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THE ECONOMICS OF DISARMAMENT:
PROSPECTS, PROBLEMS AND POLICIES
FOR THE DISARMAMENT DIVIDEND

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EXECUTIVE SUMMARY

World defence expenditure, which reached over $950 billion in 1990, is a vast reservoir of financial resources being used for national military security purposes. Other types of resources are also absorbed in large quantities by the defence establishments of the world. The end of the cold war has considerably enhanced international security, although many regional problems remain. Thus, the time has now come to analyse ways to divert some of these resources away from the military and toward meeting the world's many social and economic needs.

The central purpose of this paper is to discuss some of the economic aspects of this "disarmament dividend" and point out some of the costs which the transition toward a more demilitarized economy would entail. To establish a basic framework within which these issues can be fruitfully examined, the paper briefly surveys the controversial issue of the impact of military expenditure on development. It shows that, although some positive effects do exist, the overall impact of defence spending on economic growth and development in Third World countries is negative.

Since the economic benefits are weak and the costs enormous, the central motivation behind militarization must be security. However, the relentless pursuit of military security by any one country reduces the security of other countries. Moreover, it favours developmental failures which influence other dimensions of security. Today, the notion of security must be redefined in order to include nonmilitary factors such as equitable development and environmental protection.

With few significant exceptions, military spending is currently falling more rapidly in Third World countries than it is in advanced countries. The demand for arms imports in the developing nations has plummeted in recent years. Analytical methods and effective policy measures are both now required to accelerate the process and transfer resources from the defence sector.

This study directs attention to this core issue of resource transfers. Without the fundamental restructuring of the world political and security system which such transfers imply, the benefits of peace may turn out to be illusory. Four specific and currently relevant aspects of this issue are stressed. These relate to the redistribution of government resources in developing countries from defence to the socioeconomic and developmental sectors; the global conversion of military manpower, industrial facilities and research and development; the freeing up of financial resources through reductions in military spending in advanced economies and the use of these fresh resources as foreign aid for strictly nonmilitary developmental purposes; and the necessary effort to scale back the arms trade, which is economically costly to both supplier and buyer nations. The paper also suggests some institutional methods and policy criteria to help assure that the resource conversion can be made more effective.

The study's basic conclusion is that a disarmament dividend does exist, although it is not as high as many expected in the euphoria of the end of the cold war. To use it to the maximum would be the best guarantee of peace, stability and the enhancement of true international security. The world has been given a unique opportunity to transform the global political and economic system. Yet, fuelled by economic deprivation, instability is on the rise, and the opportunity costs of mistakes being made now will be far higher than they have ever been.
I. INTRODUCTION

The end of the cold war represents a unique opportunity to reduce military expenditure so as to divert resources toward filling the world’s many unmet socioeconomic needs.

The rise in defence spending during the 1970s and 80s was fuelled by a competitive arms race, during which the major powers and their surrogates in the Third World increased the pace of their acquisition of weapons and the size of their armed forces. The action-reaction mechanism, whereby one participant in the arms race raised its military spending in order to boost its national security, thereby heightening the insecurity of the other participant(s), had swelled global defence spending to around $950 billion per year by 1990-1. In 1966, at the peak of the Vietnam war, world military spending had been $570 billion (in constant 1990 prices). Thus, despite some fluctuations, total global defence expenditure had grown by almost 70 percent in only 25 years.

Parallel to the quantitative arms race mirrored in the rise of military expenditure, there was also a qualitative arms race which lasted more than two decades. This is demonstrated by the jump in military spending on research and development. In 1990 military expenditure on R&D reached about $100 billion and accounted for over 11 percent of world defence spending and possibly 20 to 25 percent of global expenditure on all R&D, including that in civilian sectors.

That it represents a large reservoir of resources which can be used for international development is one major reason for a careful examination of military expenditure. With the entry of the Central and Eastern European countries into the market for resource transfers, it will become increasingly difficult during the period of transition for developing nations to acquire foreign aid and investment from that region. At least for the less developed countries of the Council for Mutual Economic Assistance, Soviet aid was effectively terminated as of the beginning of 1991 with the formation of the Commonwealth of Independent States. Traditional surplus countries, like the Federal Republic of Germany, are now burdened with domestic transfers. The long, drawn-out recession in the European Community that is showing no signs of abating also means difficulty for the Third World. New sources of financing and investment must be brought on line.

The “disarmament dividend” is an obvious source of new financing and investment that can be tapped. It is important therefore to see how global military expenditure might be reallocated. The purpose of this paper is to analyse the prospects for benefiting from the disarmament dividend through resource (financial, physical and material) transfers from the
military to the civilian sectors of the world economy. The paper also outlines the policies which will be required to make the transfers effective both domestically and internationally.

The next section contains a brief analysis of the impact of military expenditure on the world economy and the tradeoff among security, growth and welfare. Although it focuses on developing countries, it also includes a short discussion on the situation in the advanced economies. Section III explores alternative concepts of security and ways and means of achieving them. The following section examines trends in world military expenditure and considers the volume of the resources potentially available for transfers. Section V analyses the core issues of resource transfer and the prospects and problems inherent in such a fundamental restructuring of the world politico-security system. Section VI concludes with an evaluation of the support and commitments needed from countries, both within their individual economies and through international relations.

II. THE IMPACT OF MILITARY EXPENDITURE ON DEVELOPMENT

Development economists have been slow to study the effects of defence expenditure on development, although there has been a strong surge of interest in the subject in recent years (for a survey, see Deger 1986, 1990).

The arguments for high defence spending are straightforward enough. Without security, it is impossible for any country to develop. Defence spending and military capability are therefore preconditions for the process of development to be initiated and carried on. The European experience of the 19th century, as well as that of Japan in the prewar years, demonstrates that a strong army and a strong economy can be complementary.

Clearly, the expansion of military strength has limits, and the resource constraints of a developing society mean that the tradeoffs between defence and other categories of productive expenditure are reached fairly quickly. However, some minimum level of military expenditure is required as an investment in the public good broadly defined as "security". Moreover, since military expenditure for the provision of security acts as a pure public good (satisfying the conditions of "nonexcludability"), it must be furnished by government alone. Private-sector alternatives are available in other areas of public spending, such as health care and education. The latter may thus have lower priority in the eyes of government leaders, particularly if there is a perceived threat to security. That many government leaders believe
the provision of military security to be a fundamental duty which should take primacy is a central issue. Because military spending also helps render the economic environment secure, it has indirect productivity effects as well.

Furthermore, a government or society facing an external threat is forced to boost spending on the military. To finance the defence effort, it can raise the tax rate among the civilian productive sectors, where taxation broadly implies the generation of revenue, including debt and the creation of seigniorage through the minting of more money (inflation tax). In such a case, defence spending can protect the economy, but the socioeconomic cost is high. Alternatively, government could attempt to enlarge the tax base by fostering an efficient economy through good governance. Effective government policies which favour economic growth could lead to more revenue to finance military expenditures. Countries like Chile and South Korea, in addition to being relatively high spenders on health care and education, pay for their elevated defence burden through the revenues spawned by a rapidly expanding economy.

These ideas on the role of government in providing security and encouraging development could become even more strongly rooted in the future. Due to the pressure of multilateral institutions and a "paradigmatic" shift in the theory of development policy, that the state should not be deeply involved in the process of economic growth is becoming increasingly accepted.

Given such a trend, government economic expenditures could decline, leading to a concentration of resources in what are perceived as legitimate areas of public provision, including security, which could even be expanded to encompass the internal security apparatus, such as the police and the paramilitary. Thus, that the share of military expenditure in total government expenditure might rise in the future cannot be ruled out.

