have different positions in the international division of labour.

A comparison of the revealed comparative advantages of the other countries in table 8 shows that in nearly all developed market economy countries the machinery, transport equipment and chemical sectors have high revealed comparative advantages with regard to developing countries. The same holds true in the case of the iron and steel industry, but with substantial differences in relation to the other sectors with high values (see table 8). In the Federal Republic of Germany, for example, exports and imports of goods produced by that industrial sector are very nearly balanced, whereas in the case of Japan and Belgium, iron and steel are among the sectors having the greatest assets vis-à-vis developing countries. Special situations due to natural resource endowments exist in other countries, for example Australia, which has high comparative advantages vis-à-vis developing countries of the Association of South-East Asian Nations in sectors such as aluminium mineral processing, and Belgium, in the dairy products sector. Comparative disadvantages vis-à-vis developing countries (indicated by low values of revealed comparative advantages) are generally emerging in sectors such as textiles, clothing, leather and footwear and in sub-sectors of those industries (as reflected by table 8 in the case of Belgium).

Developed countries were generally found to have comparative advantages vis-à-vis each other in traditionally strong sectors such as wood, paper and paper production in Sweden, the watch industry in Switzerland, and the dairy products, foodstuffs and petroleum-refining sectors in the Netherlands. In

Table 4. Rankings of countries and commodities according to the comparative advantage indicator (with low and negative values in brackets)

	Austria		Australia	Belgium	Germany, Federal	Italy	Japan	Netherlands	
	1975	1976	1975/76	1975	1975	1975	1975	1975	1975
Machinery	Transport equipment	Aluminium	Dairy products	Fertilizers, manufacture	Shoes, leather	Electricity	Transport equipment	Petroleum refining	Petroleum refining
Transport equipment	Mineral oil	Petroleum refining	Glass	Plastic materials	Electric machinery	Textile machinery	Iron and steel	Transport equipment	Metal products, machinery
Paper products	Pottery, non-metallic mineral products	Other mineral (nonferrous)	Paper and cardboard manufacture	Wine, alcoholic	Transport equipment	Jewellery etc.	Electric materials	Painting and publishing	Paper
Mineral oil	Paper products	Chemicals	Iron and steel	Transport equipment	Chemical materials and products	Articles of rubber	Fiber, rayon-board	Metal products, machinery	Newsprint
Paper	Foundry	Food and beverages	Electricity	Machinery	Machinery	Printed matter	Machinery	Electronics	Transport equipment
Pottery, non-metallic mineral products	Iron and steel	Machinery	Rubber	Chemical materials and products	Essential oils, perfume	Domestic electrical equipment	Dyeing, leather	Beverages	Chemical industry
Electrical products	Machinery	Metallic mineral products	Paper and cardboard	Instruments	Chemical elements	Equipment for electricity distribution	Manufacture of metal	Paper	Printing and publishing
Foundry	Paper	Plastics	Chemicals	Medical, pharmaceutical products	Manufacture of metals	Road works (other than auto-vehicles)	Rubber manufacture	Chemical industry	Dairy products
Metal products	Metal products	Leather products	Pharmaceuticals	Manufacture of metals	Medical and pharmaceutical products	Mineral manufacture	Sanitation, heating	Cement, glass, pottery	Electronics
Iron and steel	Electrical products	Paper	Ceramics	Paper, paper-boards	Explosives, pyrotechnics	Household equipment	Instruments	Dairy products	Cement, glass, pottery
Glass	Glass	Paper products	Wood manufacture	Essential oils, perfume	Sanitation, heating	Articles of artificial plastic	Chemical elements	Optical and other manufacture	Basic metal
Textiles	Chemicals	Printing	Wine	Electrical machinery	Paper, paper-boards	Aircraft	Electrical machinery	Basic metal	Optical and other manufacture
Wood	Wood		Tanned fish	Iron and steel	Iron and steel	Food	Fertilizers, manufactured	Textiles	Leather, shoes
Chemicals	Textiles		Petroleum refineries	Sanitation, heating	Electrical machinery	Iron and steel	Chemical materials and products	Leather, shoes	Footstuffs
Clothing	Food		Clothing	Chemical elements	Instruments	Paper and paper-boards	Textile yarn	Footstuffs	Textiles
Food	Non-ferrous metals		Cotton spinning	Rubber manufacture	Rubber manufacture	Cutlery	Essential oils, perfume	Wool furniture	Wool furniture
Leather	Leather		Canned vegetables	Explosives, pyrotechnics	Fertilizers, manufactured	Glass	Miscellaneous manufacture	Clothing	Clothing
Non-ferrous metal products	Clothing		Leather tanning	Minerals, crude chemicals	Non-metallic mineral manufacture	Telecommunications	Leather, leather manufacture		
			Footwear	Non-metallic mineral manufacture	Furniture	Medical instruments	explosives, pyrotechnics		
			Beverages	Furniture	Miscellaneous manufacture	Pottery	Non-metallic mineral manufacture		
			Wheat prepared	Miscellaneous manufacture	Wool and cork	Clothing	Furniture		
			Wool combing	Textile yarn	Textile yarn	Toys and sports-instruments	Medical, pharmaceutical products		
			Quarries	Travel goods	Non-ferrous metals	Wool clothing etc.	Non-ferrous metals		
			Jute spinning	Wool and cork	Leather, leather products	Watches and clocks	Travel goods		
			Non-ferrous metals	Leather, leather products	Travel goods	Silver and platinum	Mineral tar, crude chemicals		
			Sawing of wood	Footwear	Footwear		Footwear		
			Oils and fats	Non-ferrous metals	Clothing		Clothing		
				Clothing			Wool and cork		

High values of revealed comparative advantages

Low values of revealed comparative advantages

Source: UNCTAD country studies and the papers regarding Italy, Japan and Netherlands are listed in the annexes.

Note: There is no information about those which have low values of the revealed comparative advantage indicator in Australia.

Table 2. Rankings of industry sectors in selected developed market economies by revealed comparative advantages in total trade, or in trade with OECD countries or all developed countries in various years

	Austria (in trade with OECD countries)		Germany, Federal Republic of (in trade with OECD countries)		Sweden (in total foreign trade)	Switzerland (in total foreign trade)		Netherlands (in trade with developed countries)	
	1973	1975	1973	1976	1977	1974	1975	1973	1974
	High values of revealed comparative advantages	Wood products	Iron and steel	Dyeing, tanning	Dyeing, tanning	Paper and paper products	Watchcase manufacture	Watchcase manufacture	Petroleum refinery
	Pottery, non-metallic mineral products	Wood products	Explosives, pyrotechnics	Machinery	Transport equipment	Chemicals	Chemicals	Dairy products	Dairy products
	Paper	Pottery, non-metallic mineral products	Sanitation, heating	Transport equipment	Basic metal industries	Machinery, transport equipment	Machinery, transport	Foodstuffs	Foodstuffs
	Iron and steel	Paper	Transport equipment	Chemicals	Wood products	Textiles	Metal products	Beverages	Chemical industry
	Clothing	Foundry	Machinery	Manufacture of metal	Machinery and equipment	Graphics industries	Textiles	Printing and publishing	Optical and other manufacture
	Foundry	Leather	Manufacture of metal	Furniture	Pulverized metal products	Food and beverages	Graphics industries	Chemical industry	Beverages
	Leather	Metal products	Fertilizers, manufactured	Explosive pyrotechnic	Electrical machinery	Metal products	Food and beverages	Optical and other manufacture	Basic metals
	Metal products	Textiles	Furniture	Electrical machinery	Chemical and plastic products	Clothing, footwear	Leather	Electronics	Printing and publishing
	Glass	Food	Chemicals	Medical and pharmaceutical products	Non-metallic mineral products	Leather	Paper and paper board	Basic metals	Electronics
	Textiles	Clothing	Medical and pharmaceutical products	Plastic materials	Rubber products	Paper and paper products	Clothing, footwear	Textiles	Paper
	Food	Electrical products	Instruments	Instruments	Instruments, appliances	Non-metallic mineral products	Non-metallic mineral products	Leather, shoes	Metal products machinery
	Electrical products	Paper products	Miscellaneous manufacture	Miscellaneous manufacture	Textiles, leather apparel, leather	Wood, cork	Wood, cork	Paper	Cement, pottery, glass
	Non-ferrous metal products	Glass	Electrical machinery	Sanitation heating				Clothing	Textiles, leather, shoes
	Paper products	Machinery	Plastic materials	Chemical elements				Metal products machinery	Clothing
	Machinery	Non-ferrous metal products	Essential oils and perfume	Essential oils				Transport equipment	Transport equipment
	Chemicals	Chemicals	Non-metallic mineral manufacture	Iron and steel				Cement, pottery, glass	Wood furniture
Low values of revealed comparative advantages	Transport equipment	Transport equipment	Chemical elements	Non-metallic mineral manufacture				Wood furniture	
	Mineral oil	Mineral oil	Iron and steel	Rubber manufacture					
			Travel goods	Textiles, yarn					
			Rubber manufacture	Fertilizers, manufactured					
			Textile yarn	Non-ferrous metals					
			Wood and cork	Leather, leather manufacture					
			Leather, leather manufacture	Wood and cork					
			Mineral tar, crude chemicals	Travel goods					
			Non-ferrous metals	Paper and paper board					
			Clothing	Clothing					
			Paper, paper board	Footwear					
			Footwear	Mineral tar, crude chemicals					

