DISARMAMENT AND DEVELOPMENT : THE MAIN ISSUES

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CONTENTS

LIST OF TABLES

I. Introduction

1. The link between disarmament and development is not just a pious hope that resources released by disarmament will be made available for development. Rather, it is to be found in the need to reverse the deeply rooted connection between armaments and poverty. Not only do armaments absorb resources but they also uphold a global power structure which is in itself an obstacle to the defeat of poverty. In a recent article, Lord Philip Noel-Baker wrote :

> "World armaments and world poverty are not disparate phenomena unconnected with each other; on the contrary, they are not only twin evils, causally connected; they can be more truly understood if they are thought of as one central and dominating phenomenon; the misuse of mankind's now vast annual flow of usable wealth."(1)

2. This paper is about the nature of this "central and dominating phenomenon" - the misuse of resources for military purposes. (It does not describe in any detail the present state of world armaments and progress towards disarmament, which are summarised, excellently, in other places(2).) Military spending, like other kinds of expenditure has a dual nature. On the one hand, it represents a collection of inputs - manpower (soldiers), capital (armaments), intermediate goods (food, fuel, ammunition), science and technology. Evidently, the way in which society allocates resources to military purposes will affect the level and direction of economic and social development. On the other hand, military spending also represents an output - war preparedness - and the use to which this output is put in defence of certain values and ways of doing things will also have consequences for development. In considering the connection between armaments and poverty, therefore, it is useful to look at both aspects of military spending - both the production and use of armaments.

II. Military Resources and Underdevelopment

3. Total world military spending amounts to approximately $450 billion a year; this is greater than world expenditure on health or education and amounts to more than a quarter of the entire income of the developing countries. Furthermore, military spending continues to grow, and developments in recent years - the new stage in the strategic arms race, accelerating expenditure on conventional armaments by the major powers, expanded proliferation of nuclear and conventional weapons - suggest that the growth of military spending may actually increase (see Table 1).

4. The very size of military spending indicates its importance both for the economies of advanced industrialised countries, where armaments are produced, and for developing countries, where armaments are for the most part imported and where, since the second world war, armaments have been largely used.

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1. Lord Philip Noel-Baker, "The Prospect for Disarmament", ADIU Report Vol. 1, No.4, December 1979.

2. See, e.g. papers by the Secretariat to the Brandt Commission.

(a) Advanced Industrialised Countries

5. In several advanced industrialised nations, the defence sector, with its research institutions, armament factories, military bases, etc., represents a significant part of the overall economy. Recent research in the United States and Western Europe has documented the way in which interests in institutional survival on the part of the domestic defence sector have constituted an important pressure for continued armament.(1) At the same time, this sector, of necessity, exercises a powerful influence on civilian economic and social activities.

6. Compared with other sectors, the defence sector is more science-intensive and more capital-intensive; that it is to say, expenditure on research and development (R & D) activities and on additions to fixed capital (i.e. weapons procurement and military construction) as a proportion of total expenditure is greater than for other kinds of expenditure.(2) For this reason, it seems likely that military spending will impact most strongly on the future of science and technology and on industrial investment.

(i) Armaments and Science and Technology

7. Statistics on military research and development are very hard to come by. It is widely stated that military-related R & D now engages about 25 per cent of all scientific manpower in the world and about 40 per cent of all R & D spending(3). Table 3 shows the main trends in R & D for the principal OECD countries. There is one school of thought which holds that this concentration of scientific resources yields civilian benefits in the form of 'spin-off'. There are undoubtedly important examples of 'spin-off', e.g. the transistor, but these benefits are offset by certain disadvantages which stem from the specifically military nature of the scientific effort.

8. First, military R & D represents a diversion of scientific and technical resources away from civilian R & D. Among Western countries, West Germany, the Netherlands and Switzerland all spend as much or more on civil R & D as a proportion of Gross National Product (GNP) than do the Unites States, the United Kingdom and France, who are the highest military R & D spenders (see Table 4). R & D spending which has an explicit civilian objective is, a priori, likely to achieve much more in the way of civilian benefits than R & D spending which has a primarily military objective.

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1. See, for example, G.T.Allison and F.A.Morris, "Armaments and Arms Control. Exploring the determinants of Military Weapons", Daedalus (summer 1975); J.R.Kurth, "Why we Buy the Weapons We Do", Foreign Policy No.11, 1973; M.Kaldor, European Defence Industries - National and International Implications, 1510 Monograph No.8, University of Sussex, 1972.
2. M.Kaldor and J.Perry Robinson, "War", in C.Freeman and M.Jahoda (editors), World Futures : The Great Debate, Martin Robertson, 1978.
3. R.L.Sivard, World Military and Social Expenditures, 1976, WMSE Publications, Virginia, 1976.

This argument was put forcefully by Robert Solo who argued that "those who were or might have been restless, probing industrialists, innovating entrepreneurs, or inventors tinkering in the shops became instead engineers on project teams, heads of research divisions, scientists in laboratories, or sub-contractors with the task of developing a component for a complex weapon system."(1)

9. Secondly, the pervasive influence of the military in all kinds of R & D spending has unduly oriented civilian development towards complex capital-intensive and hierarchical types of technology. For example, resources are devoted to the Concorde supersonic aircraft or nuclear energy instead of to cheaper forms of transport or energy-saving devices. In particular, Seymour Melman has argued that military ways of design and development have led to a tendency, at least in the West, for cost-maximising instead of cost-minimising.(2)

10. Thirdly, military technology has biased the industrial structure of the main arms producers. It can be argued that the currently dominant military technologies, far from being 'advanced', are the product of dominant but declining industrial sectors, e.g. engineering and shipbuilding in the United Kingdom, automobiles and aircraft in the United States, and represent over-extensions, so to speak, of particular technologies. Hence, they are characterised by rapidly diminishing marginal returns, i.e. very small improvements in utility for massive investment of effort. Consequently, military technologies extend the development of declining sectors and divert resources away from new dynamic sectors which are characterised by increasing returns. This is illustrated by the industrial pattern of R & D spending (see Table 5). A large share of American and British R & D spending goes into aerospace and is financed by government. In Germany and Japan, however, business enterprises finance the bulk of R & D spending and a high proportion of the total goes to dynamic sectors like chemicals. All four countries spend a significant amount on R & D in electronics. But in the United Kingdom and the United States, most of the R & D is financed by government for military purposes, whereas in Germany and Japan, it is financed by business enterprises for civilian purposes.(3)

(ii) Military Spending and Investment

11. After the second world war, it was widely argued that high military spending would play an important role in capitalist countries in maintaining the level of effective demand and thus mobilizing resources for investment and economic growth.(4) This turned out to be incorrect. On the contrary, there is a marked inverse correlation between investment as a share of GNP

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1. Robert A. Solo, "Gearing Military R & D to Economic Growth", Harvard Business Review, vol. XL, November-December 1962.