In an underdeveloped society, military spending also has a direct "productivity effect" on economic growth. First formulated by Bencic (1973, 1978), this hypothesis has given rise to a large number of studies which seek to prove or disprove it through econometrics.

Benoit (1978, page 264) claimed that:

"[The] defence programmes of most countries make tangible contributions to the civilian economies by (1) feeding, clothing and housing a number of people who would otherwise have to be fed, housed and clothed by the civilian economy; and sometimes doing so, especially in [developing countries], in ways that involve sharply raising their nutritional and other consumption standards and expectations; (2) providing education and medical care, as well as vocational and technical training..."
that may have high civilian utility; (3) engaging in a variety of public works... that may in part serve civilian uses; and (4) engaging in scientific and technical specialties.... Military and civilian forces also engage in certain R&D and production activities which diffuse skills to the civilian economy, and engage in or finance self-help projects producing certain manufactured items for combined civilian and military use... which might not be economically produced solely for civilian demand."

In addition to these direct productivity effects, there may also be indirect effects through the modernization and "nation-building" which, some claim, is a byproduct of the creation of an efficient military.

Taken together, all these factors could be classified as economic spinoffs of defence expenditure. Moreover, through its impact on modernization and through the other spinoffs, military spending can make a positive contribution to development. This contribution will become manifest in higher economic growth rates.

On the other hand, while a reduction in defence spending will not necessarily reverberate into productive channels, it might boost nonproductive civilian consumption. The argument runs as follows: a tank may protect the country, add to its stability, guarantee an environment within which production may prosper without fear of threats, spread new technology among uneducated farmer-soldiers, inculcate a work ethos among conscripts, and finally, if the tank is domestically produced, may generate interindustrial linkages and create demand in industries suffering from excess capacity. A fleet of limousines might keep local officials content, but it would also certainly have fewer positive effects on productivity.

The "case" for high defence spending that is offered above is included to illustrate the arguments of the protagonists of military security. However, in reality the case against high defence spending is very strong. For example, the resource cost of elevated defence spending, especially when this spending competes with domestic investment furnished by the private sector or the government, is obviously prohibitive. Substantial econometric data, both in cross section and in time series, show that defence expenditure crowds out investment. The empirical evidence is very clear-cut for advanced economies, where a tradeoff between investment and military expenditure of close to unity has been found in terms of shares of GDP (Smith 1980). This implies that a reduction of 1 percent in the share of defence spending in GDP would also raise private-sector investment by 1 percent. In developed countries the military competes with those same resources and factors of production (such as capital goods, skilled labour and R&D) needed for investment. Hence, the almost exact correspondence.

The empirical relationship is less exact for developing countries. Econometric research
shows that the estimated regression coefficient of defence spending on investment (as shares
of GDP) is around minus 0.5 to minus 0.6. In other words, a 1 percent rise in defence
spending as a share of GDP will cause investment as a share of GDP to fall by 0.5-0.6
percent. Thus, although other "leakages" also finance military expansion, the loss in
investment is rather high. Only up to a certain point does the defence sector compete for the
same resources, such as finance, capital goods, infrastructure and people, that are available
to the investment sectors of an economy.

For a country with an arms industry, the competition between defence and investment
is even more fierce. Deger and Sen (1985) show that the interindustrial spinoffs of military
expenditure are negligible in the case of India. One would expect significant and positive
backward and forward linkages in India, which is one of the most important arms producers
in the Third World. The lack of positive spinoffs suggests that the resource cost of arms
spending is sizeable, particularly since the manufacture of modern weapons is so skill and
capital intensive.

Military expenditure also reduces growth in developing countries because of a more
complex mechanism, which can be called "the resource mobilization effect". Increases in
defence spending modify the resource structure of an economy. They influence taxation,
"forced" savings, "absorptive" capacity, human capital formation, inflation, consumption
propensity in the private sector, and various other channels which contribute directly and
indirectly to the mobilization of resources in an economy. Military expenditures alter the ratio
between savings and income, and the net result can be very negative. Military spending
depresses the potential availability of resources and erodes the savings base of an
underdeveloped economy. For a cross-sectional sample of 50 developing countries, Deger
(1986) estimates that a 1 percent rise in the defence burden could potentially reduce the
savings-income ratio by over 2.5 percent.

The foreign-exchange and trade-balance costs attributable to arms imports are another
factor. Even if weapons imports are not paid for in cash, they can raise the debt burden and
impose a cost on future generations or governments. Around 20 percent of Third World
aggregate debt in the late 1980s could be attributed to arms imports from the developed
countries of the North. Moreover, developing nations often maintained overvalued exchange
rates in the early 1980s. The domestic resource costs of arms imports either in cash or in debt
accumulation therefore seemed deceptively low. On the other hand, following sizeable
devaluations in the late 1980s, the same burden in terms of the domestic resources needed
to pay back the debts became exceedingly large. Even if arms are acquired free, they lead to countervailing increases in domestic military spending because of repair and maintenance, the production of spare parts, the worktime of valuable (and scarce) technicians and the construction of new facilities.

Empirical and econometric evidence suggests that, although there are some benefits, such as enhanced security and modernization, military expenditure has a negative effect on growth in developing countries. A strong army and a healthy economy coexist and are complementary only in a few nations. In general, the tradeoffs are significant and direct. A reduction in aggregate savings as a share of GDP is the most important impact. Government savings drop as budget deficits rise because of the increases in military spending. External savings fall as the trade balance worsens because of the debt created to cover arms imports. Domestic private sector savings dip as the state provides less and less of other public goods, such as health care and education, and households are asked to take up the slack.

In summary, military spending affects economic growth through four main channels. First is the direct effect of various spinoffs. On balance this effect seems to be positive. Second, nonmilitary investment may be crowded out. This direct effect is generally negative but may be quantitatively small. Third is the indirect effect on savings. The savings rate could decline, and this effect is potentially very damaging for resource mobilization. Fourth are the "open economy" considerations. Arms imports cut into the imports of productive intermediate investment goods, add to the debt burden and, under a regime of overvalued exchange rates, cause distortions.

Higher defence spending also has an impact on development beyond these effects on economic growth. Additional military expenditures imply government spending distortions and the reallocation of funds away from health care, education and other social services which could potentially be provided by the state. Especially in poor countries, government support is crucial for the provision of those public goods which are essential for social welfare. Moreover, social services are a central component in human capital formation and can be a key factor in fostering growth from within. Development theory now emphasizes not only economic growth but also basic needs, poverty alleviation and human development in the broader sense. The impact of government spending and resource allocation for health care, education, and social security can be critical in all of these areas.

The relative weights of defence and the social sector in government expenditures depend on government priorities (the "preference" function) and on the economic structure (the
constraints imposed by the economy) within which the government operates. It is not always easy to distinguish clearly between the influence of priorities and that of structure; the two may even be closely linked, especially during periods of rapid structural change. Thus, when structural adjustment programmes, a long-term decline in growth rates, or sociopolitical instability generates significant structural change, the preferences and priorities of governments may also change.

In such situations, social spending can lose out relative to defence in two major ways. The first way may be termed budgetary protection and vulnerability, and the second may be called budgetary resilience. The terms "protection" and "resilience" are used here to distinguish two sorts of effects on the share of military spending; one is related to general structural changes, and the other is related to the specific instance in which aggregate government expenditure actually fails. The military sector is "protected" and the social sector is "vulnerable", if, under any type of structural adjustment, the share of defence spending in central government expenditures rises, while the share of social spending diminishes. On the other hand, "resilience" refers to the case in which, as central government expenditures decline, possibly in response to structural adjustment programmes or changes in the policy approach of the state, defence expenditure is not reduced proportionally or is even raised.

