PREPARATORY COMMITTEE FOR THE
INTERNATIONAL CONFERENCE ON
THE RELATIONSHIP BETWEEN
DISARMAMENT AND DEVELOPMENT
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DISARMAMENT AND EMPLOYMENT

Contribution by the International Labour Office
INTRODUCTION

1. In its resolution 40/55 of 16 December 1985, the General Assembly approved the report of the Preparatory Committee for the International Conference on the Relationship between Disarmament and Development. 1/ Paragraphs 19 and 20 of that report requested the Secretary-General of the Conference, inter alia, to update existing materials, to prepare background papers and bibliographies and to compile information and an analysis relevant to the work of the Conference, including succinct papers on the three substantive items on the agenda. Those have already been published as information papers A/CONF.130/PC/INF.3 to 8.

2. Paragraph 10 of resolution 40/155 requested "the organizations of the United Nations system and the International Atomic Energy Agency to contribute fully to the preparatory work in the field of documentation, in conformity with the recommendations contained in paragraph 20 of the report of the Preparatory Committee".

3. Within this framework, a paper on disarmament and employment, prepared by the International Labour Office, has been received and is reproduced in the annex to the present document. The views expressed in the paper are those of the International Labour Office.

Notes

## Annex

DISARMAMENT AND EMPLOYMENT

International Labour Office

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INTRODUCTION

1. Military-related expenditure is necessarily associated with the considerable allocation of labour time to military preparedness, to the production of goods and infrastructure corresponding to perceived defence needs and either to the supply of military goods and services for export or to the production of exports to exchange for such military goods and services. Disarmament will necessarily reduce the military-related demand on labour time, releasing labour for the production of other goods and services. The scale of disarmament cannot be foreseen, nor can the defence sectors be necessarily identified in which cuts would come. There is a considerable range of labour or capital intensity possible in the remaining defence sector, and there are also geographical choices to be made. Even the simple distinctions between military personnel, defence-related civil services, construction operations and production of defence-related equipment may be of little help in anticipating the changes which would follow a cut in defence expenditures.

2. The scale of current overall military-related employment can only be guessed at. The numbers of defence personnel and civilians employed by a defence establishment are usually well known. However, the numbers employed through the purchase of goods and services and the position of infrastructure for defence purposes usually cannot be directly measured, and alternative means of counting the work-force involved are crude and often produce results that are not comparable between countries or over time. The number of establishments working full-time for such purposes is often small; the extent of sub-contracting from such establishments is significantly large, while many other establishments have military-related sales either as part of a diversified set of operations or as part of a relatively similar set of operations. One result of this obscurity is that defence-related industrial operations are often associated with the notion of an unusually highly skilled labour force, because that is a visible characteristic of aircraft production, avionics, tele-guided munitions and other related industries with much of their output going to defence. However, when all linkages are traced through, it is likely that defence-related industry employs mostly production workers, along with many scientists, technicians and managers, etc.

3. Estimates of defence-related employment, taking military and civilian workers into account, in terms of equivalent work-years, suggest that as a share of the overall labour force it is somewhat below the share of military expenditure in the gross domestic product (GDP), and, in terms of cross-country comparisons, does not rise as fast as the latter. Thus, if the world as a whole is spending 3 per cent of GDP on military expenditure, then perhaps 2.5 per cent of its labour force is involved, or over 60 million persons. If the share were 3 per cent, then the estimate might be raised to some 80 million. Looking more specifically at arms production, there are perhaps 8 to 10 million workers directly involved (or only about one third of 1 per cent of the world labour force).

4. In a number of industrialized market economy countries with military expenditure in the range of 3 to 5 per cent of GDP, the share of the labour force associated with such expenditure is in the range of 3 to 4.5 per cent. Of the
labour force engaged, some 60 per cent are often either in the armed forces themselves or are civilians directly employed by those forces. The remainder are in industrial employment supplying goods and services directly or indirectly to the defence sector. Manufacturing is likely to dominate this sector, but transport, business services, construction, etc., are also important sources of employment.

5. These data do not include workers producing arms and military equipment for export. Furthermore, in countries importing arms and equipment, the labour force engaged in producing the exports needed to buy those arms or to repay loans can be very substantial, depending, of course, on the pattern of each country's exports. In developing countries with mainly agricultural exports the numbers will be high.