2. S. Melman, The Permanent War Economy. American Capitalism in Decline, Simon and Schuster, 1974.

3. M. Kaldor, "Arms and the Capitalist World Economy, Overdevelopment and Underdevelopment", in Carlton and Shaerf (editors) Arms Control and Technical Innovation, Croom Helm 1977; M. Kaldor, "Technical change in the British Defence Industry", in K. Pavitt (editor) Technical Change and Britain's Economic Performance, Macmillan, forthcoming.

4. See P.A. Baran and P.M. Sweezy, Monopoly Capital, Penguin, 1968; M. Kidron, Western Capitalism Since the War, Weidenfeld, 1968.

and military spending as a share of GNP. The United Kingdom and the United States are high military spenders and low investors while Japan is a low military spender and a high investor (see Table 6). Further, this inverse correlation has been shown to hold over time in the case of the United Kingdom.(1)

12. Thus, just as military R & D represents resources for civilian innovation foregone, so military spending as a whole represents resources for civilian investment foregone. There are several explanations for this. First, in capitalist countries consumption and welfare is a relatively stable proportion of total output, representing a socially determined 'social wage'; what is left over, the 'surplus', can be divided between military spending and investment. Secondly, the military industries are for the most part the capital-goods and export-intensive industries, i.e. machinery and transportation, and military spending can create short-term bottlenecks which can have serious long-term consequences for the economy.(2) It is widely considered that military priorities in the shipbuilding and engineering industries during the early 1950s lost the United Kingdom an important place in the world market. Finally, a slow-down in productivity, resulting from the concentration of military R & D resources, could reduce the incentive to slowing productivity growth, etc.

(iii) Military Spending and Development

13. In Western capitalist countries, therefore, military spending slows down productivity growth because it absorbs resources that might otherwise be used for civilian innovation and distorts the direction of civilian science and technology and industrial structure; and it slows down the rate of industrial development because it absorbs resources that might otherwise have been used for civilian investment and reduces the incentives to invest on account of the slow rate of civilian innovation. Hence, military spending is likely to slow down overall economic growth. Some, but not all, of these conclusions may apply to the centrally planned economies. While military spending does not appear to be directly competitive with investment in these countries, it may well slow down productivity growth. In particular, it is sometimes argued that because the military industries represent an important pressure group in the preparation of the plan (3) high military spending serves to freeze plan allocations and hence leads to industrial stagnation. Table 7 shows that the countries which enjoyed the highest rate of growth of Net Material Product (NMP) were those which devoted the lowest share of NMP to military spending.

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1. R. Smith, "Military Expenditure and Capitalism", Cambridge Journal of Economics, No. 1, 1977.

2. K.W. Rothschild, "Military Expenditure, Exports and Growth", Kyklos, 1973.

3. Vernon Aspaturion, "The Soviet Military Industrial Complex : Does It Exist?", in S.Rosen (editor), Testing the Theory of the Military Industrial Complex, Lexington Books, Massachusetts, 1973; John McDonnell, "The Soviet Defence Industry as a Pressure Group", in Michael MacGuire, Ken Booth, John McDonnell (editors), Soviet Naval Policy: Objectives and Constraints, Praeger, 1973.

14. Of course, economic growth is not synonymous with development. But there is no evidence to suggest that slower rates of growth are associated with a reordering of social priorities. On the contrary, as far as we know, military spending is inconsistent with many of the developmental aims of rich countries. First, the slow rate of economic growth and the tendency for capital-intensive types of technology may explain why the high military spenders have higher rates of unemployment than low military spenders,(1) while low productivity growth and the unproductive nature of military spending itself could explain the tendency for high rates of inflation. Secondly, because military spending absorbs a high share of central government expenditure, it may compete with welfare programmes. There is some evidence for this in the United States. Thirdly, military production tends to absorb more scarce resources, scarce metals and energy resources, like jet fuel or nuclear fuel, than other kinds of production and, as occurred on a catastrophic scale in Vietnam, military practice may often have harmful effects on the natural environment.(2)

(b) Developing Countries

15. The impact of military spending on poor countries is likely to be very different from its impact on rich countries. The indigenous science base and capital-goods base is extremely small, if not non-existent, in most developing countries. Therefore, weapons and equipment are, for the most part, imported. Even third world countries that are attempting to develop an indigenous armaments industry such as Egypt, Iran, Brazil or India, are heavily dependent on foreign technology, foreign capital-equipment, components and materials, and foreign specialists (see Table 13). Developing countries also import military advice and military training - in effect, a total military structure, generally based on the Western model.

16. Professor Benoit has argued that in developing countries, military spending as a share of GNP is positively correlated with economic growth.(3) He explains this correlation in a variety of ways; high military spending is said to attract foreign aid and investment, to lead to Keynesian-type stimulatory fiscal policies, and to encourage the creation of skills, attitudes and infrastructure etc., necessary for economic growth.

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1. In the United States, it is often argued that because expenditure per man is higher for military spending than other types of spending, military spending generates fewer jobs than other types of spending. In fact, the methodology of such comparisons is dubious, for unless there are profit differentials, and differential propensities to import, the entire spending should eventually trickle into the economy. Nevertheless, military spending will take longer to generate jobs and some may be lost through profit hoarding. (See Marion Anderson, The Empty Pork Barrel, Unemployment and the Pentagon Budget, A PIRGIM report, Michigan, April 1975.)

2. J.P. Robinson, The Effects of Weapons on Ecosystems, UNEP Technical Series, No. 1, Pergamon Press, 1979; SIPRI, Ecological Consequences of the Second Indo-China War, Almquist and Wicksell, Stockholm, 1976.

