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Industrial Development Board
Seventeenth session
Vienna, 26 April to 13 May 1983
Agenda item 8

RESTRUCTURING OF WORLD INDUSTRIAL PRODUCTION,
INCLUDING REDEPLOYMENT.

Studies and research undertaken by UNIDO on industrial redeployment and restructuring

Report by the Executive Director
Summary

An overview is provided of UNIDO's study and research programme on industrial redeployment and restructuring of industry. Main areas of activities are outlined and findings related to prospects and emerging modalities for redeployment and restructuring presented. Basic issues are raised concerning current tendencies which affect redeployment and the nature of work to be carried out by the Organisation in this area.
Introduction

1. As a direct outcome of the Lima Declaration and Plan of Action on Industrial Development and Co-operation (A/101/12. chap.IV. paras.59(c) and 61(d)), UNIDO began research work on industrial redeployment and restructuring in early 1976. This research has been pursued following subsequent requests by the General Assembly (resolution 31/163 of 21 December 1976) and the Industrial Development Board. The main objectives of this work have been to analyse current tendencies in the national and international restructuring of industry and to examine measures for enhancing the redeployment of various industrial activities from developed to developing countries.

2. As part of UNIDO's study and research programme on industrial redeployment and restructuring, and within the framework of modest resources, Headquarters staff in collaboration with a network of outside researchers carried out a series of studies, the findings of which were regularly communicated to the Board and to other international as well as national forums. The studies covered analyses of developed countries' restructuring processes, future development prospects in various developing countries and industrial subsectors, and connected issues of the changing pattern of international division of labour. The study and research programme did not seek to provide normative scenarios for industrial restructuring, nor did it cover any operational activities to assist actual redeployment of industries. Instead, the programme endeavoured to provide an information base for national decision makers and to constitute a "surveillance of the industrial restructuring process" as called for in the New Delhi Declaration and Plan of Action on Industrialization of Developing Countries and International Co-operation for their Industrial Development (ID/CONF.4/22 and Corr.1, chap. VI, para.143). In the course of - and possibly stimulated by - the UNIDO work on structural analyses, a growing number of international organizations as well as national institutes and authorities initiated studies in this area. This development has lately facilitated the work of the Organization in building up an information base.

3. During its consideration of the question of redeployment, the Board at its sixteenth session "recognized the continuing need for UNIDO to examine the restructuring process and to assist developing countries to obtain insights into international developments in this area". The Board also noted the suggestions, contained in the report of the Executive Director on "Redeployment of industries from developed to developing countries" (ID/B/282. para.48), on measures to be taken by the international community to follow and facilitate the process of resource transfers and structural changes in industry for the benefit of the developing countries and agreed that future Secretariat studies should be action-oriented.

I. CURRENT STUDY AND RESEARCH PROGRAMME

4. The Secretariat has continued its work in the directions indicated by the Board at its sixteenth session with the aim of advising developing countries on the prospects for redeployment and thus assisting them in conceiving strategy options for development. An attempt was made in the 1982 study and research programme on industrial redeployment and restructuring to focus attention on the strategy and policy issues for industrial development and restructuring in developing countries through the utilization of pertinent data and analyses gathered, in-house expertise, as well as the network of outside collaborators established in the course of previous years. The programme aimed to support both individual and groups of developing countries in the complex task of formulating policies and strategies for redeployment and for restructuring their industrial sectors.
5. Early in 1982, the study and research programme on industrial redeployment and restructuring was transferred from the Global and Conceptual Studies Branch to the Regional and Country Studies Branch. The current features of the work programme of the latter branch were re-assessed and revised to make the programme action-oriented as possible. Efforts were made to undertake studies jointly with and directly for developing countries rather than primarily for a broader dissemination.

6. The current programme is characterized by a two-pronged approach. First, surveillance continues to be carried out of structural changes taking place in industry and the driving forces behind them in developed market economy, centrally planned economy and developing countries. This work is increasingly being undertaken within the Secretariat on the basis of material available in individual countries. Data is also being retrieved from the programmes of other branches of the Division for Industrial Studies. The surveillance work has also been extended to cover topics which affect many industries in a large number of countries.