6. One curiosity of defence-related industrial production is that there is no "defence industry" as such, apart from a minor number of enterprises producing goods which are solely required for defence - munitions factories and the like. (Even so, the term "defence industry" is usually restricted to producers of goods which could not be quickly transformed into fairly similar civilian equivalents.) Defence-related industrial production is, in fact, defined solely in terms of its purchaser rather than the nature of its output. There are at least two consequences of this. First, production for the Government as purchaser is not generally associated with certain attitudes on the part of management and labour. The attitudes may be basically "non-commercial", because of the difficulty of applying a cost-benefit analysis to defence purchases (or its inapplicability) and, by some industrial standards, defence-related production may be inefficient. Second, since the Government usually does not create wealth but only transfers it, a cut in government demand in one sector will be taken up either through increased government demand in another sector or through increased household consumption or enterprise investment.

7. The last two considerations spell out the potentials and problems of manpower adjustment once disarmament begins. On the one hand, the typical "weapons producer" does not exist. Occupations such as machinist, mechanic, plumber, electrician, etc., are well-represented in defence-related employment. Various studies have shown that there are virtually no sets of defence-related industrial skills unknown in civilian production. On the other hand, the pattern of final demand for goods and services must change with disarmament and may change considerably. Much of the discussion about the conversion of defence-related manpower is really about controlling changes in the pattern of demand so that it continues to match the skill structure of the labour force as closely as possible.

8. The issue of conversion and adjustment to producing for civil markets can perhaps be divided between that which may take place within the enterprise and that which takes place against the background of the outside labour market. With fast economic growth and low unemployment, enterprises respond to expected changes in demand for their product by diversification into new products or by innovation and improvement of equality or lowering costs and, correspondingly, either retrain their labour force or dismiss workers. Furthermore, under relatively good overall economic conditions there is usually a high rate of labour mobility between enterprises. With major cuts in defence expenditures and, possibly, at a time of slow overall economic growth, the enterprises in question may well be less able to
diversify or innovate and large-scale dismissals will result. The experience of
many defense-related workers would then reflect that of many other workers in
industrial sectors affected by, e.g., market saturation, intensified foreign
competition, etc. There is, of course, considerable experience in developed market
economies concerning the way labour markets respond under such conditions. Partly
because unemployment generally weighs most heavily on untrained, new workers
(youths) and relatively old workers, it has often proved possible for production
workers to find new employment with the Government's role limited to providing
labour market information and a basic income during the period of job search.
There is no doubt, however, that much of the new employment found by such displaced
workers has been in lower-paying jobs. To that extent, while a skilled worker or
technician will no doubt find work, it may not be the most suitable work.
Furthermore there is a risk of "de-skilling" so that when a job more in line with
the worker's original qualifications appears, his skills may have been lost through
disuse.

9. In contrast to reliance on the labour market to find new jobs and to reliance
on inter-enterprise sales to find an alternative use for fixed assets released
through disarmament, some observers suggest an increased role for the Government.
This can either take the form of superintending and encouraging a process of
enterprise (or sub-enterprise) level diversification, whereby most of the
work-force is retrained, or of deliberately switching its own pattern of final
demand towards products for the production of which the released skills are
suitable. There is a further variant of increasing government expenditure on
transfers towards developing countries. There has been much discussion in
developed market economy countries of enterprise level conversion to the production
of alternative products (see paras. 36-43 below). Most such exercises have assumed
government support either during a transition period or by providing a market for
the new product. While there is every reason to encourage forward thinking on
alternative, non-defence-related products - and management-labour consultation in
this area is to be welcomed - it is probably unrealistic to expect high levels of
government intervention in this process. Nor is it probably realistic to expect
Governments to launch major new procurement programmes in order to keep enterprises
in being.

10. The lessons of earlier experience in industrialized market economies
concerning running down industries in the process of adjustment suggests that the
role of government in intervention at the enterprise level, or even in supporting
industrial subsectors, should best be limited in time and, above all, should be
transparent. What is more important is to provide a stable and consistent policy
framework, to define a fiscal policy which is at least neutral as regards
incentives to labour use, to encourage the growth of new enterprises and to promote
labour mobility. In other words, sound economic policies are required.