The evidence for these two phenomena is mixed. Evaluating only the structural programmes of the International Monetary Fund and the reactions of countries to these programmes, De Masi and Lorie (1989) have found that military spending exhibits resilience. As they claim (page 28), "the strongest result of [our] study relates to the evidence that military spending tends to exhibit resilience under Fund-supported programmes [which] emphasize fiscal tightening."

Deger and Sen (1991) have examined in detail the case of sub-Saharan Africa and determined that the defence sector was both resilient and protected during the period 1978-86, when the continent was experiencing very traumatic times in terms of structural changes.

On the other hand, in an analysis of the behaviour of developing countries in general over the period 1975-87, Hewitt (1991) concludes that the social sectors were protected at the expense of economic services and the military.

The opportunity costs of militarization are particularly high within government budgets if the defence sector displays resilience during overall government retrenchment and is also protected during periods of major socioeconomic change. Even under the most optimistic scenario, according to which social expenditures are protected, the military clearly
has a higher priority than do economic services (Hewitt 1991). Government contributions to growth-promoting economic services would thus be reduced in areas such as infrastructure, industrialization and agricultural inputs. In the long run, this would have adverse consequences on development. According to the more pessimistic scenario, the military would be looked after when aggregate central government expenditures are falling. This would lead to more drastic cuts in socioeconomic spending than would be necessary even under budget austerity measures.

III. THE NATURE OF SECURITY IN THE NEW "INTERNATIONAL" ERA

The concern for security among the major powers has traditionally focused on military issues and the relationships among "sovereign states, machiavellian ethics and a Clausewitzian philosophy of war" (Booth 1991). Emphasizing war-fighting capabilities, armed forces, external enemies, defence spending and armaments, this canonical concept of security centres predominantly on the political and military aspects of the subject. Whenever internal factors such as regime survival, human rights or democratization have been considered important, they have always been linked to inter-state behaviour. According to this view, increases in military expenditure are a measure of the "inputs" needed to provide greater security.

Yet, military spending in an adversarial context involving either two powerful opposing countries, or two opposing alliances, exhibits the classic features of a "prisoners' dilemma game". Concerned only with its own security and because relations with the other country (or alliance) are adversarial, each country (or alliance) tends to overspend relative to the optimum commensurate with the joint security needs and budget constraints of the contending parties.

As in most such "games", solutions based on cooperation would be preferable in bolstering the welfare of both participants. When military spending has been cut by both "sides" through viable and verifiable arms control measures, aggregate welfare has risen because resources have been released from defence to meet socioeconomic needs, thereby fostering growth and development. Moreover, the search for mutual security becomes enhanced, since both sides lower the threat at the same time. Likewise, in a leader-follower framework, if one country unilaterally curbs military expenditure and the other reciprocates, aggregate welfare rises (see Deger and Sen 1984).
Unfortunately, such solutions have rarely been reached by the major powers. Because of the buildups in armaments and forces, the unadulterated pursuit of national security has eroded the security of the perceived "enemy", who in turn follows a similar go-it-alone policy. Security based on cooperation, although theoretically preferable, has usually not been the practice. The relentless pursuit of military security has sometimes produced deterrence and sometimes threatened peace, but, more often than not, it has had an adverse effect on areas outside the realm of "security" narrowly defined.

Like the situation during the cold war between the two superpowers and between the North Atlantic Treaty Organization and the former Warsaw Treaty Organization, the climb in defence spending in the Third World has often been accelerated by regional arms races. That defence spending produces the "public good" of national security seems to be a common belief in the Third World. However, this belief ignores the significant "externalities" which the acquisition of weapons by one country can cause for other countries in the same region. In turn, this stimulus to arms competition has "feedback" effects on the country which has initiated the process.

Hence, although a boost in military expenditure may appear justified in the view of each individual country immersed in a regional arms race in the Third World, it clearly weakens overall welfare. As in the case of the superpowers, military spending in the Third World generates a process very similar to a prisoners' dilemma game. Because of mutual distrust, the difficulties of communication, the lack of an institutional framework, the high degree of uncertainty and risk involved in not protecting national security, asymmetric information "sets" and so forth, participants fear cooperation, although the gains to be had from cooperation are much higher than the costs.

In the past, the major powers invoked this distrust, which acted as a catalyst for further national security problems in the developing countries. However, the changing international political environment of today should encourage developing countries to reconsider their security doctrines and their defence spending mechanisms.

"Security" is achieved when threats are counterposed by capabilities. If the threats and capabilities are strictly military and defence oriented, then the potential for an arms race is significant. On the other hand, the "threats" and capabilities can be nonmilitary in nature. In this case, the concept of "security" should be extended beyond the traditional one. The nonmilitary aspects of a concept of security so extended would relate to political emancipation, economic development and environmental protection. Clearly, these are as
important for global security as are those aspects encompassed in a narrow view focusing only on military threats and defence.

In practice and through policy initiatives, the concept and role of security should be expanded. Expanding the analytical concept of security means that political cooperation, economic interdependence, trade integration, participatory democracy, joint environmental protection, the promotion of entitlements and human rights, and other such measures must be assigned more importance. Without such a step, less military spending and greater military security will remain mutually exclusive. Institutional methods exist to bolster integration at the supranational level (see later). At the national level, more needs to be done.

IV. CURRENT TRENDS IN WORLD MILITARY EXPENDITURE

While the surge in world military expenditure during almost all of the last decade was unprecedented, recent years have witnessed a downward trend. For instance, in 1990 total defence spending worldwide was around $950 billion, a decrease of about 5 percent in real terms relative to the figure in 1989. Together, the former Soviet Union and the US accounted for about 60 percent of the total. The developed countries, including the USSR and the other members of the Warsaw Treaty Organization, spent around $800 billion, while developing countries aggregated approximately $150 billion.

In the industrialized nations the downward trend began in 1987-8, mainly because of economic and budgetary constraints. This was especially true for the USSR and the US, which also showed the most spectacular increase in military spending in the first half of the decade.

Military expenditure in the Third World peaked in 1984-5 and thereafter exhibited a steady drop. Most individual developing regions, except the Far East (plus China) and South Asia, experienced a similar trend, although the rates of decline varied widely. The most spectacular falls in the mid- to late 1980s were observed in the Middle East and South America. However, the recent Gulf War (see later) has dented this downward trend in the Gulf countries, and the military expenditure of the Gulf Cooperation Council increased in 1991 after a long period of decline. The trend in South America continues to be downward. In South Asia defence spending has been slowly dropping since 1989. In the Far East (including China) it rose consistently throughout the 1980s; this is attributable to the prosperity of the countries in that region. Despite the costs of the Gulf War, paid mostly
directly and indirectly by a few oil-rich developing nations, the overall downward trend in
the Third World is firmly established.

The share of military expenditure in GDP differed immensely from country to country
in the Third World in the 1980s. Known as the "military burden", this indicator ranged from
under 0.5 percent in Mauritius to over 20 percent in Iraq (Table 1). Between 1981 and 1989
the average military burden of at least 40 Third World countries was higher than the average
military burden of just below 4 percent registered in the advanced industrialized nations of
the West. Thus, although the Third World accounted for under 18 percent of total world
military expenditure during the decade, the relative weight of this spending was higher for
many of these countries. On the other hand, the military burden of more than 25 countries
averaged 2 percent or less during the decade, a level considered reasonable by some analysts.