7. Second, on the basis of a general surveillance of industrial restructuring processes, detailed country analyses are being carried out of the medium- and long-term policy problems confronting individual industries in those developing countries that have approached the Secretariat for an assessment of their restructuring prospects. Through this kind of work UNIDO attempts to assist individual Governments in their efforts to formulate long-term strategies and policies for their further industrialization and international co-operation. This entails a greater involvement in field activities of Secretariat staff jointly with outside staff from institutes actively associated in the surveillance of industrial restructuring. To this end, contacts were established through appropriate communication channels with a number of developing countries, including the least developed countries, offering research collaboration in the field of redeployment and restructuring within the framework of the countries' prospects and objectives for industrial development. The collaboration with Thai government authorities serves to illustrate the chosen approach. UNIDO, in co-operation with the Restructuring Committee of the Thai Government, carries out a series of analyses on the need for structural adjustment in manufacturing industry, which includes an investigation of selected industrial sectors and policy issues. UNIDO is expected to provide relevant expertise and data on a regular basis over a longer period.

8. The series of country studies is an integral part of the overall work programme of the Regional and Country Studies Branch, details of which are contained in the Annual Report of the Executive Director, 1982 (ID/B/300, paras. 12-22).

II. TENDENCIES IN INDUSTRIAL REDEPLOYMENT AND RESTRUCTURING

Basic assumptions and their validity

9. The process of industrial redeployment as referred to in resolutions of a number of United Nations bodies and other forums presupposes implicitly the fulfillment of a set of assumptions and a general framework with regard to the international economic environment. The extent to which these basic assumptions can be considered valid or are being eroded in the present and future international economic environment requires examination. In this end, some of the tendencies in the international system of industry are briefly reviewed below.
10. First, redeployment of industries from developed to developing countries seems to presuppose a general transferability of resources from developed to developing countries (i.e. capital, technology, manpower) and the supporting acquisition and absorption in the developing countries of these resource transfers. A second assumption seems to be the existence of a notion and its acceptance by the major agents in the redeployment process of a changing pattern of international division of labour on the basis of economic criteria, such as comparative advantages. Third, redeployment would seem to presuppose a basically liberal international trading regime within the framework of accepted rules, such as those stipulated in the General Agreement on Tariffs and Trade (GATT). Fourth, redeployment seems to be seen as an element of the long-term global restructuring of industry, and seems to presuppose a policy of long-term international co-operation. This would entail a lasting commitment by the agents and a certain predictability and stability of the policies and economic parameters affecting the respective markets for products and production factors.

11. During the 1960s and 1970s, redeployment of industries took place as part of the process of trade liberalization and internationalization of production, and as a result of the basically converging interests of agents in developed countries, i.e. Governments and large industrial, trading and financing corporations, as well as the business community in developing countries. The process of redeployment of industries from developed to developing countries has thus in the past largely covered direct foreign investment (DFI) and various forms of resource transfers and subcontracting in (a) labour-intensive, export-oriented manufacturing, (b) raw material-intensive manufacturing, and (c) a range of other industries established in the developing countries on the basis of import substitution policies. Even if none of the above-mentioned assumptions underlying the redeployment concept were fully valid during the 1960s and 1970s, there was a general consensus by the agents as to the desirability of adhering to the broad principles implied.

12. Recent developments may, however, change the pattern of industrial redeployment. Factors such as the present economic crisis, stagnation in industrial production, increasing trade restrictions, fierce international competition in manufacturing and severe strains on the financial system, force decision makers in both developed and developing countries to re-assess their policies and seek new ways to secure growth and employment. The following tendencies, which are already apparent in developed and developing countries, are an indication of this situation.