3. E. Benoit, Defence and Economic Growth in Developing Countries, Lexington, 1973.

17. Professor Benoit's statistics have always been open to question. His data cover 44 developing countries over two periods, 1950-1965 and 1960-1965. Over the longer period, his results could be spurious since high growth rates are equally explicable by high bilateral aid. The shorter period, 1960-1965, is really too short on which to base a conclusion of this kind. More recent evidence does not confirm Professor Benoit's finding.(1) There is a small group of countries for which high growth is associated with military spending. These are the oil-rich countries and a few US allies, like Brazil or South Korea. For the remainder, no significant correlation has been found, except for the war-torn economies, like Vietnam or Kampuchea, where high military spending is associated with negative rates of economic growth. In the case of India, one of Professor Benoit's case studies, military spending, as a share of GNP, has been negatively correlated with economic growth in recent years.(2)

18. While high military spending may not contribute to economic growth it does influence the strategy of economic development. First of all, there is some evidence that military spending encourages a dependent pattern of development in which third world countries are incorporated more tightly into a world economic system which primarily benefits advanced industrialised nations. In particular, through its influence on values, skills, infrastructur etc., it tends to foster an emphasis on the build-up of capital-intensive industry, and its associated infrastructure, which is heavily dependent on foreign technology.(3) This is tempered by constraints on foreign exchange. In most developing countries, military imports account for a high share of capital imports (see Table 12). And this is only the beginning of a chain of demands for imported technology - communications, repair and maintenance services, skilled personnel, etc. - associated with the import of modern weapons.(4)

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1. M. Kaldor, "The Military and Development", World Development, June 1976; M. Brzoska and H. Wulf, "Rejoinder to Benoit's 'Growth and Defence in developing Countries' - Misleading results and questionable Methods?", Economic Development and Cultural Change, forthcoming; Congressional Research Service, evidence provided to the House International Affairs Committee; Ron Smith, paper prepared for UN disarmament and development study, 1980, unpublished.

2. Brzoska and Wulf, op. cit.

3. P. Lock and H. Wulf: "The Economic Consequences of the Transfer of Military-oriented Technologies", in A. Eide and M. Kaldor (editors), The World Military Order. The Impact of Military Technology on the Third World, Macmillan, forthcoming.

4. Jo. Husbands, "The Long Long Pipeline: Arms Sales and Technological Dependence in the Third World", Centre for Defence Information, 1978.

19. Secondly, this type of development strategy tends to involve an unequal distribution of income as resources are transferred from countryside to town and from poor to rich in order to finance industrialisation. Military spending helps to preserve political and social structures, in which continued inegalitarianism is possible. Those very same countries, in which high rates of growth, based on the development of capital-intensive industry, are associated with high rates of military spending, are precisely those which tend to be the most inegalitarian. Hence, if we take the rate of infant mortality as a surrogate for the standard of living of the mass of the population, we find that countries like Turkey or Brazil have high rates of infant mortality in relation to absolute levels of income and environmental conditions (1) (see also Table 8).

20. Thirdly, because the industrial technology associated with imported arms is complex, capital-intensive and often the product of a stagnant industrial structure, militarily biased industrial growth does not provide the basis for self-sustaining economic growth through the export of manufactures. If one takes military expenditure per soldier as a rough surrogate for the capital-intensity of warfare and, hence, the reliance on advanced western weapon systems, then it is interesting to note that, among the newly industrialising countries, the two countries which are most successful in world markets, i.e. South Korea and Taiwan, have the least capital-intensive armed forces (see Table 8).

III. The Use of Force and Underdevelopment

21. Since the second world war, armaments have been used, for the most part, in the third world. The process of underdevelopment is not stable. On the contrary, it proceeds through crises of various kinds which may often erupt in violence. It was noted above that armaments help to preserve inequitable political and social structures. Development strategies of the kind described above benefit a small elite in third world countries and in advanced industrial countries. In the absence of popular legitimation, force may be used to preserve the political position of the elite in many different ways : through direct outside intervention by the foreign powers; through domestic repression; or through the military coup. In particular, the Westernized nature of military organisation tends to bias the attitudes and values of the soldier in favour of Western-type industrialisation. It is noteworthy that all those nations which are characterised by a combination of high economic growth and high military spending also have militaristic and authoritarian regimes. In addition, economic and social tensions of this kind may exacerbate national, ethnic or ideological rivalries that can also lead to war.

22. A number of studies have attempted to quantify the extent of violent conflict taking place since the end of the second world war.(2) Although estimates vary widely, all the studies show the preponderance of the third world as the focus for conflict. Blechman and Kaplan estimate that there have been 215 incidents in which the United States employed armed force for

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1. M. Kaldor and J. Perry Robinson, op. cit.

2. See Milton Leitenberg, "A Survey of Studies of Post World War II Wars, Conflicts and Military Coups", Symposium on Armament, Tension and War, Hanaholmen, Finland, September 26-28, 1977.

political purposes since 1946. Only 20 per cent of these incidents occurred in Europe.(1) Milton Leitenberg, in a survey of the years 1945-1975, counts 204 successful military coups, of which only 7 took place in Europe. During the same period, there were also 199 unsuccessful coups, of which 9 took place in Europe.(2) Finally, Istvan Kende has conducted an extensive survey of wars, i.e. armed conflicts en masse, from which he concludes that 116 wars have been fought since the end of the second world war and that the total duration of such wars was just under 350 years. Only 12 years have been spent on war in Europe, i.e. only 3 per cent of the total time spent on war between 1945 and 1974.(3)

23. The instability and violence which has characterised so many third world countries is, in itself, deeply inimicable to development. Kende estimates that the 116 wars resulted in 25 million casualties. And such figures inevitably obscure the economic and environmental dislocation which is characteristic of war, especially those where massive area-destruction weapons have been used, as in Vietnam. Thus, one can observe a vicious circle in which the acquisition of arms contributes to economic and social conflict which may erupt in armed violence which may further exacerbate the underlying crisis.

24. Although force has rarely been used in advanced industrial nations, armaments are the cement which hold together the two great military alliances, fomenting ideological hostility and preventing freer economic and social exchanges between the blocs. They also help to preserve the economic and political hegemony of the two super-powers which may also inhibit development in the fullest sense of the term.

25. The output of armaments is not necessarily commensurate with the input. That is to say, the utility of armaments does not seem to bear any definite relation to the resources used to make armaments. On the contrary, there are reasons to suppose that accumulation of armaments, measured in terms of the resources represented by them, i.e. values, far exceeds actual military need. In recent wars, e.g. Vietnam or the Arab-Israel conflict, the sides which possessed superior armaments did not win. Indeed, one might go further, as some have done, and assert that, in the modern era, security is inversely related to the level of military spending.

26. First of all, the accumulation of nuclear weapons exceeds the quantity required by the United States and the Soviet Union for mutual extermination, which, a priori, is all that should be required for effective deterrence. Any superfluous additions can only increase the risk of war through accident, miscalculation, or misperception. The final document of the 1978 Special Session of the United Nations on Disarmament concluded "the accumulation of weapons, particularly nuclear weapons, constitutes much more a threat than a protection of the future of mankind."