The data available on the arms trade are more questionable and should be treated
with caution. At least until the very end of the 1980s arms imports tended to be concentrated
in the Third World, since developed countries had sizeable arms industries and conducted
mostly intraindustry trade. Developing countries accounted for almost 75 percent of world
arms imports during the period 1980-8, with the majority of this share represented by the oil-
rich and strife-torn Middle East (Table 2). Even in sub-Saharan Africa, almost 7 percent of
total imports were arms, a ratio significantly higher than the share of military expenditure
in GDP in the region. Meanwhile, the share of weapons in total imports reached almost 9
percent among small, low-income economies worldwide.

The end of the cold war means that the very active defence spending of the early
1980s need not be maintained. Indeed, some are demanding that defence spending in the
industrial North be halved in real terms, or at least that the share of military expenditure in
GDP be slashed to half the 1990 level. In any event, the drop in defence spending in the
industrial West that was observed in the late 1980s is bound to accelerate. Here, the central
question concerns the prospects for a real conversion in a speedy fashion (see later).

Nonetheless, the reductions in defence spending in developed market economies,
including the member countries of the North Atlantic Treaty Organization, have thus far not
really been a product of the profound political changes in the international security system.
Rather, they have been generated by "technological and structural" disarmament (see Deger
and Sen 1990). This means that the cuts in military expenditure and the accompanying
demilitarization have been predominantly due to structural factors and the nature of current
technological development rather than to political transformation.
Table 1: The "Military Burden" in Third World Countries*
(Averages, In Percentages, 1972-89)

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<td>21.0 (1)</td>
<td>Chad</td>
<td>4.6 (35)</td>
<td>4.9 (33)</td>
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<td>2.3 (67)</td>
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<td>4.2 (39)</td>
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<td>4.0 (40)</td>
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<td>3.9 (41)</td>
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<td>3.8 (42)</td>
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<td>Uganda</td>
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<td>3.7 (43)</td>
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<td>1.4 (82)</td>
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<td>1.3 (84)</td>
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<td>6.8 (21)</td>
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<td>2.9 (53)</td>
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<td>1.3 (83)</td>
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<td>6.7 (22)</td>
<td>Liberia</td>
<td>2.0 (69)</td>
<td>2.9 (54)</td>
<td>Brazil</td>
<td>1.3 (85)</td>
<td>1.2 (86)</td>
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<td>6.4 (23)</td>
<td>Sri Lanka</td>
<td>1.9 (73)</td>
<td>2.8 (55)</td>
<td>Paraguay</td>
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<td>1.2 (87)</td>
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<td>Côte d’Ivoire</td>
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<td>1.1 (88)</td>
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<td>Mali</td>
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<td>2.7 (58)</td>
<td>Sierra Leone</td>
<td>0.9 (90)</td>
<td>0.8 (90)</td>
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<td>6.0 (27)</td>
<td>Senegal</td>
<td>2.6 (58)</td>
<td>2.7 (59)</td>
<td>Ghana</td>
<td>1.0 (88)</td>
<td>0.7 (91)</td>
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<td>0.7 (92)</td>
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<td>Singapore</td>
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<td>5.5 (29)</td>
<td>Trinidad &amp; Tobago</td>
<td>1.7 (77)</td>
<td>2.7 (61)</td>
<td>Hong Kong</td>
<td>0.6 (92)</td>
<td>0.6 (93)</td>
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<td>0.5 (94)</td>
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<td>5.2 (31)</td>
<td>Congo</td>
<td>3.5 (46)</td>
<td>2.6 (63)</td>
<td>Costa Rica</td>
<td>0.6 (94)</td>
<td>0.5 (95)</td>
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<td>Honduras</td>
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<td>5.2 (32)</td>
<td>Togo</td>
<td>2.2 (64)</td>
<td>2.5 (64)</td>
<td>Mauritius</td>
<td>0.2 (95)</td>
<td>0.2 (96)</td>
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</tbody>
</table>

Source: Compiled by the author from SIPRI (various).
* The percentage share of military expenditure in GDP is known as the "military burden". Ranks are shown in parentheses.
** Central African Republic.
Table 2: WORLD MILITARY IMPORTS  
(Averages, 1972-88)

<table>
<thead>
<tr>
<th></th>
<th>% of National Imports*</th>
<th>% of World Arms Imports</th>
</tr>
</thead>
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<tr>
<td>Industrialized countries</td>
<td>0.4</td>
<td>0.4</td>
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<td>Eastern Europe</td>
<td>2.7</td>
<td>3.6</td>
</tr>
<tr>
<td>Developing countries</td>
<td>5.9</td>
<td>7.4</td>
</tr>
<tr>
<td>Asia</td>
<td>2.6</td>
<td>2.7</td>
</tr>
<tr>
<td>Middle East</td>
<td>13.3</td>
<td>15.4</td>
</tr>
<tr>
<td>North Africa</td>
<td>12.6</td>
<td>14.2</td>
</tr>
<tr>
<td>Sub-Saharan Africa</td>
<td>3.7</td>
<td>6.9</td>
</tr>
<tr>
<td>Latin America and Caribbean</td>
<td>2.1</td>
<td>4.5</td>
</tr>
<tr>
<td>Total</td>
<td>1.7</td>
<td>2.1</td>
</tr>
<tr>
<td>Heavily indebted developing countries</td>
<td>2.7</td>
<td>3.2</td>
</tr>
<tr>
<td>Small, low-income developing economies</td>
<td>5.8</td>
<td>8.9</td>
</tr>
</tbody>
</table>

Sources: Hewitt (1991), ACDA (various).
* Including cost, insurance and freight.

During the 1980s the cost of weapons R&D grew much more quickly for the major powers than did the cost of other components of defence budgets. Arms manufacturers increasingly sought returns to scale for production processes which had come to require an inordinate amount of initial investment. Unless weapons systems could be produced in large quantities and benefit from a high level of demand, average costs could not be met. Thus, the market for the decade’s advanced arms technologies, involving stealth, smart weapons, robotics and artificial intelligence, depended on expanding aggregate military procurement. However, by the late 1980s budgets were tightening in most of the West, and the socialist economic system was near collapse. This led to a “scissors” crisis, and rising unit costs and shrinking aggregate budgets spawned a sort of forced demilitarization. The development of individual weapons systems was cancelled (such as the B-2 bomber in the US), confined to the research stage without funding for testing, evaluation and final procurement (such as elements of the Strategic Defence Initiative, "Star Wars"), or slowed down (such as the European Fighter Aircraft). All of these steps helped reduce defence spending somewhat.
The Gulf War in 1990-1 was one of the costliest wars in history in terms of total cost relative to the length of the war. Despite this war and the budding civil war in Yugoslavia, world military expenditure continued to drop in 1991, mainly because the US and the USSR and its former European allies in the Warsaw Treaty Organization cut their defence spending, continuing the allocation pattern begun in the late 1980s. Whether members or not of the North Atlantic Treaty Organization, the West European countries were more cautious, and European NATO military spending remained stable. Defence expenditure in the Third World showed significant regional variation, with military spending in the Far East increasing, while that in Africa and Latin America fell. In the Middle East the military expenditures of the countries of the Cooperation Council of the Arab States of the Gulf rose because of the compensation paid for the Allied effort against Iraq, as well as of new arms purchases. On the other hand, due to the UN-sponsored arms embargo and economic sanctions, Iraqi spending on weapons procurement decreased, contributing to downward pressure on the regional total. Overall, world military expenditure shrank by approximately 2.6 percent in 1991, somewhat less than the annual percentage declines of about 5 percent registered during the previous two years.