13. In developed market economy countries, companies tend to associate their direct involvements in developing countries with growing risks as a result of: the uncertainties regarding the economic stability and continuity of policies in these countries; changing policies affecting access to developed countries' markets; and deteriorating international prices and financing conditions. There are growing social pressures in a number of developed countries to limit company resource transfers on account of ever-increasing unemployment. There are also indications that greater emphasis is being laid on the development and application of new technologies in industry as a means for gaining or regaining exports markets rather than pursuing a policy of international localization of production. An investment in new technologies for rationalizing production would necessitate large export sales for recuperating research and development outlays, and would not necessarily result in foreign investments in developing countries. Companies in developed countries are showing growing concern at the emergence of global overcapacities - at least in the short term - in some branches of industry. In many developed countries, companies have been successful in securing various forms of government support as a means to lessen pressures for investment.
14. Although there is insufficient reliable data on recent developments of DFI in developing countries, the growth of DFI in manufacturing declined significantly during 1980 and 1981 as compared with previous years. It is, however, important to point out that the nature of DFI has undergone significant changes in recent years. Private bank lending to developing countries increased dramatically in the 1970s. Large parts of the loans were used for investment, thus constituting a form of DFI. Transnational corporations (TNCs) have recently been relying to a greater extent on external sources for investment in developing countries rather than on their own financial resources. Thus, although DFI in its traditional form may have declined, it has continued growth in a different form. Industrial redeployment of this type has brought about an insurmountable debt burden in an increasing number of developing countries. Unable to service high loan costs with diminishing export returns, those countries are facing increasing risks of default. Consequently, redeployment may experience serious limitations because of the increasing risks threatening private banks.

15. Policy makers in developing countries are aware that in recent years the structure of national industrial production established following the import substitution policies and export promotion measures of the 1960s and 1970s largely failed to create a basis for the sustained development of industry and the economy as a whole; it also failed to attain set objectives such as increased employment, ease of the balance of payments problem, and support to the agricultural sector.

16. Modern industry in the developing countries tends to be highly dependent on imports and achieves only limited net export earnings. Indeed, in most developing countries, industry is a large net user of foreign exchange, while inertia in established industries hinders a gradual adjustment to changing international conditions. Faced with the dramatic challenges of the 1980s, the vulnerability of these industries and their adjustment problems are increasing. Consequently, the restructuring and consolidation of existing manufacturing capacities are being given priority over major expansion programmes. High interest rates on debts limit extensive investment programmes in the large basic industries even in those developing countries where domestic raw materials are available. In many petroleum exporting countries, major industrial investment programmes that were planned in anticipation of increasing or at least stable oil revenues are now being rescheduled, reduced or cancelled in anticipation of a further fall in revenues and the resulting drastic squeeze on domestic finance and foreign exchange.

17. Investments in labour-intensive export industries are being pursued, although uncertainty over access to foreign market and other factors seem to limit the programmes. Many developing countries attempt to provide investment incentives to attract foreign companies and there has been a tendency recently to relax the strict regulations for DFI in an increasing number of developing countries, including previous strong proponents of investment controls.

18. A further important promotion measure was the establishment of export processing zones, although a recent UNIDO study revealed that such zones may not fully meet expectations in the 1980s. The success of the export processing zones operating in the 1960s and 1970s was largely a result of the rapid growth in world production and trade. Increased competition among TNCs, especially in electronics, as well as the small number of zones (approximately 10) which were located in a few developing countries. In view of the present world situation, the more than 60 zones today may not constitute the same attractiveness to companies in developed countries as in
the past decades and investments in these zones may not be forthcoming as anticipated. The establishment of further well-equipped processing zones in a number of developed countries will probably add significantly to increasing competition in this area.

19. A number of developing countries, on the other hand, anticipate limitations to further expansion of their export industries that are based on low-wage labour intensity and appropriate technology. These countries tend to direct redeployment systematically to such industrial activities that appear to achieve comparative advantages in the longer term on the basis of skill intensity, services intensity and high technology, and various conditions are being introduced to control foreign resource transfers. Restrictions on resource transfers already exist regarding the import of second-hand equipment, and developing countries have consistently opposed the redeployment of outdated polluting industrial processes.