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1. Barry M. Blechman and Stephen S. Kaplan, Force Without War: US Armed Forces as a Political Instrument, Brookings Institution, Washington D.C., 1978.

2. Leitenberg, op. cit.

3. I. Kende, "116 Wars in 30 Years", in D. Carlton and C. Shaerf, op. cit.

27. Secondly, both nuclear and conventional weapons have become over-elaborate and much too costly. In advanced industrialised nations, the acquisition of arms is determined by subjective perceptions about the strategic environment which tend to be shaped by domestic military institutions. In peacetime, there is a tendency for those perceptions to become ever more remote from actual military contingencies. We have already seen how military technology is subject to diminishing marginal returns; some writers even suggest that marginal returns are negative and that older cheaper weapons are actually more effective. In particular, the trend towards complexity has been criticised on the grounds that, in battlefield conditions, operational simplicity, reliability, and minimal logistical requirements are of critical importance.(1)

28. Further, nearly all armaments are primarily designed for use in an industrial environment. Third world countries lack the basic industrial infrastructure, e.g. roads, airfields, telecommunications, to use the armaments effectively. Likewise the people from whom soldiers are recruited lack many of the basic industrial skills and know-how, like reading and writing, basic mathematics, driving, etc. Studies of wars in the third world, particularly the Indo-Pakistan wars, have shown that sophisticated modern weapons have actually proved a handicap.(2)

IV. Disarmament and Development

(a) Disarmament as a necessary condition for Development

29. The International Labour Office (ILO) has estimated that in 1972 there were some 1,200 million people in developing countries living in poverty, of whom some 700 million were so poor as to be 'destitute'. It suggested that a continuation of development on the pattern of the 1950s and 1960s would still leave hundreds of millions of people in poverty at the end of the century.(3) Most development experts now agree that development strategies should be reoriented towards the fulfilment of 'basic needs'. These have been defined to include basic consumption needs, e.g. food, clothing and housing; basic essential services, e.g. clean water, sanitation, basic education, health and transport facilities; productive employment; and participation in political and economic decision-making.(4) Such a strategy would involve economic growth combined with re-distribution of income and a greater degree of 'self-reliance'.

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1. See, for example, Johan J. Holst, Uwe Nerlich (editors), Beyond Nuclear Deterrence. New Aims New Arms, Crane, Russak & Company Inc., New York, 1977.
2. J.Ansari and M. Kaldor, "Imported Military Technology and Conflict Dynamics, the Bangladesh Crisis of 1971", in M. Kaldor and A. Eide, op. cit.
3. ILO, Meeting Basic Needs Strategies for Eradicating Mass Poverty and Unemployment, Geneva, 1977.
4. R. Jolly, "Objectives and Means for Linking Disarmament to Development", in R. Jolly (editor), Disarmament and World Development, Pergamon, 1978.

30. This strategy is incompatible with the current level and nature of armaments.

- First, armaments absorb resources that would be needed for development. Between 1960 and 1976, almost twenty times as much money went into military expansion as into aid for development. The average contribution of all donor nations for which records are available amounted to 0.3 per cent of their combined GNP, while their military expenditures took 6.2 per cent of GNP during those same years.(1)

- Secondly, armaments play an important role in fostering relations of dependence. Hence, the continued use and transfer of arms would reduce the possibility for self-reliance among third world countries.

- Thirdly, the current level of armaments is incompatible with world economic growth because it slows down the rate of economic growth in rich countries, from where the additional resources needed for an alternative development strategy would otherwise be generated.

- Fourthly, and perhaps most importantly, current armaments policy is incompatible with re-distribution because it serves to uphold inequitable domestic and international political and economic structures, generally associated with capital-intensive industrialisation strategies that actually prevent the fulfilment of 'basic needs'.

(b) Development as a necessary condition for Disarmament

31. Despite the lessening of East-West tension, international efforts to limit the growth of armaments have foundered. Since the beginning of detente, there have been a number of limited arms control agreements, such as the Partial Test Ban Treaty, SALT I, the Outer Space Treaty, the Seabed Treaty, etc., but none of these has actually succeeded in reducing the level of armaments. While such agreements have undoubtedly increased understanding between the two super-powers and may have helped to control some of the more destabilizing elements of the arms race, they have also focused attention on minute changes in the overall military balance and have, in a sense, legitimised weapons development in areas not covered by agreement. Continued military competition, despite detente and despite arms control, may well be a major cause of the present deterioration in US/USSR relations and the collapse of arms control, limited as it has been.

32. Development could help to weaken this military competition. First of all, the significance of domestic interests in the continued production and export of armaments in advanced industrialised countries has not received sufficient recognition. If an alternative outlet in the form of demands for

1. R.L. Sivard, World Military and Social Expenditure 1978, WMSE Publications, Virginia, 1978.

socially useful production could be found for current capacity to design, develop and produce arms, and if resources could be transferred from the defence sector to more dynamic growth-stimulating civilian sectors, this would greatly reduce domestic pressures for continued armament. Secondly, a successful development strategy would reduce the crisis and conflicts in the third world which contribute to war, military intervention, repression and militarism, and this would also reduce the need for armaments.

(c) New Approaches to Disarmament

33. Both disarmament and development can be viewed, not as once-for-all acts of will, but as long-term processes which, once set in motion, will feed upon each other. Once recognised, the link between disarmament and development can contribute to both. In addition to continued efforts to achieve international agreements on disarmament, some new approaches might be pursued.

i) National or Regional Approaches

34. The limited success of bilateral and multilateral arms control agreements has led to proposals for regional approaches to disarmament. The Treaty of Thateloco, in which Latin American countries agreed to keep nuclear weapons out of the area, has often been held up as a model and forerunner for regional agreements. Recently, the idea of a European nuclear weapon-free zone has been put forward.(1)

35. In several advanced industrialised countries unilateral measures to limit excessive expenditure on armaments have been proposed, based on the argument that current levels of armament are out of proportion with military needs.(2) Similar ideas could be applied to third world countries. In particular, it has been suggested that third world countries might pursue 'self-reliant' armament strategies which would reduce the overall expenditure on armaments and re-direct armament policy so as to suit third world capabilities and security needs more appropriately. Third world countries could never compete against advanced industrial nations. But they could arm just enough to make invasion or occupation costly or difficult. Such a strategy could be linked with a reorientation of development strategy towards socially useful production and greater self-reliance.