The fundamental political change of 1991 was the breakup of the Soviet Union. Now, for the first time since World War II, there is only one military superpower. The adversarial arms races of the postwar period can no longer be rationalized. The demise of the Soviet Union renders the arsenals of the major powers superfluous. The conflicts in the Middle East, the Balkans and Somalia of the first years of this decade are imposing new types of military response that are less costly, albeit no less difficult. The technological and structural grounds for disarmament are now being seconded by political and military motives.

Nonetheless, the builddown of military force levels and sustained reductions in defence spending will take much time to engineer. Thus, few signs of a "disarmament dividend" have appeared on the horizon, even though the expectation is great and the need is clear. Optimism must be tempered concerning the potential for a rapid drop in defence spending over the near term, as well as for transfers from the military to the civilian sector worldwide. To cushion the impact of adjustment, the US and the NATO countries will scale back military spending only gradually. Meanwhile, in the successor states of the Soviet Union, the cuts will be chaotic, since they will have been forced by economic constraints, which are a poor arms controller indeed. In any case the fruits of the dawning peace among the major military spenders will not be immediately available.
In the Third World, which currently accounts for 16-17 percent of the global total, the curbs in military expenditure are erratically distributed and depend very much on the economic situation. However, in the long run, the resolution of conflicts in South East Asia, Central America, Southern Africa and the Horn of Africa will benefit the societies in those regions through demilitarization and the elimination of the costs of war economies.

V. THE TRANSFER OF RESOURCES FROM THE DEFENCE SECTOR

Given the sluggish pace at which defence expenditures and military force levels are falling despite the end of the cold war, an attempt to analyse and forecast the dynamics of resource transfers that relies on the realization of the rewards of demilitarization before the year 2000 would appear to be unrealistic.

The problems of resource transfers in general, and of conversion in particular, are complex. To sort out the many overlapping issues is not easy. Nonetheless, three issues can be considered of prime importance. First is what may be called "the internal disarmament dividend", the prospects for the transfer of government resources from defence to socioeconomic expenditures. Even though practical difficulties abound, the potential for the movement of fungible resources is the greatest in this area.

Second is the possibility of direct conversion, that is, the retraining of military personnel and the retooling of military production facilities. Military R&D is also a key element in this area, since it represents a significant repository of high-quality human capital. The scope for direct conversion is more substantial in the industrial North.

Third is might be called "the international disarmament dividend", the area of foreign aid, in which the peace dividend could make a considerable contribution. In the developed countries, opponents of increases in foreign aid frequently claim that, because demand is rising rapidly despite the constraints on financial resources, very little is left over for foreign aid. However, an analysis of the cost of the Gulf War in 1990-1 demonstrates that the price of military security is unduly high. If similar levels of resource transfers were dedicated to economic security, the gains could be extraordinary. The Gulf War has proven that political commitment is crucial. Whenever the international community so wishes, it can find vast sums of money to achieve military goals. New sources of financing must now be found to meet the very serious economic and environmental threats to global security.
The Redistribution of Government Resources

During the 1980s military expenditures declined in the Third World, particularly in the African and Latin American regions. These latter regions also experienced a very severe downturn in economic development, with negative growth rates registered in most countries over a number of years.

The two major burdens for public exchequers in many Third World nations were the "nonproductive" expenditures for external debt servicing and defence. Measuring these burdens by examining the expenditures for defence and the servicing of external public debt as a ratio of current government revenue, rather than of aggregate government expenditures, may be unusual (Table 3). However, as in the case of households, the resource constraints on government are sometimes clearer when they are gauged in terms of income or revenue. This is because aggregate government expenditures are often artificially inflated through further borrowing (with adverse effects for future generations), or through the creation of more money, which is inflationary.

Table 3: The Ratio of Debt Service and Defence Outlays to Government Revenue (In Percentages, 1988)

<table>
<thead>
<tr>
<th></th>
<th>A: The Ratio of External Debt Servicing</th>
<th>B: The Ratio of Military Expenditure</th>
<th>The Ratio of A + B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Egypt</td>
<td>10.8</td>
<td>18.1</td>
<td>28.9</td>
</tr>
<tr>
<td>Argentina</td>
<td>22.3</td>
<td>15.2</td>
<td>37.5</td>
</tr>
<tr>
<td>Zimbabwe</td>
<td>22.8</td>
<td>18.1</td>
<td>40.9</td>
</tr>
<tr>
<td>Sri Lanka</td>
<td>24.7</td>
<td>16.8</td>
<td>41.5</td>
</tr>
<tr>
<td>Chile</td>
<td>19.6</td>
<td>24.6</td>
<td>44.2</td>
</tr>
<tr>
<td>Morocco</td>
<td>26.2</td>
<td>20.5</td>
<td>46.7</td>
</tr>
<tr>
<td>Philippines</td>
<td>49.0</td>
<td>9.1</td>
<td>58.1</td>
</tr>
<tr>
<td>Pakistan</td>
<td>20.6</td>
<td>41.8</td>
<td>62.4</td>
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<tr>
<td>Indonesia</td>
<td>51.6</td>
<td>12.0</td>
<td>63.6</td>
</tr>
<tr>
<td>Colombia</td>
<td>54.3</td>
<td>16.7</td>
<td>71.0</td>
</tr>
<tr>
<td>Jordan</td>
<td>67.1</td>
<td>51.4</td>
<td>118.5</td>
</tr>
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</table>

Source: Deger and Sen (1992a).
Obviously, a very large part of government earnings (ranging from nearly 30 percent to almost 120 percent in the countries listed in the Table) was being used to cover only two expenditure items, both of which have relatively little impact on development. Because of the debt burden and the negative correlation between savings and military spending, the consequences for future growth are significant. Only a small amount of government revenue remains for the myriad other "public goods", such as health care, education, housing, social security, investment and food security.

Although the fashion in which government reallocates fresh savings depends on its priorities and on the nature of any structural changes taking place (see earlier), cuts in defence spending at least offer the potential to free up resources for the benefit of economic and social sectors. While the debt burden is more problematic, a reduction in the transfers assigned to the debt account is vital for many Third World countries. Thus, a package of measures that would substantially scale back defence expenditures, as well as debt service payments, is required.

The danger exists that a curb on debt service obligations might serve as an impetus for the importation of yet more arms in the Third World. Negotiations with individual countries (through the Brady Plan, for example) should therefore encompass strict conditions and supervision regarding arms imports. If the aggregate nonproductive expenditure ratio is indeed crucial, then simply to alter the mix will not do. Debt reduction and a decline in arms expenditure must go hand in hand.

How governments in the mid-1980s allocated resources between spending on defence and spending on health care and education offers a different perspective (Table 4). Some countries were rather unique; Costa Rica spent only negligible amounts on the military and had an exemplary record in social sector expenditures; Nigeria spent little on both; the spending of Zimbabwe was high in both areas, and Angelo and Iraq spent little on social services but a great deal on the military. However, not surprisingly, the bulk of the countries were clustered in the middle.

The potential for resource transfers is apparent especially in the group of countries which spent between 2 percent and 4.9 percent of GNP on defence, as well as on health care and education. Zimbabwe merits special study, since it has a high defence burden due to its status as a frontline state in Southern Africa and yet manages to allocate over 10 percent of its national output on health care and education.