Redeployment prospects for the 1980s

20. In view of the above observations on the changing parameters affecting industrial development and redeployment, it is difficult to draw up a systematic outline of the prospects and pattern of industrial redeployment in the years to come, although the following tendencies can be anticipated:

(a) Owing to the considerable debts of many developing countries and changes in the international trade regime as well as other inhibiting factors in both developed and developing countries, redeployment of industries to developing countries is likely to proceed at a significantly slower pace than in the 1970s;

(b) Companies in developed countries may consider investments in new technologies and national and regional subcontracting in other developed countries as an increasingly important alternative to redeployment to developing countries;

(c) Redeployment may be directed according to long-term development priorities as seen by individual developing countries and to a lesser extent according to prevailing comparative advantages;

(d) Developing countries may increasingly seek redeployment in order to provide specific resources for up-grading existing industrial structures. Indeed in many countries, plans for setting up large plants are being postponed until present structures have been adjusted;

(e) A number of developing countries - including some which have been pursuing an export-oriented industrialization strategy - may direct future development and redeployment efforts towards a new, selective import substitution approach by which the high import content of material as well as energy inputs in industrial production can be reduced;

(f) There may be a slight increase in redeployment between developing countries of different levels or type of industrialization;

(g) Efforts are expected to be undertaken by some of the regional groupings of developing countries to synchronize or co-ordinate redeployment of industries from developed countries;

(h) It is likely that the tendency continues from redeployment of complete packaged company projects towards partial redeployment projects. This may entail increased bank financing and negotiations with several partners and thus increased scrutiny by the private banking system of redeployment projects and their accumulating risks;

(i) There may be a trend among certain developing countries to build up their already existing capacity in high technology and services. Developing countries can be expected to seek redeployment from developed countries in these fields, backed up by supporting national policies and measures, including further establishment of science parks. Science parks offer a range of common services to small, high technology business companies with the expectation that the companies will benefit from each other's expertise and developments.
Restructuring under crisis: The new conditions

21. An erosion of the basic parameters and general assumptions underlying the concept of industrial redeployment seems to be taking place. Decision makers no longer expect free resource and trade flows according to pure market mechanisms to play the decisive role in redeployment or to bring about a change in the international division of labour. Redeployment in the 1980s may therefore: (a) decline; (b) be increasingly subject to various government interventions and negotiations; (c) comprise all kinds of industries not only labour-intensive activities in pursuance of the specific strategies of individual decision makers in both developing and developed countries; and (d) require increasing financing from the traditional banking system.

22. The present crisis and its consequences on the design of national policies are thus causing severe challenges to international trading and finance systems as well as disruptions in the process of restructuring and redeployment. The principles of liberal international trade have in the past been more honoured in the breach than in the observance. Their further erosion would entail serious consequences for both developed and developing countries. A need exists therefore for the international community to safeguard co-operation in industry and multilateral trade and to ensure transparency of national policies and measures affecting adjustment and trade.

III. FUTURE REDEPLOYMENT: TRENDS IN TWO SELECTED BRANCHES OF INDUSTRY

23. The issues discussed in chapter II of the present report affect almost all branches of industry. Whether the focus is on development of natural resource-based industries, (e.g. petrochemicals), on traditional heavy industries (e.g. iron and steel), or on large-scale manufacturing industries (e.g. automobiles), those issues quickly come to the fore. The present chapter describes briefly restructuring tendencies in two branches of industry which are areas of major significance for many developing countries and which continue to be at the centre of many debates on redeployment. The focus is placed on the textile and clothing, and the electronics industries for which redeployment prospects are expected to be more favourable than in process industries, where, as a result of heavy investment outlays, the limits to "indebted industrialization" restrict the scope for further industrial redeployment.

24. The first branch - textiles and clothing - is a traditional industrial activity crucial to developing countries for both domestic consumption and export earnings. The second - electronics - is a far newer area where extensive technological change is rapidly rearranging the prevailing pattern of production, trade and employment both within the industry itself as well as in several other industries, leading to widespread restructuring.

Textile and clothing industry

25. The textile and clothing industry has, in the past, played an important role in the industrialization of developing countries. In 1979, textiles and clothing accounted for between 25 and 50 per cent of industrial value added in the leading developing countries (compared to 3 to 12 per cent in the member countries of the Organisation for Economic Co-operation and Development(OECD)) and provided up to 50 per cent of industrial employment (compared to a maximum of 15 per cent in major OECD countries). During 1980, between 30 and 40 per cent of exports of
manufactures from major exporting countries in Asia were textile and clothing products, and an average of 5 per cent for the member States of the European Economic Community (EEC), with the exception of 16.4 per cent for Italy.