Source: UNIDO country studies and the papers regarding the Netherlands as listed in the annexes.

addition to those sectors, the main branches with high comparative advantages are (with the exception of Austria) chemicals, machinery and transport equipment, which indicates both strong competition and high intra-industry specialization among developed market economy countries.

Only in the Federal Republic of Germany were a number of branches found to have lost comparative advantages since 1970, with imports becoming higher than exports. That was the case in the sectors of medical and pharmaceutical products, precision instruments and optics, plastic materials, miscellaneous manufactures, sanitation and heating (see table 9). Nevertheless, total manufactured exports remained 1.5 times as high as total manufactured imports between 1970 and 1976. The surplus was created by only one fourth of the branches. The case of Switzerland was similar. Although in 1975 only four Swiss sectors had higher exports than imports, those sectors compensated for all the deficits of the other sectors. In 1975 total Swiss manufactured exports were 1.14 times higher than manufactured imports.

Determinants of comparative advantages in foreign trade

In the analyses undertaken at country level, the main determinant of comparative advantages emerging in nearly all cases was high qualification of labour (human capital intensity). In the case of the Federal Republic of Germany, four different trade models showed that the relative abundance of highly skilled managers, research and development personnel and qualified production workers are the most important asset in trade with developing countries, followed by energy intensity and economies of scale. Although significant, physical capital intensity and the effective rate of total government assistance fail to account for comparative advantages. In Austria also, comparative advantages vis-à-vis developing countries are determined by the availability of highly qualified managers and skilled workers. Energy intensity has a negative influence. The intermediate position of Austria was confirmed in calculating the determinants of comparative advantages in foreign trade with OECD countries. Here physical capital intensity was found to have a favourable effect on the comparative advantages of Austrian industry sectors, whereas high qualification of labour (management and workers) had a negative effect.

The analysis of Sweden also shows that the position of Sweden's industries is determined by their human capital intensiveness. Sweden's industries lose their competitiveness not only in "low labour-intensive" branches, but also in physical capital-intensive ones.

The calculations for Australia and the Netherlands show slightly different results. In the case of Australia, the calculations show that the most significant factors positively influencing Australia's trade patterns with Asian developing countries are human capital intensity (as in other developed countries) and natural resource intensity. In other words, the industries which are most likely to be successful in Asian export markets appear to be those which make intensive use of skilled labour and local natural resources, in view of Australia's specific natural resource endowments.^{40/} Export performance does not appear to be necessarily linked with the highly capital-intensive industries. Nor do differences in effective rates of protection among industries seem to have a significant influence on trade patterns.

Calculations of comparative advantage determinants of the Netherlands were originally based on a wage cost indicator describing human capital intensity and included petroleum refineries, which represent one of the country's most important industrial sectors. The results show that industries in the Netherlands have considerable comparative advantages in total foreign trade primarily in those sectors where the natural resource content of products is high. Human capital intensity was found to be negatively associated, and labour productivity and capital intensity positively associated, with export performance. However, more recent calculations that exclude the petroleum refineries and measure human capital intensity with qualitative secondary and tertiary education indicators confirmed that human capital is the most important asset of the Netherlands.

As opposed to labour qualifications, physical capital intensity did not emerge as a determinant of comparative advantages in trade with developing countries, possibly because of increased international mobility of capital or the effects of various government policies. Industrial production processes requiring considerable unskilled labour were found to be at a disadvantage in foreign trade, and are under increasing competitive pressure from developing countries. The same holds true in most cases for raw material intensive products.

^{40/} Australia's prospects for industrial growth are based on the pattern referred to. The aluminium, petroleum refining and other mineral processing industries have the best growth prospects. Australia is well equipped with bauxite, iron ore and coal.

Finally, calculations based on the product cycle hypothesis showed that industrialized market economy countries have comparative advantages strongly related to the qualified labour factor in the early innovative and research- and development-intensive phases of the product cycle, while developing countries are competitive in production processes near the maturity stage of the product cycle, where production has become standardized. On the whole, the major factors determining the international division of labour, apart from policy-induced parameters, were found to be the availability of highly qualified labour and the degree of innovation in production, on the one hand, and the supply of poorly qualified labour and raw materials, on the other.

Redeployment of industries from developed to developing countries as an element of structural change

During the past decade labour market conditions, high labour costs, government regulations, newly levied environmental costs and rising energy and raw-material costs in developed countries have coincided to make a number of developing countries more attractive as locations for certain industrial activities. In many developing countries, companies find an abundant supply of cheap labour, access to raw materials, lower energy and environmental costs, and a growing access to modern world-wide transport and communication facilities. Developing countries, especially those which pursue a predominantly export-oriented industrialization strategy, are also encouraging foreign companies to locate production in their territories by offering a number of incentives such as tax havens, guaranteed profit transfers, maintenance support or complete incentive packages in the form of export processing zones. Obviously there are also other reasons for enterprises located in developed countries to redeploy production facilities to a developing country. Faced with decreasing demand in the domestic market, enterprises in certain subsectors require increased access to markets abroad. In many cases such access is made possible only if the company produces directly in the foreign country, behind the tariff border.

Industrial surveys carried out by UNIDO in Austria, Belgium, the Federal Republic of Germany, Italy, Sweden and Switzerland show that the priority considerations differ according to the types of companies planning redeployment activities. It seems that the main motive for transnational corporations to invest in and to redeploy to developing countries is the optimal utilization

of the production factor (cheap and unqualified) labour. For other samples of companies it is mainly market access to the host country and to third countries which has highest priority among the listed motives. Technology sales and access to raw materials were additional major motives. In the regional distribution of redeployment there is a clear tendency in favour of the semi-industrialized countries. A certain degree of political stability is another essential criterion for the choice of country. The availability of raw materials and financial resources and of a large domestic market are obviously also of great importance.

Companies in the Federal Republic of Germany are mainly attracted to European, and in particular Mediterranean, countries (40 per cent of the sample), and Latin America (28 per cent), where Brazil alone accounted for more than half of all investment during the time period under review. Companies also consider South-east Asia to offer considerable scope (22 per cent). In that region, Hong Kong, Malaysia, the Republic of Korea, Singapore and recently Indonesia are preferred for redeployment. The Middle East and Africa are largely neglected, while Latin America and certain parts of Africa are expected to become increasingly important.

The company survey in the Federal Republic of Germany showed that enterprises in the textile, wearing apparel and leather industries had the highest propensity to redeploy. Wood and wood products, furniture and fixtures, metal processing, large sectors of mechanical engineering (with the important exception of heavy machinery), the radio, television, electrical appliances and houseware industries, and various chemicals sub-branches also had considerable redeployment potential. Those sectors are in general characterized by a low skill intensity or a high degree of production standardization, and seem to be at a disadvantage vis-à-vis developing countries. Future redeployment prospects in the Federal Republic of Germany seem significant. A growing propensity to invest abroad, particularly in developing countries, is expected in future. In 1976 redeployment was at least a partial rationale for every second investment of the Federal Republic of Germany in those countries.

Various sectors of Belgian industry have been quite active in the redeployment process and there seems to be considerable potential for further redeployment. Industries with a low capital intensity (those producing or processing textiles, paper, leather, wood) are in general

looking for cheap labour and raw materials and markets. Among industries with a high capital intensity (chemicals, metalworking, food, building materials), new markets for products or technology are a main reason for redeployment.