The determination by government decisionmakers of the levels of expenditure to be
### Table 4: Defence Spending Relative to Spending on Health Care and Education (In Percentages Of GNP, 1986)

<table>
<thead>
<tr>
<th>Government Defence Expenditure</th>
<th>Government Expenditure on Health Care and Education</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>1.0% - 1.9%</td>
</tr>
<tr>
<td>Less than 1.0%</td>
<td>Ghana</td>
</tr>
<tr>
<td>Nigeria</td>
<td>Bangladesh</td>
</tr>
<tr>
<td>Paraguay</td>
<td>Algeria</td>
</tr>
<tr>
<td>1.0% - 1.9%</td>
<td>Uganda</td>
</tr>
<tr>
<td></td>
<td>Congo</td>
</tr>
<tr>
<td></td>
<td>Botswana</td>
</tr>
<tr>
<td>2.0% - 4.9%</td>
<td>Chad</td>
</tr>
<tr>
<td></td>
<td>Zimbabwe</td>
</tr>
<tr>
<td>5.0% - 9.9%</td>
<td>Angola</td>
</tr>
<tr>
<td></td>
<td>Guyana</td>
</tr>
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</table>

* Central African Republic.
allocated among competing needs is clearly a dynamic process. A comparison of the shares
of military, social and economic expenditures in total government expenditure in 1975-82,
prior to the debt crisis, with the corresponding shares in 1983-7, when the debt crisis was in
full swing, offers a good indication of the way priorities changed during the crisis and as
structural adjustment took hold (Table 5).

Table 5: MILITARY, SOCIAL AND ECONOMIC EXPENDITURES IN DEVELOPING COUNTRIES*
(Averages, In Percent Shares Of Total Government Expenditure, 1975-87)

<table>
<thead>
<tr>
<th>Region</th>
<th>1975-82</th>
<th>1983-7</th>
<th>% change</th>
<th>Military</th>
<th>Social</th>
<th>Economic</th>
</tr>
</thead>
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<tr>
<td>Asia</td>
<td>19.1</td>
<td>14.8</td>
<td>-2.1</td>
<td>+13.5</td>
<td>-6.6</td>
<td></td>
</tr>
<tr>
<td>Middle East and North Africa</td>
<td>20.2</td>
<td>27.6</td>
<td>-6.4</td>
<td>+24.3</td>
<td>-24.2</td>
<td></td>
</tr>
<tr>
<td>Sub-Saharan Africa</td>
<td>13.8</td>
<td>23.0</td>
<td>-2.9</td>
<td>+3.0</td>
<td>+3.0</td>
<td></td>
</tr>
<tr>
<td>Latin America and the Caribbean</td>
<td>8.0</td>
<td>41.0</td>
<td>+20.0</td>
<td>+6.1</td>
<td>-0.8</td>
<td></td>
</tr>
<tr>
<td>Highly indebted countries</td>
<td>10.2</td>
<td>32.7</td>
<td>+18.6</td>
<td>+11.0</td>
<td>-11.6</td>
<td></td>
</tr>
<tr>
<td>Small, low-income countries</td>
<td>12.0</td>
<td>31.1</td>
<td>+9.2</td>
<td>-7.1</td>
<td>+21.1</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>16.1</td>
<td>26.5</td>
<td>+7.5</td>
<td>+10.6</td>
<td>-13.2</td>
<td></td>
</tr>
</tbody>
</table>

* "Social" includes allocations in health care, education, housing and social security.
"Economic" includes allocations for infrastructural investment. Total government expenditure
has been calculated net of interest, since the high debt service obligations prevalent during
this rather special period would have distorted the overall picture.
At two extremes were social expenditures, which were apparently protected during the years of austerity, and economic expenditures, which were slashed to the maximum. Military expenditures were somewhere in between. The data for sub-Saharan Africa are misleading because of the relative importance of Nigeria, which cut its defence spending dramatically during the mid-1980s. In the same sample of sub-Saharan countries, less Nigeria, the share of military spending in total government expenditures actually rose more than did the shares of the other two expenditure categories. Hence, defence spending was protected in relative terms in sub-Saharan Africa and in Latin America and the Caribbean, although defence spending and government expenditure fell in absolute terms in both regions.

If developing countries can attain reasonably high economic growth rates during the 1990s and if military spending can be scaled back because of the reduction in international tensions, this internal disarmament dividend may be used, at least initially, for transfers to economic sectors, including infrastructural investment, since the share of government spending in these sectors has fallen the most in total central government expenditures. However, the social sectors could also gain, particularly in sub-Saharan Africa, where the share of this sector in government expenditure has been low from the start. If interest payments decrease because of a resolution of the debt crisis through debt forgiveness or some other means, the gains for socioeconomic sectors could be considerable. For example, in sub-Saharan Africa a writeoff of the external debt of the poorer countries and a 50 percent drop in the share of military spending to about 7 percent of central government expenditures could mean that the share of social expenditures in aggregate government spending could reach 30 percent. This is the optimistic scenario.

Conversion

The number of men and women under arms in developing countries represents a higher proportion of world totals than is suggested by military expenditures. While these nations account for less than 20 percent of world defence spending, they have more than 45 percent of the aggregate armed forces. Of the approximately 18 million people in armies worldwide, from eight million to nine million are in regular armies in developing countries. On average, around 65-70 percent of defence budgets in the Third World is used to cover the costs of personnel, including pensions.

Skill levels are generally high in the military establishments of developing countries
because armies provide training and hands-on experience with relatively advanced equipment. A reduction in the size of armies would therefore free up skilled labour for other economic activities. Given the constraints on absorptive capacity faced by most Third World societies, such an infusion of technically trained people would clearly be a boon. Although disguised unemployment is extensive in developing countries, job opportunities exist for skilled workers. This could be one of the most beneficial results of a conversion from the military to the civilian sector (see Benoit 1973, 1978).

However, there is at least one major practical problem. It is related to the privileges which soldiers have in poor societies. Pensions in the military are usually higher than those in other public sector areas and certainly higher than average pensions overall. Additional benefits, such as housing and subsidized food and clothing, are frequently also provided to military personnel. If these "intangibles" are added together, the average "wage" of soldiers tends to be more generous than the income and benefits available even to workers in the private sector. A rapid demobilization could therefore generate severe discontent among the many former soldiers who would experience a fall in earnings and amenities. Thus, for instance, in its effort to reduce the global commitments of its military establishment, even an advanced country like Russia has encountered major obstacles in housing the soldiers being repatriated from their duty stations in Central and Eastern Europe.

A good example of another aspect of this problem is offered by China. After it slashed its armed forces by one million people in the 1980s, China had serious difficulty maintaining law and order among the demobilized soldiers. Although this put a strain on social services, many of the ex-soldiers were sent to the countryside, where, it was assumed, they could create less trouble. This points up the fact that, if former military personnel are dissatisfied, they can more easily threaten stability. This is especially true in nations which have been torn by civil war or which have depended on irregulars in addition to a standing army.

Numerous crises in Central America have demonstrated that the peace process can be jeopardized by the police and internal security apparatus. If sections of the army refuse to demobilize, then civil authority is confronted with a dilemma. Either it must risk a new type of civil war and rely on loyal troops to bring all the armed forces in line, or it must unleash the police and internal security apparatus to deal with the situation, encouraging excesses and human rights violations. Even in countries like Argentina and Venezuela, attempted coups in recent years have shown the extent to which soldiers dissatisfied with defence cuts can become a peril.
One solution might be to target foreign aid to the creation of civilian sector jobs for demobilized troops, particularly in countries or regions involved in a process of conflict resolution. It might be possible to offer these former soldiers land for farming, or assistance in setting up small businesses. The current peace effort in Central America and Southern Africa could be reinforced in this way.