26. Reliance on the textile and clothing industries is likely to be even greater for the great majority of developing countries, which are yet to emerge as exporters of manufactured goods, in particular countries in an initial phase of industrial development in Southern Asia, sub-Saharan Africa and Central America. These countries are endeavouring to take over from previous export leaders as the producers of the cheapest product ranges at the highest labour intensity. Thus, an understanding of the perspectives for industrial redeployment and restructuring in the textile and clothing industries is a prerequisite for devising and implementing future industrialization strategies in developing countries.

27. Until the end of the 1970s, industrial strategies focused on export-oriented production, particularly in the field of garments, which proved successful for a certain number of South-East Asian countries and territories. Producers in six countries and territories of that area covered 80 per cent of all developing countries' exports in clothing. In textiles, these producers covered 59 per cent. Substantial redeployment of such manufacturing capacities took place from developed countries, partly in the form of national approaches as in the Republic of Korea and partly as a result of relocation and international sourcing of companies in Japan, the United States of America and Western Europe to, for instance, El Salvador, Hong Kong and Singapore.

28. The success achieved by these few South-East Asian producers in penetrating textile and clothing markets in major OECD countries provoked both Governments and private firms in those countries to implement countervailing strategies. The strategies implied in the first instance an increase in restrictions to textile and clothing imports from developing countries (particularly from the four main suppliers) in the December 1981 renewal of the Multifibre Agreement (MFA). Rather than allowing developing countries to increase their exports to the industrialized countries at the rate of 6 per cent a year, as originally stipulated in the first (1972) MFA, developed countries imposed quota reductions for practically all product groups, and especially for the most sensitive products, such as cotton yarn and trousers. Second, practically all major developed countries increased export promotion policies such as export subsidies and cartelization. Thirdly, attempts were made in particular by firms in the United States of America and in Western Europe to accelerate product innovation and to concentrate on higher value added items, although such products account for only 10 to 15 per cent of the market. Specialization on high fashion items at the expense of standard products would, therefore, hardly be sufficient to sustain OECD clothing industries of any substantial size.

29. As a fourth measure, strategies were formulated to achieve modernization and consolidation through cost-reducing process innovations affecting even the more traditional components of the industry such as garments manufacturing. Thus, according to the Commission of the European Communities "Advance technology has yet to penetrate the clothing industry, where automation is still virtually unknown. However, one sweeping change in production methods as a result of automation could considerably reduce the cost disadvantage under which the Community's industry operates as compared with its competitors in the developing countries."
be confronted with demand stagnation in subsectors such as man-made fibres, spinning, weaving and knitting, which have already a long tradition of capital-intensive automation and might thus lead, in a growing number of firms, to falling profits and an increasing vulnerability to the vagaries of the crisis. Garments manufacturing has so far proved to be remarkably resistant to the introduction of automation. Before investments are forthcoming in an extremely costly and as yet untested computerized automation system, confidence in the future viability of this branch would have to be strengthened - hardly a realistic perspective at present.

31. Assuming that computer-based automation systems were to be introduced in the more accomplished labour-intensive aspects of garment production (e.g. grading, designing and cutting), Western Europe for instance might not necessarily be the optimum location. On account of the high cost of capital - both physical and human, the effective annual utilization of such equipment will be crucial. Whereas in Western Europe annual use of equipment averages around 5,700 hours, this figure often exceeds 7,000 hours in South-East Asia. Costs of capital as a proportion of the unit cost of production for the same type of equipment in the EEC would consequently be considerably higher than in South-East Asia. The trend towards greater automation and capital intensity could increasingly apply to textile and clothing growth poles in developing countries. As a result, the positive developmental effects to be reaped by developing countries on employment generation, skill formation, forward and backward inter-industrial integration and technological spin-offs might become even smaller and less viable than they are today.

32. Attempts to regain market domination and profitability through process and product innovation will put Governments and individual firms in OECD countries under increasing pressure to search for individual and short-term gains. Rather than accepting the changing patterns of production and consumption in the textiles and clothing industries, major OECD countries are likely to take recourse to strong competition and protectionism.