In the case of Switzerland it was found that the very significant revaluation of the Swiss franc changed the competitive position of Swiss industry. As a result, the production of manufactures for which the country has no monopoly, and for which price rather than quality is decisive in the market, came under great competitive pressure. Swiss industry was therefore forced to adjust very quickly, either by concentrating on the improvement of productivity and quality of products, or by relocating production abroad. The redeployment potential of Swiss industry now seems limited, as redeployment has already taken place to a significant extent. In the textile and footwear industries, for example, redeployment had already started in the 1960s, and now seems to be practically completed. It is noteworthy that the number of persons employed in Swiss-owned enterprises abroad corresponds to about 70 per cent of the total labour force working in industry in Switzerland.

Swiss enterprises in many cases consider the United States to be an alternative to redeployment to developing countries. The United States offers Swiss industry lower labour costs, high productivity and the largest single market in the world. A similar view is frequently encountered in Sweden, where recent examples show that attractive redeployment possibilities could be found in other developed countries rather than in developing countries. The textile industry, for instance, redeployment activities to the United Kingdom and Portugal. Both Switzerland and Sweden seem to have developed rather sophisticated types of product which in many cases may not be appropriate for either production or consumption in developing countries.

In nearly all the studies on redeployment tendencies and opportunities, similar obstacles to redeployment by small and medium-sized companies to developing countries were found. These obstacles were: lack of relevant information, finance and skilled workers in the host country; low productivity of labour, which is often stated to outweigh lower labour costs, socio-political conditions, import restrictions and supply problems in the host country; and uncertainty regarding trade policies and other measures affecting market access in developed countries. In order to overcome those obstacles, as pointed

out in the studies, there is an increasing need for policies which support redeployment activities in both development market economies and developing countries. ^{41/}

Expected future developments of industrial sectors

An attempt has been made to outline future changes in the international division of labour on the basis of analyses of past developments in industry, changing foreign trade patterns and comparative advantages, their determinants and the process of relocating production facilities. The general growth prospects that emerged for individual sectors in developed countries show that those countries on the whole are likely to concentrate on maintaining and expanding human-capital-intensive industry sectors. The main emphasis will be on the utilization of highly qualified labour in management functions, a sophisticated industrial service sector and the availability of research and development facilities. Hence the early stages of the product cycle, which require the above-mentioned characteristics, are likely to expand in those countries. Such a pattern of future structural change is in general confirmed by the various projections of the future growth prospects of individual manufacturing sectors in a number of developed countries. The approaches used for this purpose were: conditioned forecasts (approaches based on trade theories and the principle of labour qualification); projection models based on general equilibrium and general trends of the gross domestic product; a normative approach using national socio-economic objectives as major determinants.

Conditioned forecasts require identification of the past and present determinants of structural change. Those determinants are assumed to play a basic role in the development of the industrial structure and will not change over the projection period. Some country studies therefore, simply assume that sectors with high revealed comparative advantages are also sectors which have future growth prospects. Other studies attempt to identify the determinants of comparative advantages on which to base conditioned forecasts of future growth prospects. Conditioned forecasts may also be based on the principle of labour qualification, which is derived from the application of an international sectoral production function, and which shows that the macro-economic marginal

^{41/} In this connection, see the recommendations contained in chapter I.

productivity of labour has a high value in explaining the industrial restructuring process and competitiveness.

In projection models there are problems connected with the use of extrapolations of exogenous variables, since it is assumed that the development of the basic parameters will follow the lines of extra-polated trends. Drastic changes in those basic parameters would reduce the value of or even invalidate the results of this approach.

The normative approach presupposes a clear definition of objectives and preferences, together with specific government policies and action to achieve those objectives.

Despite the fact that individual country projections may differ in methodology and aggregation, some general trends in future sectoral development can be outlined now on the basis of the survey contained in table 10 below. The most revealing feature emerging from a sectoral analysis of projected structural changes is that the industrial structures of individual countries show a trend towards further national specialization reflected in differential growth patterns of certain sectors among the different countries. The sectors with the best growth prospects are aluminium in Australia, chemicals in Switzerland and Austria, plastics in Belgium and in the Federal Republic of Germany, aircraft in Canada, mechanical engineering in France, telecommunications and vacuum techniques in Hungary, electrical machinery in Japan, petroleum refineries in the Netherlands and paper products in Sweden.

The second main feature of projected growth prospects is that certain sectors, mainly the chemical industry and its subsectors (plastics, pharmaceuticals, rubber etc.) and the machinery industry and its subsectors (electrical and precision machinery), are expected to be important in nearly all the countries studied. That may imply increasing competition on domestic and third markets or an increasing tendency towards intra-sectoral specialization and intra-industry trade between developed market economies.

Average growth prospects for paper and paper products and wood and furniture were found in most countries. Exceptions are the Netherlands, where both industries are expected to decline, Japan (average growth for paper and pulp alone), and Sweden, where both industries rank among those having the best growth prospects. Sectors expected to decline are by and

large the same as those which have already declined in the past. In general, the weakest branches are: textiles, its subsectors and clothing (Austria, Belgium, Japan, Switzerland); leather and footwear industries (for example, in the Federal Republic of Germany); and in some countries (such as Canada and Sweden) the diverse metal and metal-processing industries.

In some sectors, growth prospects clearly differed from country to country (see table 10), perhaps partly due to differences in natural resource endowment (as in the cases of Australia, the Netherlands and Sweden). Different results can also be found in the food industry and its subsectors. In some countries (Austria, Canada, the Netherlands, Sweden, Switzerland), the food industry has good growth prospects, whereas in the Federal Republic of Germany, France, Hungary and Japan, it is expected to rank as a more or less declining industry, primarily because of differences in levels of aggregation, in the use of highly qualified labour, and in the importance attached to those two sectoral factors in the different countries.

Projections for developed market economies

A brief survey is presented below to highlight certain specific trends in a number of individual countries.

Australia

The evaluation of branches with high values of revealed comparative advantages resulted in a forecast of growth prospects for those branches which have a high capital, raw material and human skill intensity, and a high output per worker. The branches in question are aluminium, petroleum refining and mineral processing. After them rank the more human-capital-intensive chemicals and engineering sectors. The food and beverages sectors are also considered to have good future prospects in Australia.

Austria

If the exogenous conditions of the economic system do not change, the principle of labour qualification is expected to determine the further development of industrial structure. The best development trends are expected for the chemicals, food and beverages, machinery and paper sectors, whereas unfavourable changes will tend to prevail in clothing, textiles, iron and steel, and in parts of the transport industry. Enterprises have tended to react to competitive pressure not through the redeployment to developing countries of affected product lines, but through adjustments in product mix or through rationalization measures to increase labour productivity.

Table 10. Ranking of industry sectors in a number of developed countries according to growth projections