Two basic "models" have been followed by Third World countries in the conversion of defence infrastructure and personnel to the civilian sector. The first is illustrated by the case of China, which has undertaken a planned approach to the demilitarization of parts of its huge defence industry (see Deger and Sen 1990). Under the overall guidance of the ministries in charge of various sectors of industry, military facilities have been transformed into relatively independent commercial enterprises to produce civilian goods and sell them, especially abroad. Joint ventures in high technology areas such as the aerospace industry have also been actively encouraged. The attempt has been quite successful, particularly in the development of dual-use technologies, the production of durable consumer goods like television sets and the retooling of plants manufacturing heavy machinery. The evidence seems to indicate that, partly as a result, the share of nonmilitary products in the total gross output of defence industries jumped from less than 10 percent in 1979 to over 60 percent in the late 1980s. One major drawback of the Chinese approach is that some arms manufacturers have been tempted to seek foreign markets for their surplus production. International arms control initiatives must be directed at eliminating this practice.

The second model is illustrated by Argentina and, to a lesser extent, Brazil, which have attempted simply to privatize state-owned arms manufacturers. Then it is up to the new private sector owners to diversify or to convert to the production of nonmilitary goods. However, most Third World arms industries are inefficient and unprofitable and have thus been propped up by subsidies and other types of government support. Direct privatization is therefore unlikely to succeed in most cases.

Less its reliance on arms exports, the Chinese model appears preferable. India is currently attempting to follow this model, although on a much smaller scale and mainly through high technologies and products requiring a significant amount of engineering.

In the US and Western Europe conversion has been based more on diversification, mergers and consoliation than on the retooling of plants to produce civilian goods. The republics of the former Soviet Union have devoted considerable effort to conversion (see Deger and Sen 1992a, Sen 1992). However, they have focused little attention on linking
conversion projects with broader market reforms. Major problems have emerged because of
general political and economic disintegration, and the commitment of the military-industrial
complex to conversion is in doubt. While the output of civilian products by arms industries
has increased rapidly in these republics in recent years, the profits have been limited and
marketing initiatives few. These industries seem not yet to have learned that government
subsidies must eventually dry up.

The research and development facilities of the military would be an important source
of human capital and technological skills in any conversion process. In 1990 military R&D
worldwide represented roughly $100 billion, accounting for more than 10 percent of global
military expenditure. Over 80 percent of this sum was spent by two countries, the US and
the USSR. Russia has inherited about 85 percent of the R&D facilities of the defence industry
of the USSR and is thus now the proprietor of the second largest military-oriented R&D
establishment in the world. The global distribution of scientists and engineers employed full
time on weapons research is also skewed. Of the estimated 600,000 such specialists
throughout the world, more than 500,000 are working in the US and the republics of the
former USSR. Other major weapons producers like France, Germany and the UK also possess
sizeable military R&D establishments. In the Third World, China and India stand out for their
research on arms technologies.

Governments are the backbone of the market for defence-related R&D. This market
has therefore been stable and relatively free of many of the pressures common in competitive
markets in other areas. This is a substantial obstacle to the conversion of military R&D
facilities to peaceful purposes. Research establishments involved in weapons projects have
not been very effective in developing and marketing spinoffs in the civilian sector. Although
the computer and information technology industry in California in the mid-1970s received
a boost from the cutback in defence R&D and the transfer of personnel from the military to
the civilian sector at the end of the Vietnam War, the success stories are few.

The key to a fruitful conversion of defence R&D is, first, the identification of areas of
research that are similar in economic terms to the defence sector and, second, the reorientation
of weapons research toward these areas through suitable incentives. Deger and Sen (1991,
1992a) suggest that environmental research fits the bill very well, since it exhibits significant
"externalities" and should be viewed as a "global" public good (that is, for the benefit of all
without exclusion). Hence, one appropriate way to foster the conversion of military R&D is
the transfer of financial and physical resources toward environmental research. Such an
approach could be undertaken by focusing initially on large laboratories in arms exporting countries in the West and then on private sector research funded by government in the West and elsewhere. The gains could be exceptional even from a 10 percent reduction in military R&D in favour of pollution control (Table 6). In a sense, this reflects the scant attention paid to environmental R&D up to now.

Table 6: The Benefits of Conversion from Defence R&D to Pollution Control (In Percentages)

<table>
<thead>
<tr>
<th>Country</th>
<th>Pollution Control R&amp;D</th>
<th>Pollution Control Expenditure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Canada</td>
<td>35.9</td>
<td>16.8</td>
</tr>
<tr>
<td>France</td>
<td>528.7</td>
<td>44.9</td>
</tr>
<tr>
<td>Germany</td>
<td>37.7</td>
<td>21.1</td>
</tr>
<tr>
<td>Italy</td>
<td>54.2</td>
<td>--</td>
</tr>
<tr>
<td>Japan</td>
<td>127.5</td>
<td>8.0</td>
</tr>
<tr>
<td>UK</td>
<td>350.0</td>
<td>40.8</td>
</tr>
<tr>
<td>US</td>
<td>1,308.0</td>
<td>44.9</td>
</tr>
</tbody>
</table>


a The estimated percentage increase in government expenditure on R&D in the area of pollution control that would result from a transfer of 10 percent of government defence expenditure to this area.

b The estimated percentage rise in aggregate expenditure on R&D in the area of pollution control that would result from a transfer of 10 percent of total military spending to this area.

Foreign Aid and the Arms Trade

The arms imports of developing countries have been decreasing since 1987. The largest regional declines have been recorded in Africa and Latin America, reflecting the economic situation and the debt crises there. In 1991 the former Soviet Union stopped delivering weapons except on a cash basis. This suggests that the aggregate arms imports of the Third World fell sharply.

However, even until 1989 the quantity of weapons imports remained quite high, especially in the area of small arms. Between 1985 and 1989 the value of the arms imports
and the net transfer payments on long-term debt of developing countries far exceeded the official development assistance received by these countries from the nations of the Development Assistance Committee of the Organization for Economic Cooperation and Development (Table 7). Even though the ratio of the former to the latter exaggerates the contribution of "nonproductive" outflows of arms imports, since a large proportion of weapons imports is not paid for, it is still certain that the value of net transfers and the weapons imports actually paid for was higher than the ODA received. Debt alleviation and the reduction of weapons imports are both clearly necessary if the disarmament dividend is to have a long-term impact.

<table>
<thead>
<tr>
<th></th>
<th>1985</th>
<th>1987</th>
<th>1989</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Arms imports by developing countries</td>
<td>32.5</td>
<td>43.8</td>
<td>39.3</td>
</tr>
<tr>
<td>B. Net transfers on long-term debt from South to North</td>
<td>19.7</td>
<td>32.2</td>
<td>42.9</td>
</tr>
<tr>
<td>C. Official development assistance</td>
<td>29.4</td>
<td>41.6</td>
<td>46.7</td>
</tr>
<tr>
<td>(A + B)/C</td>
<td>177.5%</td>
<td>182.7%</td>
<td>176.0%</td>
</tr>
</tbody>
</table>

Sources: OECD (1990), World Bank (1990), ACDA (1990) and estimates of the author.

Economic crisis unquestionably has a major and direct impact on the Third World arms trade. In the current situation most countries simply cannot afford to purchase weapons on world markets. Military aid is drying up, particularly that originating from Eastern and Western Europe. On the other hand, a rise in economic growth rates would obviously encourage demand, unless institutional mechanisms are established to control the arms trade. The focus of such mechanisms would have to be weapons suppliers.