36. It should be stressed that any specific proposal would need to be based on a concrete analysis of a particular nation or region. While it is possible to generalise about the overall dimensions of the problem, the room for manoeuvre in any given situation can vary widely.

ii) Conversion

37. The idea that new approaches to disarmament must be accomplished by new industrial strategies in rich countries has recently received much attention. In particular the conversion of military installations to peaceful uses is no longer conceived merely as a problem that follows from disarmament

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1. E.P.Thompson, "Campaign for a Bombfree Europe Starts Here", The Guardian, January 28, 1980.

2. See, for example, British Labour Party Defence Study Group, Sense About Defence, Quartet, 1977.

but instead as a positive contribution to disarmament. In the United Kingdom, pioneering work has been undertaken by trades unionists in the defence sector,[1] who propose investment in socially useful production as an alternative to armament and to increasing unemployment, which is partly the consequence of an arms oriented economy. They have suggested many exciting ideas, including new transport systems on road, rail or canal; energy-conserving equipment or alternative energy systems, based on renewable energy sources like waves, wind, tides, or direct solar collection; medical systems like sight for the blind using radar; as well as ideas for the process of production in agriculture, mining and manufacturing. Currently, trades unionists at Vickers and Lucas Aerospace are engaged in active compaigns to achieve investment in socially useful production. An international programme of conversion, linking excess armament capacity to the provision of 'basic needs', could represent a significant innovation in the field of disarmament.

iii) Education

38. The idea of the link between disarmament and development may be, as Lord Noel-Baker suggests, an idea whose time has come. It could provide a vehicle for the mobilisation of public opinion in favour of both goals. The UN study on disarmament and development, which is involving a wide range of scholars all over the world, is a useful beginning. Another suggestion is that a greater role should be accorded to the Non-Governmental Organisations (NGOs). There are literally hundreds of NGOs, including peace groups, church councils, trade unions, cooperative societies, etc. These should have the right to participate in international conferences, like the UN special session on disarmament, and should be given more resources with which to spread their message, whether it be about the arms race, human rights, illiteracy or disease. The NGOs could also help to offset the power of interests vested in continued armaments.

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1. See, for example, Vickers National Combine Committee of Shop-Stewards, Building a Chieftan Tank and the Alternative Use of Resources, 1978, and Lucas Aerospace Combine Shop-Stewards Committee, Corporate Plan - a Contemporary Strategy as a Positive Alternative to Recession and Redundancies, 1978.

TABLE 1

Growth of World Military Expenditure, 1958-1978

(US $m at constant 1973 prices and exchange rates)

	1958	1968	1978	Percentage growth		1977*
				1958/68	1968/78	
USA	69,622	103,077	71,475	48	-30	100,928
NATO	96,923	140,872	119,412	45	-15	169,448
USSR	30,500	58,000	71,000	90	22	70,000
WTO	33,280	63,396	79,816	90	26	80,669
Other Europe	3,225	4,560	6,212	41	36	9,269
Middle East	1,225	4,425	17,046	261	285	31,903
South Asia	1,100	2,176	3,414	98	57	4,290
Far East (excl. China)	3,100	6,086	10,850	96	78	15,908
China	(8,000)	(21,800)	(29,200)	173	34	(28,350)
Oceania	976	2,101	2,048	115	- 3	2,853
Africa (excl. Egypt)	275	1,828	5,461	565	199	8,444
Latin America	2,435	3,291	5,489	35	67	4,880
Third World	6,602	15,629	38,287	137	145	59,199
World total	150,539	250,535	278,948	66	11	357,114

* = At current prices and exchange rates.

( ) = estimate.

Third World = Middle East + South Asia + Far East (excl. China and Japan) + Africa (excl. Egypt) + Latin America.

Source: Stockholm International Peace Research Institute, World Armaments and Disarmaments, SIPRI Yearbook 1979, Taylor & Francis, London, 1979.

TABLE 2

World Military Expenditure, 1958-78: Breakdown by Regions

(percentages)

	1958	1963	1968	1973	1978
USA	46	39	41	30	26
NATO	64	57	56	47	43
USSR	20	27	23	25	25
WTO	22	25	25	28	29
Other Europe	2	2	2	2	2
Middle East	1	1	2	5	6
South Asia	1	1	1	1	1
Far East (excl. China)	2	2	2	3	4
China	5	7	9	10	10
Oceania	1	1	1	1	1
Africa (excl. Egypt)	Neg.	Neg.	1	1	2
Latin America	2	1	1	2	2
Third World	5	5	6	12	14
World total	100	100	100	100	100

Neg. = less than 0.5 per cent

Third World = Middle East + South Asia + Far East (excl. China and Japan) + Africa (excl. Egypt) + Latin America.

Source : Stockholm International Peace Research Institute, World Armaments and Disarmament, SIPRI Yearbook, 1979, Taylor & Francis, London, 1979.

TABLE 3

Trends in Government-financed Expenditure on R & D for Defence

(in 1/1000 of GDP)

	1961	1965	1970	1971	1972	1973	1974	1975	1976	1977
Canada	9.7	12.3	5.8	5.5	4.9	4.4	3.8	3.6	3.4	..
France	40.5	56.7	35.8	33.2	31.1	..	40.1	34.8	31.4	30.6
Germany	11.5	16.1	16.9	15.6	..	14.7	14.3	13.7	13.3	13.4
Italy	..	2.1	2.0	2.0	..	2.1	1.8	1.4	1.9	1.9
Japan	1.7	1.4	1.1[a]	..	..	..	..	1.1	..	..
Netherlands	..	..	..	..	4.3	3.8	3.2	3.4	3.2	3.0[b]
Sweden	35.8	40.9	22.5	..	..	..	..	..	..	..
Switzerland	..	..	5.9	7.0	7.0	5.2	5.0	4.7	5.4	..
United Kingdom	91.4	73.8	50.7	52.9	53.6	54.6	57.4	61.9	55.6	57.6[c]
United States	140.1	107.0	85.9	79.8	72.8	66.3	65.6	64.1	65.1	65.8

a 1969

b 1978 : 3.4.

c 1978 : 55.3.

Source: : OECD, Science and Technology in the New Socio-Economic Context, Paris, 1979.