11. The role of government in the process of adjustment or conversion depends, of
course, on its weight in defence production as well as in the overall economy. In
countries where private companies play a major role, the Government can be expected
to do little more than facilitate adjustment and ensure that workers' rights are
protected. On the other hand, where all defence-related production is in the
public sector and there is very little private economic activity, as in the
Socialist countries of Eastern Europe, the government role is predominant. In a sense, that greatly reduces the problem of conversion as the State can ensure the reallocation of labour. But it also requires very detailed planning in order to obtain an efficient pattern of redeployment.

12. Specific information on employment in defence-related industries in the Socialist countries of Eastern Europe is lacking, so that this paper largely draws on the experience of the industrialized market economy countries. It is likely, however, that the Socialist countries also employ for the most part workers whose skills correspond to those used in, or potentially useful to, the civil sector.

13. There are only a few developing countries with significant defence production. Several of these face severe balance-of-payments and financial crises, however, and have found arms exports a significant source of foreign exchange. Therefore, it would not be correct to assume that they would have few problems in achieving effective conversion in case of global disarmament. However, the expenditures of a developing country on military-related imports have accounted for perhaps a quarter of their debt burden, so general disarmament could also help to relieve that alarming problem.

14. The variant of switching armaments expenditures to official development assistance in order to increase the magnitude of such transfers to the developing countries can be shown to have a beneficial effect on employment once the transition costs have been absorbed. One feature of such a strategy is that the type of goods which developing countries would subsequently be offered or would purchase from the developed world would probably be those with a skill mix used in their production similar to that of defence-related industry; that is to say that engineering and metal products of various kinds would predominate.

I. DEFENCE PRODUCTION AND OVERALL CONVERSION ISSUES

15. The constant increase in the sophistication and hence the cost of weaponry over the last three or four decades has complicated the market situation for defence producers. For one thing, government procurement budgets have not risen as rapidly as weapon costs. This means that progressively fewer units of any given weapons system can be procured. An additional problem for the smaller producers (that is, all those except the United States of America and the Union of Soviet Socialist Republics) is that it is frequently more economical to purchase sub-systems and components from abroad than to have them developed or produced domestically. This further reduces the employment generated by local production. (However, there may be considerable benefits for the efficiency of the manufacturing sector involved in building up a profitable export sector in non-military manufacturing products in order to finance imports of military equipment.) Finally, as costs rise, the lifespan of weapons is extended through modification and repair, which means that entire weapons systems are purchased less frequently. These trends increase the "normal" gaps that occur between orders and reduce the number of workers who can be profitably employed. Currently, one is thus witnessing an increase in military expenditures, often including a rising share for procurement, and simultaneously a decline in defence-sector employment in...
industry. Considerable labour resources have been released from the defence sectors of the industrialized market economy countries over the last 35 years.

16. There are a number of factors which are shared by the defence market in the member countries of the Organization of Economic Co-operation and Development (OECD) and which make it difficult for defence producers to adapt to the civil market. For one thing, price is not usually the determining factor in sales. Contracts are often signed before the final product is even completely designed, making true cost and price estimates very difficult to determine. Technical capability is the key element in most defence deals. What the customer is buying is research and development capability, and the past technical performance of the firm is an extremely important condition when new contracts are awarded.

17. Lack of competition in the defence sector further reduces the ability of arms producers to operate in the civil market and in many instances major arms contracts are awarded without any competitive bidding at all. Another aspect of the relationship between military and civil technology is the extent to which military production requires specialized machinery and plant. Certainly the degree of specialization varies among industrial sectors. Machinery and plant in the ammunition industry tend to be highly military-specific, while that used by the military electronics, aerospace and land vehicles industries can often be used to produce for the civil market as well. Companies which produce for both markets sometimes choose to separate production facilities for security reasons, but this does not always occur. In several countries, goods for the military and civil markets are sometimes produced in the same factory.

18. It has been suggested that the degree of specialization in the military-industrial sector may vary among countries. It is frequently argued, for example, that in some countries defence producers use standard machinery and plant and that, as such, their equipment and facilities are less specialized and thus more adaptable to other uses than those used by their counterparts in the major arms-producing countries.