33. The main implications for future redeployment and restructuring from the perspective of the developing countries are:
- Amidst the severe crisis in the world economy, the hopes for developing countries to gain more assured outlets and for a structural adjustment of Western textile and clothing industries would finally fade.
- Relative low-cost latecomers in the field, such as the Philippines and Sri Lanka, will have limited scope for redeployment from other developing countries through increasing quota allotments snipped to them from the dominant exporters, particularly Hong Kong, the Republic of Korea and Macao;
- Prospects are generally clear for a shift of the focus of production to the potentially huge internal markets of developing countries as well as an increasing South-South co-operation, particularly in the areas of trade, research and development, and marketing;

In the medium term, indiscriminate reliance on redeployment for exports would seem to be neither feasible nor advantageous to all groupings of developing country producers.

Electronics Industry

34. Since the early 1960s, the electronics industry has witnessed significant redeployment of manufacturing activities from developed to developing countries. This type of redeployment was generally restricted to the assembly of consumer electronics products and of semiconductor devices, and was largely part of the worldwide strategies of TNCs in search of cheap labour. In geographic terms, redeployment of electronics manufacturing was heavily concentrated to some few countries in South-East Asia and the Caribbean and to Mexican border industries.
35. Since the mid-1970s, however, international allocation patterns in the world electronics industry have been undergoing drastic changes which will alter the scope for future industrial redeployment and restructuring in this industry. These changes occur at four levels:

- Shifts between Japan, the United States of America and a few production centres in Western Europe, i.e. the major OECD countries;
- Shifts from the centre to the periphery of the OECD region;
- Transition to new patterns of investment established by exporters in South-East Asia (Malaysia, Republic of Korea, Singapore well as Hong Kong and Taiwan);
- Shifts from the established export countries and territories to new offshore locations in Bangladesh, China, the Philippines and Sri Lanka, as well as new locations in the Caribbean.

36. Location shifts within the OECD region - in particular to the European periphery and to Japan - will be the dominant forms of international restructuring in the electronics industry during the 1980s. Redeployment to and within the developing countries will, however, increase in importance; examples of redeployment between developing countries and of a subsequent industrial restructuring of off-shore production facilities are already evident. Thus, the arrival of new entrants in the traditional off-shore locations in South-East Asia has clearly levelled off since the mid-1970s. From that time onwards in South Asia, only the Philippines has attracted significant new investment. Since 1979, three additional candidates for off-shore location became available in the region: China (particularly its coastal special economic zones), India and Sri Lanka. The traditional locations in Latin America, i.e. the Mexican border industries belt and the Caribbean basin, also show a relative stagnation, whereas Brazil shows an overall dynamic trend. Access to the potentially huge Latin American markets has been the guiding principle in Brazil, with costs of secondary importance.

37. Manufacturing of semi-conductors in developing countries will continue to expand - at least for certain product families - so that the possibility of relocation of industrial activities from the developing countries back to the OECD region is not a key issue. The issue of immediate concern is that in consumer electronics and in electronic components, both automation and industrial redeployment to developing countries are taking place as complementary processes, with automation increasingly becoming the driving force. As computer-based automation is pervading practically all stages of designing, producing, applying and maintaining electronic hardware and complementary software, new forms and mechanisms of industrial redeployment and restructuring are about to emerge.

38. The trend towards increased automation and capital intensity will not be restricted to industrial restructuring within developed countries, but will also apply to growth poles in the developing countries. Consequently, the positive effects of development for developing countries in employment opportunities, skill formation, forward and backward linkages and technological spin-offs might become even smaller and less viable than they are today. Future analysis and policy activities should thus be geared to these changes as well as their impact on industrial redeployment perspectives in the electronics industry. This in turn would require more detailed information on the newly emerging patterns of convergence and divergence of interests between the leading actors involved (firms, Governments, labour movements).
39. What scope, then, does exist for developing countries to proceed to new forms of industrial
redeployment and restructuring in the electronics industry and thereby transform their fragmented
world-market oriented chip assembly lines into an increasingly nationally integrated electronics
industry, which could be subordinated to the specific requirements of these countries?2 If
developing countries continue to rely on OECD-based firms and their willingness to redeploy
production facilities and technologies this possibility remains remote. Faced with strategy of
unselective market integration, only a small number of countries - no more than 15 or 20 - could
expect to retain off-shore chip assembly lines within their borders and to upgrade them into the
more integrated patterns necessary for a national electronics industry, providing they possess -
in addition to their export-oriented chip assembly plants - more than an embryonic network of
capital goods industries. The question of immediate concern for these countries would be to
determine under what conditions they could hope to achieve a sufficient transfer of production
activities of a more technologically complex nature.