TABLE 4

Total R&D Expenditure for Selected OECD Countries

Breakdown by Function

	R&D as percent of GDP		Space & Defence R&D as percent of total R&D		Space & Defence R&D as percent of GDP		Civil R&D as percent of GDP	
	1967	1975	1967	1975	1967	1975	1967	1975
France	2.2[a]	1.8	9.9	7.7	0.2	0.1	2.0[a]	1.7
Germany	1.7	2.1	1.0[c]	2.1	(neg.)	neg.	(1.7)	2.1
Japan	1.3	1.7	1.0	..	neg.	(neg.)[b]	1.3	(1.7)[b]
Netherlands	2.2	1.9	1.3[c]	0.9	(neg)	neg.	(2.2)	1.9
Sweden	1.3	1.8	1.5[d]	4.7	(neg.)	0.1	1.3	1.7
Switzerland	1.7	2.2	..	1.0	..	neg.	..	2.2
United Kingdom	2.3	2.1	9.4	11.8	0.2	0.2	2.1	1.9
United States	2.9	2.3	10.9[e]	..	0.3[e]	(0.4)	2.4[e]	(1.9)

a Includes social sciences.
b Estimated on basis of 1973.
c 1971.
d 1973.
e 1969.

( ) = estimate.
.. = not available.
neg. = less than 0.1 percent.

Source: OECD, Science and Technology in the New Socio-Economic Context Statistical Annex, Paris, 1979.

Table 5

Sectoral Distribution of R&D Expenditure in Manufacturing in Selected OECD Countries
(percentages)

		France			Germany			Japan			United Kingdom			United States		
		ind. fin.	gov. fin.	to-tal	ind. fin.	gov. fin.	to-tal	ind. fin.	gov. fin.	to-tal	ind. fin.	gov. fin.	to-tal	ind. fin.	gov. fin.	to-tal
Electrical/ Electronics	1967	22.7	25.6	24.6	25.2	29.8	25.9	24.4	33.0	24.5	22.3	27.9	24.1	20.0	28.8	24.4
	1975	27.0	35.7	31.7	30.0	31.0	29.9	26.0	32.3	26.1	20.5	34.5	26.0	20.9	30.4	21.8
Chemical	1967	27.4	3.7	19.0	33.2	4.3	28.5	27.1	11.0	27.0	21.0	1.1	14.7	21.0	2.8	14.8
	1975	26.1	2.9	19.2	35.0	2.3	29.1	22.4	2.9	22.1	29.5	1.9	19.7	21.4	3.2	14.6
Machinery	1967	7.7	2.4	5.6	12.2	37.1	16.2	10.7	22.0	10.8	14.4	7.4	11.8	17.3	6.4	11.8
	1975	7.0	1.4	5.2	13.0	20.7	13.9	9.9	7.4	9.8	11.3	1.9	7.9	21.8	6.7	18.7
Air & Space	1967	8.0	66.1	28.8	0.9	24.9	5.0	0.0	0.0	0	7.1	61.0	25.3	14.5	56.8	35.8
	1975	6.6	57.8	20.2	2.0	40.9	9.5	0.0	0.0	0	5.0	58.8	23.9	8.3	54.7	24.4
Other transport	1967	13.7	0.5	8.6	14.9	1.8	12.6	12.5	22.0	12.5	12.4	1.3	8.5	12.6	4.5	8.6
	1975	15.9	0.5	11.1	14.0	0.6	11.6	18.3	50.0	18.9	12.3	2.2	8.6	13.9	4.1	10.4
Basic metals	1967	6.1	1.3	4.4	9.8	0.8	8.4	10.6	6.0	10.6	7.1	0.7	5.0	4.9	0.3	2.6
	1975	5.4	0.7	4.1	3.0	2.1	3.1	9.5	4.4	9.4	5.9	0.2	3.8	4.5	0.3	3.2
Chemical-linked	1967	10.1	0.2	6.1	2.4	0.8	2.1	7.7	0.0	7.7	9.9	0.3	6.7	5.1	0.3	2.7
	1975	8.9	0.5	6.2	2.0	1.3	2.0	6.4	1.5	6.3	10.8	0.3	7.1	4.4	0.5	3.6
Other manufac-turing	1967	4.3	0.2	2.9	1.4	0.5	1.3	7.0	6.0	6.9	5.8	0.3	3.9	4.6	0.1	2.3
	1975	3.2	0.5	2.3	1.0	1.1	0.9	7.5	1.5	7.4	4.7	0.2	3.0	4.8	0.1	3.3
Total manufac-turing	1967	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
	1975	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

ind. fin. = industry financed.

gov. fin. = government financed.

Source: OECD, Science and Technology in the New Socio-Economic Context, Paris, 1979.

TABLE 6

OECD Countries : Military Spending and Investment, 1977 and Economic Growth, 1960-77

	Military spending ($ million)	Military burden[a] (%)	Armed Forces (000)	Military spending divided by Armed Forces ($)	Investment[b] (%)	Per capita annual growth (%)
Australia	2,747	2.6	70	39,243	28	2.9
Austria	499	1.1	37	13,486	29	4.2
Belgium	2,285	3.2	86	26,870	22	4.0
Denmark	1,011	2.5	35	28,886	23	3.1
Finland	484	1.7	40	12,100	27	4.2
France	14,805	3.9	502	29,492	24	4.2
West Germany	16,306	3.4	489	33,346	22	3.3
Ireland	145	1.6	13	11,154	25	3.1
Italy	4,849	2.7	330	14,693	21	3.7
Japan	5,699	0.9	236	24,148	32	7.7
Netherlands	3,453	3.6	110	31,390	23	3.7
New Zealand	231	1.8	13	17,770	28	1.9
Norway	1,062	3.1	39	27,230	36	3.9
Sweden	2,498	3.3	69	36,201	20	2.9
Switzerland	1,350	2.1	19[c]	71,053[c]	21	2.1
United Kingdom	11,378	4.8	318	35,780	19	2.5
United States	100,928	5.4	2,100	48,061	18	2.4
Canada	4,134	2.0	80	51,675	23	3.6

a Military burden = Military spending as a percentage of Gross National Product.
b Investment = Gross domestic investment as a percentage of Gross Domestic Product.
c The Swiss permanent standing army is very small, because Switzerland has a citizen army. Hence, these figures are not comparable with those for other countries.

Source: US ACDA, World Military Expenditure and Arms Transfers, 1968-1977, Washington DC, 1979; World Bank, World Development Report 1979, Washington DC, 1979.