19. Defence-related production is often concentrated in particular regions in each country and in particular industrial sectors and individual firms. The industries that depended mainly on defence demand (in terms of employment and sales) are radio and communications equipment, shipbuilding and repair, aircraft, industrial inorganic and organic chemical, and electronic components, aerospace and electronics industries, aviation and machine-building.

20. Within industrial branches, both those heavily reliant on defence orders and those minimally involved with the military, directly defence-related production tends to be concentrated in a relatively few firms. Thus, aggregate data for each industrial sector can either overstate or understate the reliance of any individual firm on defence orders.

21. In terms of conversion, there are at least two important reasons why it is important to know which industrial sectors and which firms within those sectors are most dependent on military orders. Converting a reasonably large facility from military to civil production can take between one and three years after a
conversion plan is developed. To facilitate the conversion process, advance enterprise planning is clearly desirable and Governments at all levels must know where to target their conversion assistance. Subsidiaries of large corporations, which are not as a whole heavily dependent on defence orders, should theoretically require less assistance than medium-size and smaller firms without the financial backing of a corporate entity to help them through the transition period. Firms which, irrespective of their corporate affiliations, are heavily dependent on defence orders are likely to find it more difficult to transfer their defence-related resources (physical and human) to the civil sector.

22. Some evidence is available of earlier attempts to diversify. A 1965 survey of defence electronics producers in a major market economy found that 80 per cent of the firms covered had attempted to diversify at some time into non-defence markets. In this survey, it was found that smaller firms had a higher success rate than larger ones, apparently because the former were better able to produce components and instruments for which there was a well-established demand in the civil sector. A survey of defence electronics producers (outside the aerospace sector) found that those companies most heavily dependent on the defence market (which tended to be larger companies) were least able to adapt products and techniques developed for the defence sector to the civil market.

23. Given the differences between the defence and commercial markets, it is not surprising that defence companies have trouble in successfully identifying, producing and marketing goods and services intended for the civil sector.

II. DEFENCE EMPLOYMENT AND MANPOWER ADJUSTMENT

24. The conversion of the defence industry would not cause massive unemployment in any of the major arms and military equipment-producing countries, even if compensatory measures were not undertaken as defence orders were decreased. A number of studies of the employment consequences of cutting defence expenditures have been made. A study for the Federal Republic of Germany (which did not investigate the use to which the savings would be put) found that 50,000 jobs would be lost following a 5 per cent cut in expenditure. Of the jobs lost, 7,000 would be in manufacturing and the bulk would be in the public sector. A somewhat more complex study for Sweden anticipated a 50 per cent reduction in defence spread over 25 years and found that the annual loss would be low, at 1,430 jobs.

25. A study carried out for Norway modelled the reduction of defence expenditures by 15 per cent, which, without countermeasures, would lead to a loss of some 12,000 jobs. The study then evaluated the employment effects of alternative uses of the resources saved, finding that merely expanding government expenditure in general virtually restored employment levels. The study found, however, that expanding expenditure on a labour-intensive, social home-help service for the old and the sick would have effects on employment superior to those of any other option. Finally, a study was made for the United Kingdom of Great Britain and Northern Ireland which allowed for a reduction in defence expenditures by 1.5 per cent of the gross national product (GNP) and the reallocation of those funds proportionately to other public programmes. The study found that after five

...
years, employment would increase by 260,000, and GDP would rise by one half of 1 per cent. Public employment would rise by 54,000 and, in general, construction industry employment would gain and engineering would lose.

26. In Sweden, employment generated by defence procurement accounts for about 1 per cent of total employment and between 2 and 2.5 per cent of industrial employment. Even in countries with the greatest number of defence industry employees, defence-related procurement does not support more than 5 per cent of all jobs, and in most cases a good deal less. Only two townships in Sweden have more than 10 per cent of their labour forces directly engaged in the defence industry.

27. Although national, regional and even some local economies may be able to adjust to reductions in defence procurement without significant difficulties, individual workers are indeed likely to have difficulty in obtaining new jobs. This could occur because particular occupations are heavily dependent on defence contracting, because the skills and other characteristics possessed by defence workers are not those demanded by new jobs being created in the civil sector or because of worker immobility (either voluntary or involuntary). In this respect it can be noted that defence-related industries in the United States tend to employ more professional, technical and skilled (craft) workers than the manufacturing industry as a whole and employ far fewer sales and semi-skilled (operatives) workers.