	Australia	Austria	Belgium	Canada	Germany, Federal Republic of	France	Hungary	Japan	Netherlands	Sweden	Switzerland
Aluminium		Chemicals	Plastics	Aircraft and parts	Plastic products	Mechanical engineering	Telecommunications and vacuum technology	Electrical machinery	Petroleum refinery	Paper products	Chemicals
Petroleum refinery		Food beverages	Petroleum refinery	Non-metallic mineral products	Chemicals	Electrical machinery	Chemicals	Precision machinery	Dairy products	Printing, miscellaneous	Food, beverages
Other mineral products		Machinery	Soap and perfume	Food processing	Electrical machinery	Non-ferrous metals	Instruments	General machinery	Chemicals	Food, beverages	Printing, publishing
Chemicals		Wood products	Other beverages	Transport equipment	Machinery, except electrical	Chemicals	Electrical engineering	Metal products	Foodstuffs	Forestry, wood, pulp, paper	Metals
Food, beverages		Paper, paper products	Pharmaceuticals	Motor vehicles and parts	Rubber products	Parachuticals	Transport vehicles	Chemicals	Optical industry, other manufacture	Non-metallic mineral industry	Machinery equipment
Engineering		Electrical machinery	Quarrying	Industrial chemicals	Transport	Household equipment	Electric power	Refractory	Beverages	Chemicals	Paper, paper goods
Plastic, certain leather products		Metallic products	Glass	Primary metals	Petroleum refinery petroleum products	Aircraft	Woodworking	Paper, pulp	Basic metals	Electro-technical industry	Wood, cork
Paper, paper products		Pottery, glass	Wood manufacture	Processing	Wood, furniture	Wood, furniture	Paper	Transport equipment	Pottery, cement glass	Transport equipment	Leather, rubber, plastics
Other specialised-printing		Clothing	Printing and book binding	Electrical products	Other non-metallic mineral products	Pulp, paper, paperboard	Typographic material	Petroleum and coal products	Electronics	Machinery, instruments	Matches, jewellery
Leisure-oriented printing		Transport	Madding	Other chemicals	Scientific measuring and controlling equipment	Rubber, plastics	Machinery, equipment	Food	Printing, publishing	Textiles, clothing, leather	Non-metallic mineral products
		Iron and steel	Paper and cardboard	Metal products	Paper, paper products	Iron and steel	Building materials	Non-ferrous metals	Leather, shoes	Fabricated metal products	Textiles
		Textiles	Vegetable canning		Printing	Glass	Food	Iron and steel	Machinery, metal products	Mining and quarrying	Wearing apparel
			Cement		Glass, glass products	Foundry	Metallurgy	Textiles	Paper	Metals	
			Clothing and confection		Iron and steel	Transport equipment, motor vehicles	Leather, fur, shoes		Textiles	Shipyard	
			Breweries		Textiles	Printing, publishing	Textiles		Clothing		
			Weaving		Food, beverages, tobacco	Textile, clothing	Clothing		Transport equipment		
			Iron and steel		Leather, leather products	Leather footwear	Metalware		Wood, furniture		
			Sugar		Non-ferrous metals	Meats, milk products	Mining				
			non-ferrous metals		Fabricated metal products	Other food processing					
			Rubber		Wearing apparel						
			Leather, tanning		Musical instruments, toys, sporting goods						
			Chocolate		Pottery, china, earthenware						
			Textile wastage		Footwear						

Source: UNIDO country studies. See notes.

Notes:

Australia Growth projections without time limits, based on comparative advantages in foreign trade mainly found in products of high capital- and natural-resource-intensive techniques. The industries listed have the most favourable domestic and export growth opportunities.

Austria Projection is a conditioned forecast of the competitive position of industries and is based on the projected rates of growth (manufacturing output) for 1969 by the Japanese Ministry of International Trade and Industry (MITI), based on GDP projections.

France Ranking according to preferred sector growth of various alternatives during the period 1974-1980. The selected ranking was based on the growth objective function.

Hungary Ranking of past rates of structural change between 1970 and 1977.

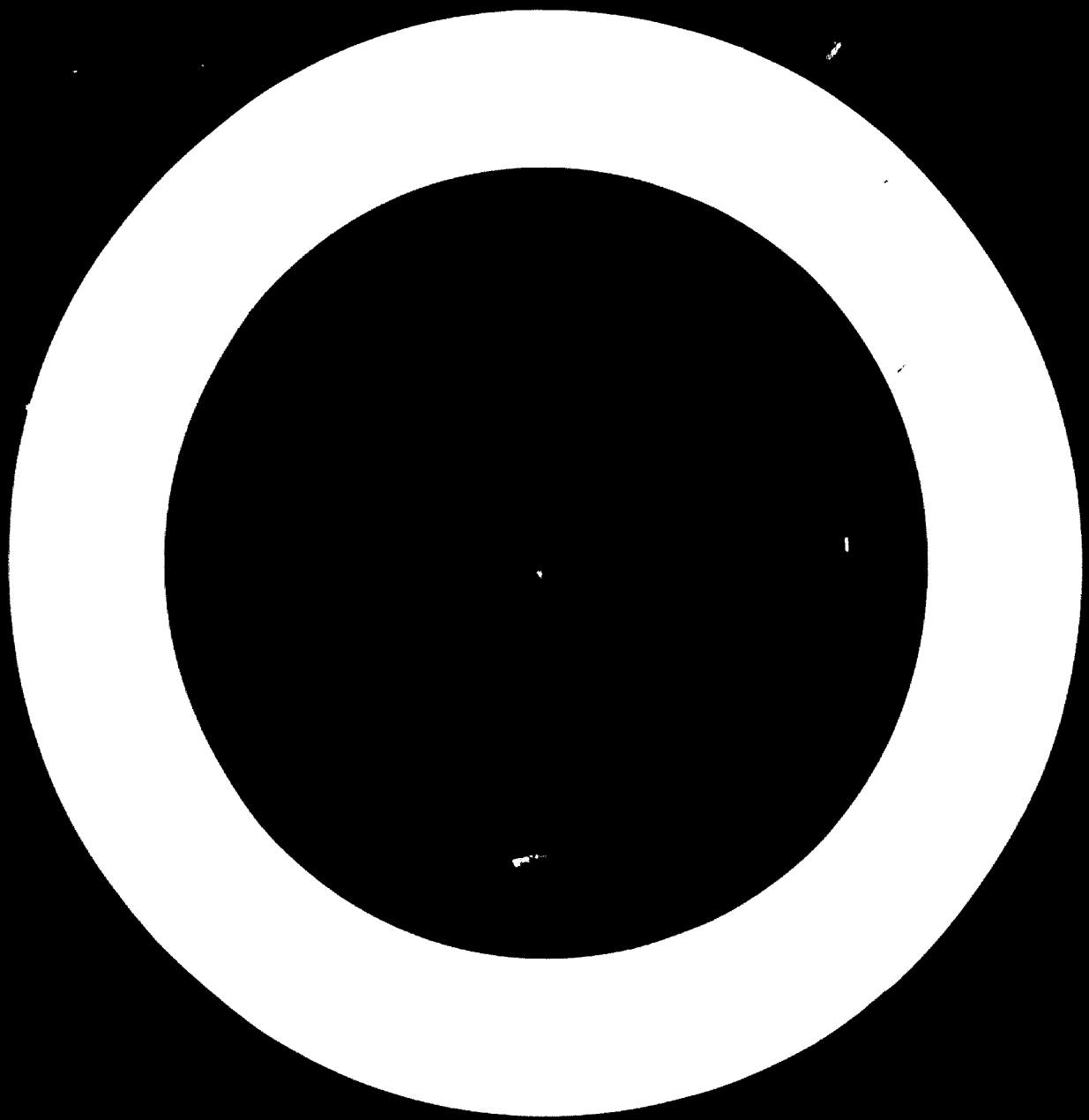
Japan Ranking according to projected rates of growth (manufacturing output) for 1969 by the Japanese Ministry of International Trade and Industry (MITI), based on GDP projections.

Products	France	Leather, fur, shoes	Textiles	Shipyards
agglomerates	Transport equipment, motor vehicles			
Clothing and confection	Printing, publishing	Leather, fur, shoes	Clothing	
Breweries	Textile, clothing	Textiles		
Weaving	Leather footwear	Clothing	Transport equipment	
Iron and steel	Meats, milk products	Metalware	Wood, furniture	
Sugar	Other food processing	Mining		
non-ferrous metals				
Rubber				
Leather, tanning				
Chocolate				
Textiles wasteage				

Sources: UNIDO country studies. See notes.

Notes:

- Australia** Growth projections without time limits, based on comparative advantages in foreign trade mainly found in products of high capital- and natural-resource-intensiv techniques. The industries listed have the most favourable domestic and export growth opportunities.
- Austria** Projection is a conditioned forecast of the competitive position of industry sectors and is based on the principle of labour qualification, derived from international sectoral production functions.
- Belgium** Ranking according to the expected growth of sector output in Belgium during the period 1974-1985. The ranking is based on a linear projection of GDP growth levels during the period 1965-1975. The branches following No. 23 are: alcohol, canned fish, chemicals, tobacco, wool washing, oils and fats, footwear, clay, cokes, woodworking, felt, spinning, wool combing, agglomerates of coal.
- Canada** Ranking of 10 Canadian manufacturing industries by intrasectoral international trade in the year 2000. From: H. Postner, Canada and the Future of the International Economy: A Global Modeling Analysis, a study prepared for the Economic Council of Canada, 1978.
- Federal Republic of Germany** Ranking according to the expected increase of sector shares during the period 1976-1990. The projection model providing these rankings is based on time series estimates for apparent consumption and exports and imports by industry sectors.
- France** Ranking according to preferred sector growth of various alternatives during the period 1974-1990. The selected ranking was based on the growth objective function.
- Hungary** Ranking of past rates of structural change between 1970 and 1977.
- Japan** Ranking according to projected rates of growth (manufacturing output) for 1982 by the Japanese Ministry of International Trade and Industry (MITI), based on GDP projections.
- Netherlands** Ranking according to the projected comparative advantages for 1986 of the Netherlands' industry sectors in foreign trade with developed countries.
- Sweden** Ranking according to projected annual production change rates during the period 1975-2000, based on a general equilibrium model.
- Switzerland** Ranking according to employment growth between 1968 and 1977.