TABLE 7

Centrally Planned Economies: Military Spending and Investment, 1977 and Economic Growth, 1960-77

	Military spending ($ million)	Armed Forces (000)	Military spending divided by Armed Forces ($)	Military burden a (%)	Investment b (%)	Per capita annual growth c (%)
Bulgaria	648	177	3,661	2.8d	..d	7.0
Czechoslovakia	2,207	206	10,714	3.9	15	4.5
Germany DR	3,311	222	14,914	4.5	19	5.4
Hungary	631	144	4,381	2.4	20	5.7
Poland	2,900	430	6,744	2.9	28	7.8
Romania	972	220	4,418	..	..	9.8
USSR	70,000	4,700	14,894	8.0	(17)e	(4.8)f

a Military burden = Military spending as a percentage of Net Material Product.
b Net fixed capital formation as a percentage of net material product.
c Average annual rate of growth of Net Material Product per capita.
d In 1972 the military burden was 2.7% and investment was 16%.
e In 1976 investment was an estimated 18%.
f Growth for 1970-76.

( ) estimate

Sources: Stockholm International Peace Research Institute, World Armaments and Disarmament, SIPRI Yearbook 1979, Taylor & Francis, London 1979;

US ACDA, World Military Expenditures and Arms Transfers, 1968-77, Washington 1979;

United Nations, Statistical Yearbook 1978, New York, 1979.

TABLE 8

Newly Industrialising Countries: Military Expenditures and Selected Economic Indicators

	Mil. exp. (1976 $mn.)		Mil. exp. growth (%)	Armed forces (000)		Mil. exp. divided by Armed Forces ($)		H + E divided by Mil. exp.	GNP per cap. (1976 $)	GNP per cap. annual growth (%)	Mil. burden (%)	Inf. mort. (per 000)
	1968	1977	1968-77	1968	1977	1968	1977	1976	1977	1960-77	1977	1975
Brazil	1,278	1,536	20.2	340	450	37,658	3,413	(1.5)	1,259.9	4.9	1.0	82
Greece	648	1,079	66.5	185	290	3,502	3,721	0.7	2,558.6	6.2	4.6	24
Israel	976	2,781	184.9	95	165	10,274	16,855	0.3	2,708.4	4.8	28.4	22
S. Korea	443	1,633	268.6	620	600	715	2,722	0.9	724.5	7.4	5.9	47
Mexico	303	488	61.1	75	100	4,040	4,880	..a	1,055.0	2.8	0.7	61
Philippines	120	597	157.4	51	155	2,352	3,852	0.7	419.0	2.5	3.2	74
Portugal	762	582	-23.6	215	59	3,544	9,864	(0.9)	1,816.3	6.0	3.3	38
Singapore	77	401	420.8	11	36	7,000	11,139	0.7	2,704.9	7.5	6.4	14
Spain	2,326	2,826	21.4	370	309	6,286	9,146	(1.4)	2,925.4	5.2	2.7	14
Taiwan	930	1,517	63.1	528	460	1,761	3,298	0.1	1,101.7	6.2	8.2	26
Turkey	1,103	2,537	130.0	535	540	2,061	4,698	0.9	1,069.0	4.1	5.7	119
Yugoslavia	1,013	1,827	80.4	257	270	3,942	6,767	2.2	1,796.9	5.6	4.7	40
NICs	9,979	17,804	78.4	3,282	3,164	3,041	5,627					
OPEC	6,800	23,400	244.1	969	1,340	7,018	17,463	0.7	984.0		7.7	
Developing	53,700	91,900	71.1	12,500	15,600	4,296	5,891	0.6	490.0		5.9	104
Developed	304,500	319,400	4.9	11,900	10,600	25,589	30,132	1.6	5,380.0	3.4	5.6	20
OECD	191,900	172,100	-10.3	7,740	5,810	24,793	29,621	2.4	5,960.0		3.8	
World	358,100	411,300	14.8	24,300	26,300	14,737	15,639	1.4	1,710.0		5.7	93

a Amounted to 4.5 in 1972
( ) = Estimate
.. = not available
- = nil

Mil. exp. = Military expenditure.
H + E = Health + education expenditure.
Mil. burden = Military spending as a percentage of GNP.
Inf. mort. = Infant mortality (age 0-1).

Sources: US ACDA, World Military Expenditure and Arms Transfers, 1968-1977, Washington DC, 1979;
World Bank, World Development Report 1979, Washington DC, August 1979;
R.L. Sivard, World Military and Social Expenditure, 1978.

TABLE 9

Growth of Arms Imports, 1968-77

	Arms imports ($ million)		Arms imports (% of world total)		Arms imports: growth (%)
	1968	1977	1968	1977	1968-77
Africa	135	2,915	3	17	2,059
East Asia	2,070	1,120	39	6	-46
Latin America	250	972	5	6	289
Middle East	635	6,940	12	39	993
South Asia	280	740	5	4	164
Developing countries	3,640	13,680	68	78	276
OPEC	405	6,405	8	36	1,481
World	5,370	17,600	100	100	228

Source: US ACDA, World Military Expenditure and Arms Transfers, 1968-1977.

TABLE 10

Growth of Arms Exports, 1968-77

	Arms exports ($ million)		Arms exports (% of world total)		Arms exports: growth (%)
	1968	1977	1968	1977	1968-77
USA	2,700	6,900	51	39	156
USSR[a]	1,600	5,200	30	30	225
France [b]	850	1,300	16	7	53
UK[b]	600	825	11	5	38
FRG	100	800	12	5	70
WTO	1,860	6,150	35	35	231
NATO	3,315	10,435	62	59	215
Developing countries	190	650	4	4	242
WORLD	5,370	17,600	100	100	228

a See note b to Table 11.

b See note c to Table 11.

Source: US ACDA, World Military Expenditure and Arms Transfers, 1968-1977.

TABLE 11

Arms Trade, Total Exports and Military Production, 1977

	Arms imports ($ million)	Arms exports ($ million)	Arms exports divided by total exports (%)	Arms exports divided by military production a (%)
Belgium	60	120	0	12
Canada	170	70	0	5
China b	90	90	1	1
Czechoslovakia	250	470	4	27
France c	50	1,300	2	18
GDR b	470	90	1	6
FRG	480	800	1	12
Hungary b	160	40	1	7
Italy	150	320	1	16
Japan	130	20	0	1
Netherlands	150	40	0	3
Poland b	330	310	2	11
Soviet Union b	550	5,200	12	9
Sweden	40	50	0	5
Switzerland	70	190	1	29
UK c	150	825	1	16
USA	120	6,900	6	15

a Military production is estimated as total equipment costs in the military budget minus imports plus exports. Total equipment costs are assumed to amount to 40 per cent of military expenditure. This is based on the UK experience. In fact this figure probably varies enormously. It is too high for socialist countries, especially China which is an under-developed country with a labour-intensive army. It is probably too low for the United States where operation and maintenance, procurement and R, D T & E represented 66% of the budget in the US financial year ending June 1978. (See Appendix A, Table 1, Fiscal Year 1980 Defense Posture Statement Hearings, Subcommittee of the Committee on Appropriations, House of Representatives, US Congress, Washington 1979).

b These are CIA figures which value arms exports and arms production by socialist countries at Western acquisition costs. This overestimates both resources cost and military value of the arms. Hence the figure for the share of arms exports in total exports is probably too high.

c US ACDA persistently under-estimates arms exports for Britain and France. The official figures for arms exports during 1977 were $1,600m for UK and $3,124m for France. The UK figure is published annually in the Statement on Defence estimates; the French figure is usually published in the Assemblee Nationale report on the budget.