28. The skills of production workers, both skilled and semi-skilled, tend in principle to be relatively easy to transfer to the civil sector. In some cases, the transfer is easy because of the similarity between end-products. The manufacture of aircraft and aero-engines, communication systems, land vehicles and ships, for example, all require essentially the same skills whether they are produced for the military or the civil market.

29. Even under the most favourable economic conditions, not all production workers could transfer to civil sector jobs without retraining. There is good reason to believe, however, that most would require less than three months' training. Some, of course, would need more. It has been estimated, for example, that riveters moving from aircraft to railway car production would need about six months' training to change from driving cold rivets into aluminium to hot rivets into steel. The need for retraining is, however, in no way unique to the conversion of military industries to civil production. Workers must often undergo a period of retraining when their firms introduce new products or new models of the same product. The structural changes which all Western industrialized countries are currently undergoing have necessitated considerable rationalization of many traditional industries (shipbuilding, steel production, textiles and clothing, for example) which has included the introduction of new production processes.

30. The greatest difficulties in converting to civil sector production are likely to be experienced by engineers, scientists and other technical personnel, on the one hand, and management and administrative personnel on the other hand. In the Soviet Union, for example, some people familiar with the operations of defence producers report that middle-level managers would need to be retrained if they were to function adequately in the civil sector.
31. It may also be easier to transfer individuals than to transform organizations. At least in some cases, it may be necessary to close a facility and disperse its personnel. Conversion does not always mean using exactly the same plant, machinery and personnel to manufacture alternative, civil sector products as were used to produce military equipment. Conversion can mean transferring the personnel from a defence-dependent facility to other divisions and facilities and making a large number of the employees redundant. Much depends on the flexibility of both the employees and the organization.

32. One example of both foresight and flexibility was the transformation of the United Kingdom Atomic Energy Research Establishment at Harwell, from 1967 to 1974. Faced with an anticipated 30 per cent reduction in the facility's work-load and hence its staff, Harwell's director decided to save at least some of the jobs by acting as a consultant to domestic industry and relevant government departments in an effort to make British industry more competitive. By 1975, half of the personnel at Harwell were working on what came to be called "the industrial programme", which produced half of the facility's income.

33. The experience of several United States aerospace companies which have attempted to diversify their production into ground-transport systems points to the problems encountered by managers, administrators and scientific personnel when they attempt to leave the military market for the civil sector.

34. However much planning goes into the conversion process, it may none the less prove more difficult to find alternative employment for people with certain qualifications and characteristics than it will be for others. A significant cut-back in defence procurement would, for example, in all likelihood produce a glut of aero-astronautical engineers on the civil market, as has occurred in the past.

35. A further issue affecting conversion is that workers in the defence sector tend to be more highly paid than those in many other industries.

III. CONVERSION PROSPECTS AND EXPERIENCE AT THE LOCAL AND ENTERPRISE LEVEL

36. As noted, a good deal of the research undertaken over the last 25 years shows that military-related production accounts for a relatively small proportion of total production in countries with domestic arms industries and supports the contention that a decline in such production would not have serious consequences for the economies of those countries. Particular localities and industries where defence production is concentrated would face temporary difficulties, but these could be mitigated by adequate planning and compensatory measures (for example, special tax incentives for industries undergoing conversion) or for the creation of jobs in other industries. There is good reason to believe that in the long run economies would benefit from the reduction of the military sector since, in many cases, the same amount of investment produces more jobs in the civil sector than it does in the military sector. In addition, the release of large numbers of research and development personnel from military-related jobs and their redirection towards socially useful civil sector goals can only be beneficial.
37. Although the conversion of the defence industry would benefit all national economies, it cannot be expected that a decline in defence-related procurement would automatically be translated into a successful movement of the defence producers into civil markets. The conversion of the defence industry can be seen as one category of the restructuring that economies are constantly undergoing as new products and production processes are developed and diffused. The introduction of new products and processes into any part of the manufacturing sector can necessitate the retooling of factories, making new investments, the retraining of workers, the closing of production facilities and the opening of new ones. While expanding economies have less difficulty in adapting to such changes, some adjustment assistance can be necessary even in periods of relatively rapid economic growth. In periods such as the present one, characterized by slow growth, high rates of inflation and considerable unemployment, adjustment measures are particularly important.