40. For a number of companies in Japan, the United States of America and Western Europe, dealing
with major electronic components and systems, it might indeed be rational to transfer, albeit in a
strictly selective manner, relatively advanced microelectronic technology to industrial growth
poles in Latin America, South-East Asia, the Middle East and the Mediterranean region. In
addition to the question of access to future markets, four factors seem to be of particular
importance in connection with the prospects of redeployment to developing countries:

- The availability of engineers and cheap but highly skilled labour (availability of
  low-cost human capital);
- The need to run expensive equipment around the clock, to maximize its annual overall
  utilization and to minimize down-times;
- In certain industrial growth poles in developing countries, the labour force might show
  less resistance than in developed countries to reorganization of the production process
  including the gradual introduction of robots and flexible machining systems;
- The availability of low prices - highly subsidized infrastructure and a minimum of
  regulations with regard to environmental and labour standards - might become of
  increasing importance, for instance in wafer fabrication and silicon foundries.

IV. SUGGESTIONS FOR THE FUTURE STUDY AND RESEARCH PROGRAMME

41. It has been argued above that against a background of the present crisis and rapid,
unpredictable changes in terms of economic, technological and policy parameters, the processes of
redeployment and restructuring of industry will proceed at a slower pace, and in a different and
more complex pattern than either hitherto or implied in the general notion of these processes. It
is becoming evident to decision-makers that the scope for and modalities of continued industrial
development in developing countries as well as redeployment from industrialized countries, need to
be re-examined. The key issue faced by the individual developing countries is how to maintain and
enhance the pace of industrial development within prevailing national and international
constraints while making necessary adjustments to the existing industry structure. Work being
carried out by the UNIDO study and research programme on industrial redeployment and restructuring
should aim at assisting developing countries in this task. This could entail carrying out
analyses of prospects and the formulation of policies, primarily for the benefit of the individual
developing country rather than focusing on the changing comparative advantages of developed
countries and redeployment opportunities in their declining industries.
42 Groups of developing countries have endeavoured, at a subregional level, to co-ordinate their redeployment policies vis-à-vis developed countries and to achieve a certain complementarity of production. It is therefore essential to undertake analyses of resources and industrialization prospects, as well as of possibilities for joint action by various developing country groupings, in terms of acquiring foreign resources.

43. It is suggested that UNIDO pursue its work on redeployment and restructuring along the lines which were outlined under the description of the current programme. In order to achieve its objectives in this field, UNIDO should continue to build up its expertise and a database on industrial redeployment and restructuring, and provide direct advisory and analytical services to groups as well as individual developing countries. On the basis of past work, it is considered essential that, in carrying out this task, greater collaboration be sought with experienced people possessing an insight into industry and business at large. Accordingly, UNIDO would thus attempt to widen its network of outside collaborators in redeployment with specialists from private and public industries who would be able to provide pragmatic advice on prospects for redeployment and restructuring at this present time of crisis and rapidly changing conditions.

V. ACTION REQUIRED OF THE BOARD

44. The Industrial Development Board is invited to review the findings and suggestions contained in the present report. In particular, the Board may wish to advise on or endorse the scope, approach and arrangements adopted by UNIDO in its study and research programme on industrial redeployment and restructuring.

Notes


2/ Based on Survey of Current Business (various issues); growth of United States direct foreign investment in manufacturing in developing countries decreased from 15 per cent in 1978-1979 to 9 per cent in 1980-1981.

3/ According to the OECD secretariat, half of registered direct foreign investment in Brazil in 1979 was financed through foreign loans.

4/ In 1980, the European Economic Community covered 40 per cent of its total textile imports from developing countries.


6/ See "Restructuring world industry in a period of crisis - the role of innovation. An analysis of recent developments in the semiconductor industry" (UNIDO/IS.285 chap.6.4.5; The rise and fall of value-added in offshore chip assembly