Belgium

On the basis of projections for the year 1985, growth sectors are expected to be industries with low, cumulative natural resource requirements and high value added per person, such as the non-ferrous metals, chemicals, plastics, printing and paper industries. Among industries with high cumulative natural resource requirements and low value added per person, only canned fish and canned vegetables have increasing output projections. The projections for industries with low cumulative natural resource requirements and low value added per person are more optimistic than those for industries with high cumulative natural resource requirements and low value added per person. Cement, paper and cardboard, wood and clothing show an increasing employment level, while for tobacco, clay, felt, fur and footwear, a decline in employment may be assumed. Except for the tobacco industry, all the latter industries show at the same time a clear decline in output level. Almost all industries with high cumulative natural resource requirements and high value added per person seem likely to perform well in the coming years. Only the coal agglomerates, cokes, and oils and fats sectors show a decreasing output level up to 1985, and iron and steel is clearly the main problem sector of Belgian industry. Petroleum refineries, however, have the greatest growth potential under the assumptions used.

Canada

A basic consideration is that one major constraint to the long-term development of an internationally competitive manufacturing sector in Canada is the limited size of its domestic market. Canada and Australia are the only major industrialized countries without free access to a market of 100 million or more consumers. In many sectors, the market does not permit the realization of maximum economies of scale.

A significant portion of the resource-processing industries, including wood and paper products, primary metals and non-metallic mineral products, require extensive modernization and rationalization to remain competitive in the anticipated environment of the 1980s. The need for rationalization is also evident in a number of other industries such as furniture and shipbuilding. Good growth prospects exist in the aircraft, non-metallic mineral products and food processing industries.

France

An optimal industrial structure was projected to 1990 on the basis of an assumed set of national objectives and of estimated constraints. The structure has the following implications:

(a) Mechanical engineering, electrical machinery and chemical industries would have to increase their relative shares in industrial production;

(b) Meats and milk production and other food-processing industries, textiles and clothing, leather and footwear industries would have to decrease their relative shares;

(c) The iron and steel, glass, foundry, motor vehicles, transport equipment, and printing and publishing industries may increase or decrease or remain more or less stable.

With regard to subsectors, the following would make a major contribution to the growth of the sector to which they belong:

(a) Organic chemistry in the chemical sector (better competitiveness and efficiency);

(b) Rolling stock in the automotive sector (both competitive and efficient);

(c) Precision engineering together with industrial plants in engineering;

(d) The steel-tube sector should, unlike the other iron and steel subsectors, have a positive growth rate (higher employment and efficiency, poorer competitiveness);

(e) The strongest subsector of the wood and wood products industry would be wood mills (better efficiency and competitiveness).

Japan

The most dynamic industries in the future are expected to be the electrical and precision machinery industries. The lowest growth rates are assumed in textiles and in iron and steel. It should be noted that because of high energy and natural resource inputs, aluminium refining, synthetic fibres, carton, polyvinyl chloride and fertilizer production are likely to decline in future.

The Netherlands

Up to 1986 the petroleum refinery, dairy products and chemicals sectors are expected to show a development far above the average, whereas textiles, clothing, transport equipment, wood and furniture will decline.

Sweden

According to annual growth rate projections (1975-2000), the following three industrial sectors will grow faster than the gross national product (GNP): forestry, wood, pulp and paper; paper products; and food-processing. The food-processing industry is a typical sheltered industry. The relatively successful forestry and paper products industries are vertically linked and have some common features. World market demand for such products increases rapidly, and price elasticities in the import and export functions are relatively low. However, their comparative advantages are declining as domestic production costs increase in relation to world market prices. In fact, there is only one sector that does not follow this pattern, the chemical industry. However, production in that sector grows relatively slowly, because of the appreciation of the exchange rate in conjunction with relatively high price elasticities in the import and export functions.

The projections show the most rapidly declining sectors to be shipyards and the metal, textile, clothing and leather industries, because of an adverse development of domestic production costs in relation to world market prices. The problem is worsened by the appreciation of the exchange rate and, in the case of the metal industries, a relatively slow growth of world market trade.

Switzerland

The following developments have taken place in Swiss manufacturing branches:

- (a) The chemicals, rubber, plastics, machines and equipment sectors have achieved strong expansion and access to, or a successful defense of, export markets, and enjoyed an absence of threatening cost pressures;
- (b) The metals, printing and publishing, wood, cork, food, beverages and tobacco sectors have enjoyed average expansion or high quality production, a satisfactory export performance, and reasonable cost levels;
- (c) With regard to non-metallic mineral products (except petroleum and coal), watches, paper and paper products, there has been lagging quantitative expansion, penetration of export and domestic markets by foreign producers, a severe profit squeeze as a result of unfavourable cost developments or a lack of innovation;
- (d) The textiles and wearing apparel sectors have experienced an especially unfavourable combination of the characteristics mentioned for the preceding group of products.

United Kingdom

Manufacturing processes (primarily in engineering) that require relatively high-skilled labour and high-quality products will probably remain competitive. However, skills are very quickly being acquired by the new industrializing countries. The United Kingdom will therefore have to improve skill levels and to ensure that the pattern of available skills keeps pace with the changing needs of technology.

Expected developments in centrally planned economies

The future development of industry sectors in the centrally planned economies is determined by established national development objectives. The priority sectors seem to be those which apply in general more intensive rather than extensive production technologies, which means that technologies using available resources more efficiently, and thus leading to the saving of labour, material and capital, are preferred for the future. The technologies should also make possible the attainment of higher-quality final products. In order to stimulate scientific and technological progress, explicit priority is given to the development of the machinery, petrochemicals, precision instruments and computer industries.

The available information on Hungary shows growth prospects in the telecommunications and vacuum techniques, chemicals and precision instruments industries. Declining industries are leather, fur, shoes, textiles, clothing, metalware and mining. Average growth is expected in the wood, paper, machinery, equipment and building materials industries. The priority given to the development of intensive production technologies is intended to improve efficiency in Hungarian industry. Hence, instead of creating new production units, the existing ones are to be rationalized in order to increase the efficiency of investments. It should be stressed that the growth prospects of the industry sectors dealt with above represent averages. Individual subsectors or companies may deviate very significantly from those averages, and may therefore show growth prospects different from the industry sector to which statistically they belong. Some of the country studies also identify characteristics of competitive industrial technologies represented by the "average aggregates" of industry sectors. A transfer of the macro-economic results to a micro-economic level seems necessary for the future evaluation of

redployment opportunities for individual production processes.^{42/} Indeed, no complete sectors, but single production processes or parts thereof, will be redeployed from developed to developing countries. Such a transition from macro- to micro-economic approaches would provide basic information for the decision whether or not to redeploy.

Employment in developed market economies

General observations

A major issue in the debate on the industrial restructuring process in developed market economies is the problem of maintaining full employment, which has become a formidable political obstacle to the pursuance of an international restructuring process. A brief review of that problem may therefore be useful.

In recent years, developed market economy countries have experienced much higher rates of unemployment than in the earlier post-war years. For example, while the OECD countries had unemployment rates of between 0.5 and 2.9 per cent for cyclical peaks during the period 1960-1965, the corresponding rates for the 1971-1976 period ranged from 1.0-5.6 per cent. The OECD countries will have to achieve estimated growth rates of gross domestic product and GNP of 2.3-3.3 per cent for countries of low productivity growth (such as the United Kingdom and the United States) and 4.5-5.6 per cent for countries of high productivity growth (such as the Federal Republic of Germany, France and Japan) merely to absorb the increase in their labour force during the early 1980s. Any structural backlog in unemployment will obviously require additional efforts.