38. Most Governments of industrialized market economy countries take the position that responsibility for the conversion of the defence industry rests with the arms producers. They tend to believe that economic adjustment mechanisms already in place would be sufficient to minimize the disruptions resulting from a transfer of resources from the military to the civil sector of industry. Most Western European Governments have public programmes which provide subsidies, tax rebates or retraining to facilitate restructuring and maintain employment. They also stimulate certain sectors through public procurement; provide government assistance to displaced workers wishing to start their own firms; and promote the introduction of new processes and products.

39. While national economies can be expected to adjust reductions in military expenditure and cut-backs in defence procurement without serious problems, some difficulties will inevitably arise at the local and regional levels. Defence industries tend to be geographically concentrated. Regional and local governments clearly have an interest in making a transition from military to civil production as easy as possible, since the more disruption local economies experience, the more likely it is that local and regional governments would be required to provide an increased level of social services at the same time as their income (from personal and corporate taxes) is declining. Most conversion proposals do not include an institutionalized role for regional or local governments. In many countries, however, regional and local governments already play a role in channelling economic adjustment assistance to areas with economic problems and would thus be involved in helping firms and workers adjust to defence cuts.

40. In addition to serving as channels for assistance from the central Government to affected industries and workers, regional and local governments can also use their own taxation policies to influence the conversion process and can set in motion other policies to promote diversification of the regional or local economy. For example, a United States government report on the likely economic effects of reduced military expenditure in the state of New Mexico suggested a five-year period of exemption from Federal, state, and local income taxes for new firms locating in the area, provided they became part of the non-defence export base of the local economy.

/...
41. Over the last 10 years, workers in defence and related industries in a number of countries have become increasingly active in attempting to protect jobs by convincing employers to move into or expand existing operations in the civil sector. Groups which promote a transfer of resources to the civil sector are most active in companies or areas where redundancies are threatened or have already occurred on a fairly large scale. Experience has shown that such groups cannot succeed to any significant extent if Governments and employers are hostile or indifferent to the notion of conversion. At the same time, there is clearly considerable scope for public education on the need for defence industry conversion, its economic implications and the ways in which it might be carried out. It is particularly important to communicate to defence industry employees that a properly planned conversion process need not generate widespread unemployment.

42. As an example, in the United Kingdom the catalyst for the growth of interest in conversion at the local level was the presentation of the corporate plan of the Lucas Aerospace Combine Committee in January 1976 in London. Faced with the rationalization of the Western European aerospace industry, which had already cost nearly 30 per cent of the Lucas Aerospace workers their jobs, and the likelihood of reductions in defence expenditure on the part of the United Kingdom Government, the Lucas Aerospace Combine Shop Stewards Committee decided to consider alternative products which could replace the defence equipment manufactured by Lucas Aerospace.

43. Despite work subsequently carried out on a heat pump, neither it nor any other alternative product was subsequently manufactured by Lucas. If viewed solely as a conversion programme, it is clear that the efforts of the Combine Committee failed. It is possible to argue, however, that in certain important respects the initiative of the workers at Lucas Aerospace succeeded as it gave the workers a sense of self-confidence, a clear example that they could, in fact, influence the design and production process and take part in the corporate decision-making process. Finally, it created an important working model of conversion activity.

IV. EXPERIENCE OF ADJUSTMENT IN NON-DEFENCE INDUSTRIES

44. Many countries, of course, have had considerable experience in coping with the effects of once major industries falling considerably in terms of output and employment. For example, in the United Kingdom, employment in the two industries of textiles and motor vehicles fell from some 1.3 million in the early 1970s to some 800,000 10 years later. Countries have considered the most appropriate form of intervention in the face of a declining industrial sector. However, the forms of intervention adopted will not usually be relevant for the defence industry. Usual reactions to a declining sector are focused on raising quality and productivity levels, often through the process of restricting international competition. This is clearly of little relevance for the defence industry where completely new products would be required rather than intervention in trade flows. Experience in shipbuilding, for example, where capacity in developed countries has been very severely reduced in recent years can, however, provide some lessons. It suggests, first, that realistic targets must be set and adhered to in reducing capacity. It suggests also that funds given for new investment and retooling may...
sometimes be used to cover current losses and to avoid necessary restructuring; strict monitoring of the use of subsidies is therefore needed.