Source: US ACDA, World Military Expenditures and Arms Transfers, 1968-1977.

TABLE 12

Arms Imports and the Balance of Payments for Selected Third World Countries

	Arms Imports (US$million)	Arms Imports as percent of total imports	Imports of machinery and transport equipment as percent of total imports	Current Account balance ($ million)
	1977	1977	1976	1977[c]
Algeria	280	4	47	-1,935
Argentina	40	1	12	1,594
Bangladesh	20	2	14	-265
Bolivia	5	1	..	-120
Brazil	120	1	36	-3,787
Burma	0	0	..	-93
Burundi	5	7	28	9
Cameroon	10	1	37	-40
Chile	60	3	..	-290
Taiwan	180	2	31	1,162
Colombia	10	1	42	562
Congo	20	10	35	-182
Ecuador	150	10	46	-322
Egypt	200	4	30	-529
Ethiopia	430 (50)[a]	122 (14)[a d]	34	-70
Ghana	10 (20)[a]	.. (2)[a]	.. (26)[b]	-26
Greece	470	7	41	-1,108
Guatemala	5 (20)[a]	.. (2)[a]	.. (26)[b]	-50
India	460	8	19	1,874
Indonesia	60	1	41	423
Iran	2,400	17	45	5,371
Iraq	1,100	27	47	1,209
Israel	1,100	19	22	-250
Ivory Coast	10	1	33	-295
Jordan	130	9	30	30
Kenya	10	1	29	88
South Korea	280	3	27	447
Kuwait	310	7	..	5,483
Libya	950	18	35	2,905
Malaysia	60	1	33	675
Mali	30 (10)[a]	15 (5)[a]	30	5
Mexico	10	0	50	-547
Morocco	200	6	35	-1,743
Nicaragua	10	1	26	-122
Pakistan	200	8	26	-578
Peru	430 (200)[a]	23 (10)[a]	.. (37)[b]	-670
Philippines	60	1	30	-724
Portugal	5	0	25	14,021
Saudi Arabia	925	5	44	12,791
Singapore	30	0	26	-414
Somalia	80	50	.. (18)[b]	-31
South Africa	130	2	.. (37)[b]	538
Spain	290	2	21	-2,055
Sudan	20	2	.. (14)[b]	-443
Syria	575	21	34	-137
Tanzania	70	10	35	3
Thailand	50	1	30	-1,039
Tunisia	50	3	35	-476
Turkey	140	2	38	-3,155
Uganda	5 (20)[a]	2 (12)[a]	44	71
Uruguay	10	1	27	-40
Venezuela	90	1	.. (36)[b]	-1,828
Yugoslavia	110	1	34	-1,432
Zaire	50	8	..	-486
Zambia	10	1	..	-157
Developing	13,680	5.2		
OPEC	6,405	7.3		
Developed	3,925	0.6		
World	17,600	1.6		

a Figure for 1976. In some cases, e.g. Ethiopia, Mali and Peru, a large purchase results in an unusually high figure for 1977. b Figure for 1960. c Before interest payments on external debt. d The figure for arms imports is higher than the figure for merchandise imports, implying either an error or that the latter excludes arms.

Source: US ACDA, World Military Expenditures and Arms Transfers, 1968-1977; World Bank, World Development Report, 1979.

TABLE 13

Defence Production in Third World Countries

	1 Fighter Aircrafts, Jet Trainers, Aeroengines	2 Light Aircrafts	3 Helicopters	4 Missiles, Rockets	5 Large Fighting Ships	6 Medium Fighting Ships (up to 500 ts)	7 Small Fighting Ships and others (below 100 ts.)	8 Submarines	9 Tanks and APC	10 Small weapons, ammunition, guns etc.	11 Electronic and Avionic
Europe											
Greece	l								l^2	l	l^1
Spain	l	l			l	l	n	l	l	i l	n
Portugal		l_1			n	l	l			l	
Turkey	l^1	l^1		l	l	l	n	l	l^1	l	
Yugoslavia	i l	i l	l	l		l	n	n	n	i	
Latin America											
Argentina	i l	l	l	l	l	l		l	i l	i l	
Brazil	i l	i l		i l	l	i l	i	n	i l	i l	n l
Chile						n					
Colombia		l				n	l				
Dominican Rep.						n				i l	
Mexico	l^1	l			n	l				l	
Peru	l^1				l	i				l^1	
Venezuela	l^1						l			n	
Africa											
Algeria										n	
Congo										n	
Gabon						n	n				
Ghana										l	
Guinea										l	
Ivory Coast							n				
Malagasy Rep.						l					
Nigeria	l^1									l	
South Africa	l	l	l	l	l	n	n		l	l	n^1
Sudan										l	
Zaire										?	
Morocco										l	
Near/Middle East											
Egypt	l_2	l	l_1	l_1		n			l	l	
Iran	l^2		l^1	l^1	l^1					l	l
Israel	i l^1	i		i l		l	i l	i	i l	i	i l
Saudi Arabia										l	
Yemen (PDR)							?				
Asia											
Bangladesh							n				
Burma						n	l			l	
Hong Kong						n	n				
India	i l	i l	l	l	l	l	i	l	l	i l	i l
Indonesia	l_1	l	l			n				l	
Korea (North)	l^1				n	n	n			l	
Korea (South)	l^1		l^1			n	n			n	l
Malaysia						l				l	
Nepal										n	
Pakistan	l^1	l^1	l_1	l			n			l	l
Philippines		l	l^1	n			l			l	
Singapore						l	l			l	n
Sri Lanka							l				
Taiwan	l	l	l	n	n	l^2	n			l	n
Thailand						n	l			l	
Vietnam		l								n	

i = indigenous design. l = license production and technical assistance.
n = not known whether i or l. 1 = planned; 2 = only refitting, repair, etc.

Source: Peter Lock and Herbert Wulf, Register of Arms Production in Developing Countries, Study Group on Armaments and Underdevelopment, Hamburg, 1979.