The slowdown in the rate of growth of output in those countries does not offer a good explanation for the higher unemployment rate. The data even suggest that the relationship between output and employment growth itself has changed against the latter, partly as a result of the increase in the productivity of labour, and partly of what is called "structural" factors, which contain elements of frictional, technological and voluntary unemployment.^{43/}

^{42/} A possible method for this transfer from macro-economics to micro-economics is shown in "future structural changes in the industry of Austria", UNIDO working papers on Structural Changes, No. 11 (in preparation).

^{43/} An observed level of unemployment in an economy may be attributed to four types of factors: frictional, due to certain institutional and other characteristics of the labour market; technological, due to changes in technology; keynesian or involuntary, due to lack of effective demand; and voluntary, due to the failure of potential wage earners to offer their services for hire.

With regard to technological unemployment, the problem could be aggravated by major innovations with substantial labour- or skill-displacing effects in the short to medium term. One of the most significant negative employment effects of recent technological innovations, for example, has been in industries manufacturing products in which micro-electronic elements have replaced electro-mechanical elements. Even employment growth in the tertiary sector may to a large extent be negatively affected by this innovation. ^{44/}

Employment losses are expected to occur mainly in the industrial sector, while the services sector will increasingly dominate the labour market. Within industry, job opportunities for semi- and low-skilled workers are sharply declining. On the other hand, there has been an increase in the demand for highly qualified personnel.

With regard to demand, changes in population age structures due to changes in fertility rates in developed countries will have no effect on the labour market in the next decade. During that period, existing employment problems in developed countries are expected to be worsened by a large number of young people entering the labour force and by the increasing participation of women.

The foregoing considerations suggest that developed market economies could be increasingly confronted with a situation in which a small proportion of the labour force is employed at high levels of productivity and its associated high real wages, while an increasingly large proportion faces serious long-term unemployment if existing institutional arrangements continue in the labour market. The implications for the distribution of incomes of such a narrowly-based employment structure are as serious as they are obvious. In the absence of other factors, the outcome will depend on the increasing ability and willingness of the State to finance an increasing volume of transfer payments, which may be problematic given the general economic situation, and may have unacceptable social consequences. It therefore seems essential that the job should be shared among the work-force. To that end, specific policy measures are required. ^{45/}

^{44/} See "The impact of micro-electronics on employment in Western Europe in the 1980s" (Brussels, European Trade Union Institute, 1979). This study also generally confirms the employment picture sketched here.

^{45/} See chapter I. Present government policies are described in the next section of this chapter.

Increased foreign trade and other factors influencing employment^{46/}

During recent years, the considerable increase in the developing countries' share of developed country markets, as shown in the earlier section of this chapter on changes in foreign trade patterns, has led a number of developed countries to maintain their trade barriers, or even increase them for several product groups (such as steel, textiles and clothing). However, an analysis of the restructuring process in those countries clearly shows the need for establishing integrated strategies and policies of trade liberalization, industrial adjustment and redeployment in order to make possible a gradual restructuring of industry.

A general review of the role of developing country exports shows that in the past the total impact of imports of manufactures from developing countries on employment in manufacturing industry in developed market economies was almost negligible, and that this impact is still quite limited. Even when industries are strongly affected by imports from developing countries, such imports are responsible for only a fraction of job losses. Other major factors such as the increasing productivity of labour or the competition of other developed countries are found to be far more important for observed job losses during recent years. This has been shown in a range of specific studies, and some concrete data are presented below.

A recent analysis^{47/} of nearly 70 studies concerning the promotion of imports of developing countries shows that, in general, the industries affected by increasing imports from developing countries are mainly the clothing, textiles, leather products and footwear,^{48/} and parts of the mechanical and electrical engineering industries. The benefits of increased exports to developing countries can be found in the capital goods industries of developed countries. Problems arise because labour displacement effects due to increased

^{46/} Using additional empirical evidence from recent research work, UNIDO has prepared a comprehensive study dealing with this question: "The impact of trade with developing countries on employment in developed countries, empirical evidence from recent research", UNIDO working papers on structural changes, No. 3 (UNIDO/ICIS. 85).

^{47/} H. Mayrzedt, and others, Förderung von Importen aus Entwicklungsländern in die Schweiz, (St. Gallen, Schweizerisches Institut für Aussenwirtschafts-Strukture- und Marktforschung an der Hochschule St. Gallen, 1979).

^{48/} For the leather and footwear industry, an ILO study, "The employment implications of technological choice and of changes in international trade in the leather and footwear industry", Second Tripartite Technical Meeting for the Leather and Footwear Industry (Geneva, ILO, 1979) estimates that the total employment fall in high-wage developed countries may be up to two thirds of the labour force (i.e. 400,000 jobs) by the year 2000.

imports and job creation effects due to increased exports do not occur in the same industries, regions and labour qualification groups. The displacement effects are highly concentrated in a few industries and mainly small and medium-sized enterprises. In such cases, displacements arising from future imports from developing countries may even surpass those arising from productivity increases. Moreover, structurally weak regions and disadvantaged groups of employees such as female, low-skilled and old workers are affected, whereas the job creation effects of increased exports are more widely spread over the economy, mainly in sectors and regions tending to require an above-average input of skilled labour.

A study on the United States^{49/} shows that in no sector except leather products was the changing import share even remotely as significant a factor as was labour productivity and demand growth in affecting employment.

In the Federal Republic of Germany, increases in labour productivity were found to be by far the most important source of labour displacement. Foreign trade had a positive influence on employment during the 1970-1976 period, in which overall employment in manufacturing substantially increased. Except for the mineral oil industry, all branches have experienced positive employment effects from real export increases, and in the majority of cases, those positive effects far outweighed the negative employment effects due to increasing total imports. Increases in domestic demand have in many cases been an even more important source of additional employment. In the UNIDO report on the Federal Republic of Germany, the employment effects of foreign trade are disaggregated according to major trading regions of the Federal Republic of Germany. As is shown, both positive and negative employment effects of foreign trade are mainly attributable to trade with developed countries. In all regions, positive employment effects generally outweigh negative employment effects for most branches.

It should be noted in this connection that the industrialized market economies gained an average of 900,000 jobs net in each of the years from 1973 to 1977, thanks to trade with the newly industrializing countries.^{50/}

^{49/} A.O. Krueger, "The impact of foreign trade on employment in United States industry", in Current Issues in Commercial Policy and Diplomacy (London, 1978).

^{50/} OECD, The Impact of the Newly Industrializing Countries (Paris, 1979).

It should also be noted that in certain circumstances, according to ILO estimates^{51/} for every worker who is displaced in developed countries by increased imports from developing countries, some 20 workers would find employment in the developing countries concerned.

In summary, it may be said that even assuming large increases in imports from developing countries and an increase in the resulting displacement effect, such an effect will remain small compared with total manufacturing employment losses due to rising productivity, trade with other developed countries and the effects of shifting demand. Losses are offset to a substantial degree by jobs created as a result of additional exports to developing countries. It should also be taken into account that increased exports by developing countries contribute to an even larger rise in their demand for other manufactures, in particular products requiring highly skilled labour (e.g. capital goods and machinery) from developed countries. Barriers against trade with developing countries could therefore be seen as ineffective, tending to maintain existing structures and to impede rather than foster potential improvements in competitiveness and export growth.

Policies affecting structural change

Since the early 1970s the sequence of events described above has increased the need for adjustment in developed countries. Nevertheless, there are signs that resistance to adjustment has emerged in most developed market economy countries. Slow overall growth, the low profitability of individual firms and short-term economic and social costs have led to a growing reluctance to accept the risk of new investments and adjustments. A tendency to avoid adjustment and to call on Governments to halt the liberalization of trade can be observed in business, trade unions and other groups. Increasing government intervention has focussed on such objectives as safeguarding jobs, environmental protection and supporting disadvantaged regions, economic sectors and groups of the population. New trade, employment, sectoral and regional policy instruments seem mainly concerned with the maintenance of employment in existing occupations.

In the following brief review some of the essential features of policy measures adopted in the various countries are singled out with a view to illustrating their variety and general direction.

^{51/} H.F. Lydall, Trade and Employment. A Study of the Effects of Trade Expansion on Employment in Developing and Developed Countries (Geneva, International Labour Office, 1975).