45. General experience in Japan may be more useful. Under a 1978 law to deal with "particularly depressed industries", a special sub-committee can be set up within the Industrial Structure Commission, within which a dialogue between the Ministry of International Trade and Industry (MITI) and the relevant industry association takes place, but in which trade unions and representatives of customers or suppliers also participate. Typically, a "recession cartel" is formed as a holding operation, pending cuts in capacity agreed to among producers in a "fair" way. This procedure has resulted in cuts in capacity of 45 per cent in aluminium smelting, 40 per cent in shipbuilding and 16 per cent in synthetic fibres.

46. The shipbuilders were able to reach agreement and to act quickly by virtue of the fact that investment in shipbuilding and acceptance of orders required government licensing approval. There were preferential loans to buyers of redundant shipyards, and where buyers were lacking, a fund was established to buy surplus yards with the land priced at its market value and equipment at book value. Some government money was provided for these transactions, but most came from the Japan Development Bank and the private banks. They recovered their investment by selling equipment for scrap and by redeveloping the land for other purposes. Interest payments and capital losses were to be met by a levy on the future sales of ships so that the whole scheme would be, at least, in principle, self-financing. There were special loans to shipbuilding sub-contractors and additional unemployment benefits and special placement services for workers. Such schemes could probably be adapted for the defence industry.

47. In the United States, the operation of the Trade Act of 1974 is also relevant; this Act provides for "Trade Adjustment Assistance" (TAA). Workers and companies for whom trade liberalization (undertaken within the Kennedy and Tokyo rounds of tariff negotiations within GATT) proved to be a major source of injury were eligible for government assistance. In the case of workers, this could (and does) take the form of income supplements additional to normal unemployment insurance benefits and specific inducements to participate in retraining and placement programmes and relocation grants. In the case of companies, assistance takes the form of low-interest loans, special tax privileges and free technical consultancy services.

48. There was little use of the provisions of the Trade Act in the early years, perhaps because its existence derived less from objective needs than from a wish to persuade a somewhat protectionist-minded United States Congress and public to endorse the liberal stance of the United States Government in GATT negotiations in the 1960s and 1970s. The Trade Act reduced the importance of "injury" from import penetration in the eligibility criteria and its provisions therefore took on a more general character of assistance to those companies and workers affected adversely by structural change. Consequently, the programme expanded somewhat, but the amount disbursed remained small until 1980 when, with the United States economy moving into a deep recession and import penetration rising sharply, expenditure rose to $US 2,800 million with more than half a million beneficiaries.
49. The provisions of the Trade Act had three main effects. First, there is the purely social, compensatory effect in that displaced workers receive additional payments which reduce the burden of adjustment falling on individuals. Second, the economic costs, measured by output lost as a result of workers being unemployed, is reduced because displaced workers receive help in finding new jobs. These two unfortunately run counter to one another, since compensation payments are unconditional and must logically act as some disincentive to job search - although the practical significance of this is unknown. Third, financial assistance to companies reduces the economic and social cost of adjustment by permitting it to be spread over a longer period. Finally, both financial assistance and the consultancy services provided to firms may permit some of them to recover their competitiveness and thus reduce the required contraction of the sectors concerned.

50. There is thus a certain amount of general experience of reacting to, and partially controlling structural change in, industry which could be usefully studied to serve as a model for adjustment following disarmament.

V. DISARMAMENT AND EXPANDED AID FLOWS

51. One proposal, the effects of which have been investigated through the development of an econometric model, is that savings from disarmament should be transferred to developing countries as official development assistance. It can be shown in this way that at the end of a brief, 10-year period, more jobs would be created throughout the world (compared to a situation of no disarmament). Furthermore, if the developing countries use the additional funds to pursue basically egalitarian policies, helping the small-scale urban sector and the poorer elements of the rural sector, job creation in both developing and developed countries would be even higher.

52. It can be foreseen that the direct and immediate effect of a cut-back in armament expenditures in the early part of the 1990s would be to increase the proportion of unemployed workers, whether in the armament industries or in related sectors supplying intermediate inputs, equipment, etc., or in the armed forces. Unless short- to medium-term counteracting policies are initiated, the overall employment situation could worsen. A number of studies suggest what kind of counteracting policies should be introduced in order to mitigate the negative effects of such cut-backs. Inevitably, these policies would place some additional burden on Governments, whether in the form of subsidies to specific sectors or of compensation schemes to the unemployed. However, given that the cost of unemployment to the government budget (benefits paid and taxes foregone) in some industrialized market economy countries is already 2 or 3 per cent of GNP, the addition would not be great. Furthermore, financial transfers to the developing countries would generate a process in which market forces would progressively take that burden away from Governments, i.e., would provide jobs through creating new and stable markets. If, furthermore, egalitarian policies were adopted by the developing countries, 80 per cent of the 17 million additional jobs that would be created in the industrialized countries after 10 years would be in manufacturing and agriculture. No job losses in the year 2000, compared to 1990 would be recorded in the capital goods industry of any region, but employment might decrease...
in the basic product industry of North America and Japan (basic chemicals and metals) and might stagnate in the light industry sector of all developed regions. Therefore, although frictional unemployment could not be avoided, the major finding of such an econometric study is that market forces would generate a variety of jobs in sectors (food and agriculture, equipment and machinery and services) where trade liberalization transmits to the developed countries the strong demand released by development policies in the developing countries.

53. The econometric model firmly suggests that, as a group, developed economies have at worst little to lose from massive transfers to developing economies. It hypothesized a modest 3.3 per cent annual growth rate in the developed economies in the 1990s in the reference scenario, which nevertheless would hardly be sufficient to reduce unemployment. With a level of financial transfers to the developing countries of the order of 0.5 percentage points of GNP (bringing official development assistance up to 0.7 per cent of GNP), the employment gain would indeed by substantial, once the transitional costs had been absorbed.

54. The model suggests that the feedback effects of financial transfers to developing economies on the developed countries could be far more efficient in curbing unemployment in the latter if these transfers were used by developing countries to promote low as much as high-technology activities. Moreover, any substantial development of South-South trade would be likely to enhance the feedback effect of South-bound transfers; there would be trade losses, in developed economies, for basic products and light industrial goods, but these would be more than compensated for by equipment sales, because of (and not despite) a fast growth of capital goods industries in the developing countries.

55. Whatever the development strategy followed by the developing countries, the feedback growth effects on the industrialized countries are not evenly distributed among developed regions. The tendencies of the present trade and financial networks would allocate to North America and Western Europe (as well as to Australia and New Zealand) major export flows in food and agricultural goods, while Japan and Western Europe would enjoy large exports of manufactures and North America would get the lion's share of factor and non-factor services.

56. This study supports the conclusions of other observers that the industrialized countries have much to gain, in employment terms, from faster growth in the developing countries since they will remain suppliers of higher value goods and equipment.

VI. CONCLUSIONS

57. Given the evidence presented, it is hard for this paper not to conclude that the likely effect of reduced military expenditure on employment in arms and equipment producing countries would be minor. Given the constant changes in the nature and location of manufacturing output in present-day industrialized countries, the additional effects of switching final demand from military-related goods and services to other products would not be great. Furthermore, such a cut in expenditure need not result in an overall fall in manufacturing employment. A
switch in the pattern of final expenditure would be more likely to imply a net reduction in public sector service employment. In arms-importing countries, especially in the developing world, the employment effects of disarmament, particularly those working through an improvement in the balance of payments, could well be positive and large.

58. Looking purely at the side of defence-related manufacturing output it is possible as has been demonstrated, to convert plant to produce alternative products and to retrain the labour force accordingly. However, there is a limit to the extent to which such conversion can profitably take place. A great deal of plant and machinery would have to be scrapped and many workers would have to look for new jobs through the labour market in general. How quickly they would find work and what sort of work they would find would depend on overall levels of resource utilization in the economy. Clearly, their search would be easier and better rewarded in a fast-growing and competitive economy than in one marked by stagnation. The issue of disarmament and conversion therefore cannot be separated from that of successful economic management in general.