Employment policy

General employment policy measures have been introduced in a number of countries and seem to have led to considerable labour hoarding. In Austria, policy has mainly focussed on improved unemployment benefits. In France, employment policies are reported to have increased the financial burden of enterprises, because they have partly to finance the unemployment benefits. In the Federal Republic of Germany, policies include the promotion of labour force mobility and the granting of short-term working benefits for up to 24 months. Short-term working or temporary lay-off benefits have also been introduced in Italy. In the Netherlands, global measures have been introduced to stimulate investment and to reduce operating costs of enterprises by covering a part of the social security contributions of employees. A reduction in social security contributions by employees has also been initiated in Italy.

Selective intervention is directly possible in the nationalized sectors. In countries with a sizeable nationalized industry sector, the emphasis has shifted towards the maintenance of employment, and seems to have led to labour hoarding. Employment policy in the Netherlands makes extensive use of subsidies to prevent unemployment and to provide low-paid jobs for unemployment workers. In addition, 70 per cent of wage costs are paid to companies employing surplus labour. A similar arrangement exists in Sweden. During the recession, Norway also established liquidity loans and interest subsidies to help meet short-term difficulties experienced by enterprises as a result of employment maintenance.

A number of countries, including France, Italy and the United Kingdom, provide subsidies to promote job creation for young people. In the Netherlands and Sweden such programmes cover not only young but also elderly people. In Sweden an extensive labour market programme is subsidized. It is partly regional and promotes the employment of handicapped persons and of women in traditionally "male" occupations. As in a number of other countries, Sweden also places emphasis on labour retraining schemes.

Since 1975, the Government of Japan supports employment adjustment through grants to predominantly large firms with life-time employment commitments. The United Kingdom introduced a temporary employment subsidy in 1975. Firms received up to six-month wage contributions for each prospective redundant worker kept in employment. The subsidy is selective insofar as mostly labour-

intensive industries such as textiles, clothing and footwear are entitled to receive it. Some regions were financially supported in the realization of labour-intensive community projects. Norway adopted similar measures, paying wage subsidies to labour-intensive industries affected by cost increases (from 1977 only to the textiles, clothing, glass and ceramics industries).

Investment policy

In most countries selective investment policies are generally carried out through investment funds, special financing institutions, and state holding companies for the nationalized sectors, by providing credit and interest subsidies for special investment, and by credit rationing. Japan provides a good example of the use of comprehensive non-selective investment policies. Such policies include low levels of corporate taxation, public land reclamation for industrial use, specific subsidies for water and electricity used for industrial purposes, and a general low-interest-rate policy. In contrast, the tax system of Austria is characterized by high tax rates on enterprise profits. The system is supplemented by an intensive promotion of investments in capital goods. This global policy has led to a very high proportion of capital investment, on the one hand, and to a neglect of non-material investments, for example in the improvement of labour force qualifications, on the other. Such a situation may create special adjustment problems in future.

In the area of selective investment policy, the nationalized sectors are playing an important role in Austria and Italy. In Austria, nationalized companies are mainly found in iron and steel, chemicals, metals, and electrical and mechanical engineering, and account for nearly a quarter of industrial output. Large public expenditure programmes are also important. They affect a large part of the goods supplied by domestic industry, taking into account regional and sectoral factors. But for various reasons, mainly a growing public sector deficit and a fast deterioration in the balance of payments, there has been a change in policies towards selectively supporting investments in export-oriented industries and in those competing with exports.

In France, a wide variety of policy instruments has been used since the 1960s to develop high technology industries. Industrial concentration and development of depressed regions have also been encouraged. Even prior to the recession, selective measures supported the shipbuilding, iron and steel industries and other specific sectors. The main emphasis was placed on the

speeding-up of concentration and development in the data processing and nuclear industry. Similarly, since the 1960s in the Federal Republic of Germany, one can notice increasing promotion of research and development and government-supported rationalization of high-technology sectors. The data processing and shipbuilding industries have also been subsidized. The main instruments of regional policy in the Federal Republic of Germany are grants to capital investment, freight subsidies and special depreciation allowances.

In Italy, the development of the southern regions has been a major aim of the policies governing the Italian nationalized industries and state controlled bodies. In 1975 a reflationary programme including financial aid to the machine tool and shipbuilding industries was established.

In Japan, credit rationing has had the effect of allocating credits to the strongest sectors and firms within a sector. Curbs on investment and the scrapping of unprofitable equipment has tended to concentrate resources in the most dynamic sectors. Like other industrialized countries, Japan has subsidized the aircraft and data processing industries to develop technology, in response to the effects of trade liberalization. Traditional Japanese industry sectors such as iron and steel, aluminium refining and shipbuilding have received special credits under a law designed to promote restructuring. Those credits are paid for reductions in total capacity and the scrapping of least efficient units. Limits on new investments in the sectors concerned are also regulated by the above-mentioned law.

In the Netherlands, a programme was established for restructuring the shipbuilding industry between 1976 and 1980, with the aim of reducing capacity by 30 per cent by 1978. The Investment Account replaces existing selective subsidies, capital transfers and loans to enterprises. It combines a general stimulus to investment with selective elements that serve employment, regional policy, energy-saving and pollution control. In general this instrument gives tax credits of up to 30 per cent on the costs of special investments. Two state-owned companies were founded in 1975 and 1976 to support the industrial development of the northern and southern provinces. A special programme to promote redeployment was initiated in 1975 to help enterprises phase out certain activities in favour of developing country producers. However, disbursements under that scheme have so far been small.

In Norway, shipbuilding received considerable state aid during the recession. Loans for restructuring or improving efficiency in the clothing and textile industry are provided under a special programme. Investment support was given to help achieve greater long-term competitiveness in those sectors.

In Sweden, a special company was established in 1969 to acquire or start industries in depressed regions. Although the nationalized sector has traditionally been small in Sweden, 30 companies were reorganized in 1970 in a single state holding. In 1975 the nationalized sector was supported by an investment programme. As in other countries, the steel industry and shipyards profited by considerable intervention, particularly through special loans. To compensate for losses in competitiveness, sectoral subsidies spread from 1976 on to branches such as textiles, pulp and paper. In 1977 measures were envisaged to close older plants and to increase co-operation among different firms.

The United Kingdom also used nationalization as a means of sectoral intervention. Shipbuilding was assisted and then nationalized in 1977. Similarly, the aircraft industry and a number of big plants in the motor vehicle industry were nationalized. The British Steel Corporation benefited from a capital expenditure programme initiated in 1972, but in 1978 investment plans were curtailed and some older plants may have to be closed. In 1975-1976 selective assistance to other industry sectors increased sharply. The following sectors benefited from such assistance: foundries, machine tools, wool, paper and paper board, textiles, printing, machinery and electronic components.

Measures to support the establishment of small and medium-size enterprises and assistance to high-risk development projects are to be found mainly in France, Italy, Japan and Sweden.

Trade policy

A brief review of trade policies in developed market economies shows that tariff protection continues to provide general, though decreasing, support to industrial policies. Selective non-tariff barriers continue to play an important role, with a bias towards slowing down structural change. Countries such as Australia and France shifted their priorities in the early 1970s to export industries through the provision of special guarantees and export credits. Low-interest credits for enlarging investments in export-oriented enterprises and special assistance to research and development activities were also established. Apart from monetary and fiscal measures to improve corporate liquidity, the Government of Japan took specific action to assist

the country's export sectors. In the United Kingdom, formal or informal restrictions on some import commodity groups (for example textiles, footwear, certain steel products, ball-bearings and cars) have been used to make adjustment in these sectors easier.

Some countries subsidize sales and provide special credits to developing countries. However, as pointed out earlier, imports of manufactured products from developing countries have mainly increased through rising competitiveness. The increasing protectionism in the foreign trade policy of the EEC (in which non-tariff barriers play the main role) has probably significantly reduced imports from developing countries. Stagnation and decreases in certain imports from developing countries (such as textiles, clothing, iron and steel) can now be observed, for example, in the Federal Republic of Germany.

The developments referred to above seem to justify the following conclusions. First, Governments in developed market economy countries both possess and utilize the means to influence, directly and indirectly, the pace and direction of the restructuring process in industry. Secondly, it seems that a large number of the instruments described tend primarily to maintain existing industrial structures, and aggravate structural adjustment pressures instead of easing the restructuring process. Thirdly, the measures adopted may have the effect of further distorting the allocation of resources such as qualified labour management, and capital, and of directing them to declining and less competitive industries rather than to new, internationally competitive lines of production and technologies. The potential for further development may thus be reduced. Finally, policies affecting co-operation and trade with developing countries seem to lack consistency. Sales of capital goods are supported, but the resulting manufactured exports from developing countries are restricted.

Annex

UNIDO WORKING PAPERS ON STRUCTURAL CHANGES

<u>Number of Paper</u>	<u>Title</u>
	List of papers relating to structural changes in developed countries, Issue No. 3. (UNIDO/ICIS. 127)
1	List of papers relating to structural changes in developed countries, Issue No. 1. (superseded by UNIDO/ICIS. 127)
2	Industrial redeployment in Sweden: prospects and obstacles (UNIDO/ICIS. 54)
3	The impact of trade with developing countries on employment in developed countries - empirical evidence from recent research (UNIDO/ICIS. 85)
4	List of papers relating to structural changes in developed countries, Issue No. 3 (UNIDO/ICIS. 127)
5	Industrial redeployment tendencies and opportunities in the Federal Republic of Germany (UNIDO/ICIS. 90)
6	Future structural changes in the industry of the Federal Republic of Germany (UNIDO/ICIS. 103)
7	Industrial redeployment tendencies and opportunities in Switzerland (UNIDO/ICIS. 115)
8	Future structural changes in the industry of Switzerland (UNIDO/ICIS. 116)
9	Industrial redeployment tendencies and opportunities in Belgium (UNIDO/ICIS. 131)
10	Future structural changes in the industry of Belgium (UNIDO/ICIS. 132)
15	Future structural changes in the industry of France (UNIDO/ICIS. 149 and corr. 1)
18	Women in the redeployment of manufacturing industry to developing countries
19	Export processing zones in Developing Countries (UNIDO/ICIS.176)

IN PREPARATION

11	Future structural changes in the industry of Austria (part I and II)
12	Future structural changes in the industry of Hungary
13	Future structural changes in the industry of Australia
14	Future structural changes in the industry of Sweden
16	Industrial redeployment from developed to developing countries - A case study on the experiences of the Republic of Korea

Number
of paper

Title

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| 17 | Industrial redeployment from developed to developing countries -
A case study on the experiences of Tunisia in international
sub-contracting |
| 20 | International redeployment and interfirm trade |
| 21 | Structural changes in the United States manufacturing sector
1965-1978 |
| 22 | Industrial redeployment in the context of economic integration
among developing countries: the case of ASEAN |
| 23 | Study on the impact of developing countries' imports on the
United Kingdom economy |
| 24 | Study on the impact of developing countries' imports on the
United Kingdom economy (textiles) |
| 25 | Structural changes in industry - Part II - country summaries |
| 26 | Anticipating structural changes in Belgium industry |
| 27 | Future structural changes in the industry of France - Part II |
| 28 | The division of labour between centrally planned economy countries
in eastern Europe and developing countries |

Bibliography

For a common future; a study of Canada's relations with the developing countries. Economic Council of Canada, 1978.

Forms and orientations of international co-operation in relation to long-term growth patterns, the Canadian experience. Warsaw 1977, Canadian Subcommission, Seminar of Senior Economic Advisers, ECE.

Redeployment opportunities of the Japanese industry in the context of ESCAP regional industrial co-operation. UNIDO paper INT/ER/1/2.

The newly industrializing countries and the adjustment problem. Report by a Working Group. Government Economic Service Working Paper No. 18. London, 1979.

Towards concrete co-operation in regional industries. ESCAP

Une economie à la recherche de la Spécialisation optimal; Japon 1960-1980. Paris, Groupe d'Etudes Prospectives Internationales, 1976.

Ichimura, S. Japanese industrial restructuring policies, 1975-1978. Symposium on World Development and the Restructuring of Industrial Economies, Bellagio, 1979.

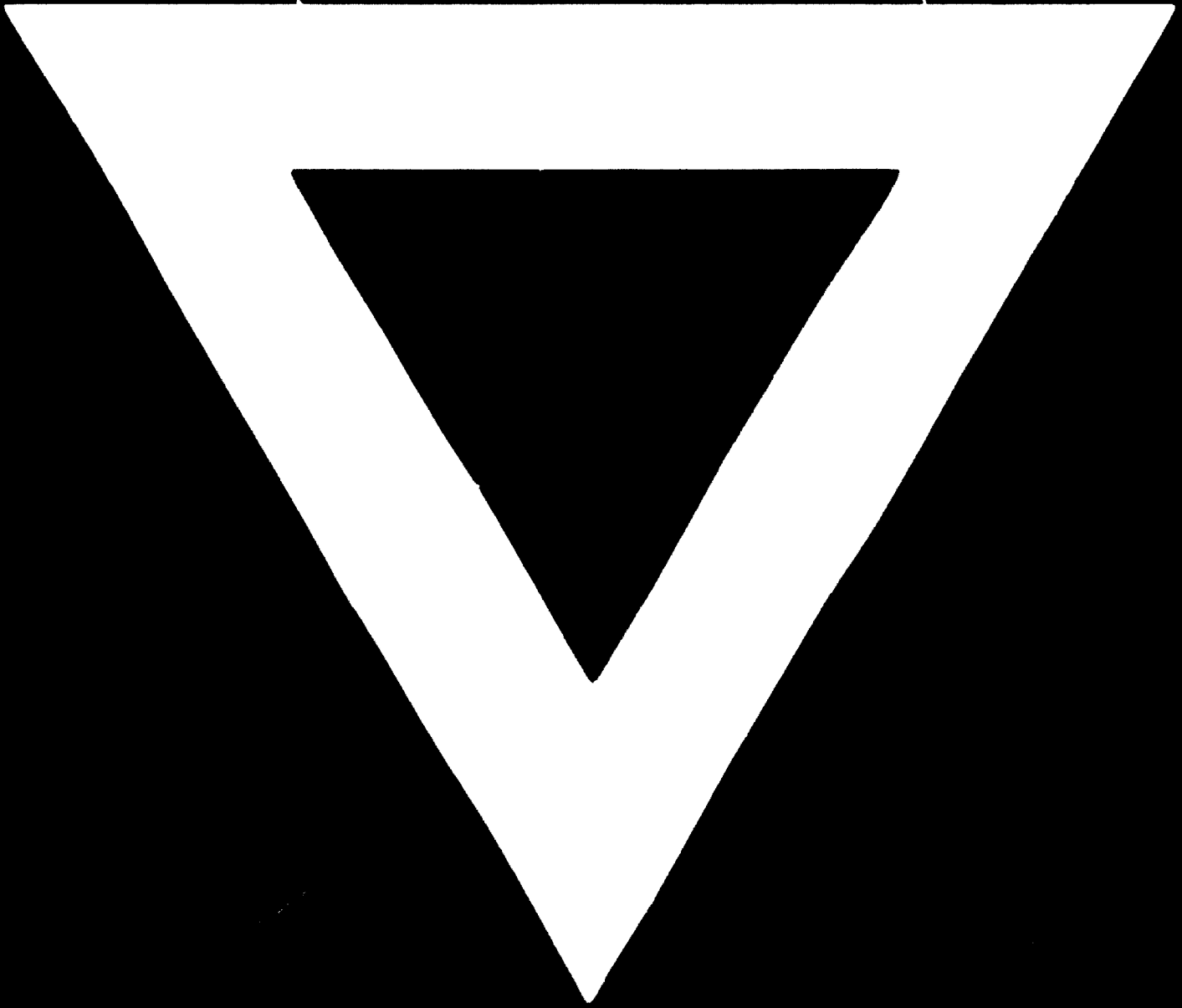
Kol, J. and L.B.M. Mennes. Dutch international trade in manufactured products and effects on employment 1970-1986. Rotterdam, Erasmus University, Economic Faculty and Centre for Development Planning, 1979.

Mennes, L.B.M. Adjustments of the industrial structure of developed economies, in particular the Netherlands. Rotterdam, Erasmus University, Netherlands Economic Institute, 1978.

Secchi, C. The "new" international division of labour between the European Economic Community and less developed countries, with particular reference to the Case of Italy. Milan, 1979.

Stoffaes, C. Restructuring economic activities by means of the market; The test case of France. Symposium on World Development and the Restructuring of Industrial Economies, Bellagio, 1979.

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