Until 1990 the range of stances adopted by developed country governments toward weapons suppliers was fairly clear. The US and the USSR used the arms trade as a foreign policy tool, while the second-tier exporters, such as China, France, Germany and the UK, used it as a means of profitmaking, although arms were generally not sold to potentially troublesome countries. During the 1970s and 80s the exporting nations motivated by profit gained a greater share within the shrinking weapons market (Table 8). Since 1991 this trend
Table 8: The Market Shares of Countries Exporting Arms to the Third World
(In Percentages, 1970-90)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Exporters motivated by foreign policy(^a)</td>
<td>76.9</td>
<td>73.0</td>
<td>60.0</td>
<td>62.0</td>
<td>61.8</td>
</tr>
<tr>
<td>Exporters motivated by profit(^b)</td>
<td>18.1</td>
<td>19.2</td>
<td>24.8</td>
<td>26.1</td>
<td>31.4</td>
</tr>
<tr>
<td>Others(^c)</td>
<td>5.0</td>
<td>7.8</td>
<td>15.2</td>
<td>11.9</td>
<td>6.7</td>
</tr>
<tr>
<td>Index of market concentration(^d)</td>
<td>1.60</td>
<td>1.74</td>
<td>2.25</td>
<td>2.14</td>
<td>2.06</td>
</tr>
</tbody>
</table>

Source: Estimates of the author based on SIPRI (various years).
\(^a\) The US and the USSR.
\(^b\) China, France, West Germany and the UK.
\(^c\) Including all other developing country exporters.
\(^d\) The index ranges from 1 to 3. If one group controlled the market to the total exclusion of the other two, then the index would be 1. If each of the three groups had an equal share, then the index would be 3. Therefore, when market "concentration" increases, the index falls.

has become even more apparent because Russia, the second most important exporter, has now joined the profitmaking group. Likewise, market "concentration" was lower in the 1980s than it had been in the 70s, but it has been rising in recent years.

Two significant features of the current arms market are relevant for arms control. First, the fact that the market share of countries interested in profit is climbing means that the potential for friction between economic considerations and foreign policy concerns is mounting. While governments might wish to implement fresh controls in order to foster healthier international relations, the commercial and economic pressure against such controls will render this goal more difficult to attain.

Second, the fact that market "concentration" is rising means that the less powerful exporting countries are being squeezed out of the arms exporting business. This suggests that controlling weapons transfers may become easier since fewer exporting nations are involved. Indeed, the five permanent members of the UN Security Council together supply more than 85 percent of the arms imports of the Third World. Hence, in theory, controlling weapons exports should be quite straightforward. All that is required is a little more political will.

Since the Gulf War, the awareness has grown that controls are essential. The major suppliers are now tightening up procedures and will be more careful about what they sell and to whom they sell it. Beginning this year, the UN will maintain a register of weapons
transfers. The resulting transparency is expected to help in the effort to learn more about the arms trade and the means necessary to oversee it.

On the other hand, controlling the market for dual-use technology will be more difficult because multinational corporations would be affected and because the negative impact on developing countries of trade restrictions on transfers of this type of technology would be greater. Third World arms production based on modifications engineered on imported dual-use technologies could also increase in the future as the trade in turnkey weapons systems declines.

Official development assistance offers the most potential for contributing to the disarmament dividend. The direct conversion of military aid into civilian aid would be relatively easy in economic terms. However, aid is not only a tool of foreign policy. Aid packages frequently also include purchase agreements which stipulate that at least some of the money must be spent on goods produced in the aid-giving country. This is a problem.

American military aid provides an excellent example. Since the demise of the USSR, the US has assumed an overwhelming position as the premier source of military aid in the world. Over 80 percent of the $5 billion to $6 billion in total military aid in 1990 came from the US. A large portion of this American aid is nonfungible and is linked to sales agreements whereby the aid recipients must buy arms produced by American industry. Since defence procurement budgets are being scaled back in the US, it will be extremely difficult for the American Government also to reduce the amount of aid that is tied to such sales agreements. Thus, the conversion of military aid to civilian aid would have to occur gradually as arms production is reduced and the defence industry shifts to a post-cold war footing.

A more meaningful step would be the use of the financial resources released by the inevitable reductions in military expenditure to increase ODA. Although such a step would take time, the potential benefits are significant. A case in point is the situation in Europe. In 1989 the major powers spent over $510 billion on European military security. A transfer of just 10 percent of this expenditure to ODA would double foreign aid disbursements. Nonetheless, by 1991, following one of the most fundamental political transformations in European history, almost no conversion of military expenditure to ODA had occurred. The East European countries were absorbing all their emerging surpluses in military spending internally, while Western Europe had made no real cuts in defence expenditure and the US was employing some of its savings to shrink budget deficits. Clearly, a straightforward conversion of military spending to ODA is probably infeasible in the near term.
The long-term perspective is more practical. Tinbergen (1990) has constructed a global econometric model based on assumptions concerning the advantages of a more peaceful international environment to estimate the amount by which the share of official development assistance in GNP could be raised if the major powers diminish their defence spending. The model takes into account the linkages among various countries and trading blocs, including those in the Third World. His "optimum" ratios of ODA to GNP can be combined with actual ratios to round out the picture (Table 9). Not surprisingly, the greatest gap between the actual and the optimum ratios occurs for the US, which is the largest military spender and also the largest donor. Also to be expected is the current "preference function" of countries that is revealed by the ratio of ODA to military expenditure. The military outlays of Japan are about three times that nation's ODA, while for the US spending on defence is about 40 times that on economic aid.

<table>
<thead>
<tr>
<th>Country</th>
<th>Actual ODA/GNP</th>
<th>&quot;Optimum&quot; ODA/GNP</th>
<th>ODA/Military Expenditure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Canada</td>
<td>0.44</td>
<td>0.78</td>
<td>22.0</td>
</tr>
<tr>
<td>France</td>
<td>0.54</td>
<td>0.69</td>
<td>15.4</td>
</tr>
<tr>
<td>Germany</td>
<td>0.41</td>
<td>0.72</td>
<td>14.6</td>
</tr>
<tr>
<td>Italy</td>
<td>0.42</td>
<td>0.55</td>
<td>17.5</td>
</tr>
<tr>
<td>Japan</td>
<td>0.32</td>
<td>0.57</td>
<td>32.0</td>
</tr>
<tr>
<td>UK</td>
<td>0.31</td>
<td>0.62</td>
<td>7.4</td>
</tr>
<tr>
<td>US</td>
<td>0.15</td>
<td>0.82</td>
<td>2.5</td>
</tr>
<tr>
<td>USSR</td>
<td>0.24</td>
<td>--</td>
<td>2.2</td>
</tr>
</tbody>
</table>

Sources: OECD (1990), Tinbergen (1990) and estimates of the author.

Were countries to attain the optimum ratio of ODA to GNP, the increase in the value of ODA would be substantial, reaching over $50 billion among the seven most important Western aid donors and defence spenders (Table 10). For these seven nations, military spending would have to be cut by only around 1 percent per year during the 1990s to finance such an increase in foreign aid.
Table 10: Resource Transfers from Defence to ODA: The Optimistic Scenario
(In Millions Of 1990 Dollars)

<table>
<thead>
<tr>
<th></th>
<th>A: 'Optimum' ODA</th>
<th>B: Actual ODA (1990)</th>
<th>A - B</th>
<th>% Cut in Defence Spending*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Canada</td>
<td>4,379</td>
<td>2,470</td>
<td>1,909</td>
<td>1.9</td>
</tr>
<tr>
<td>France</td>
<td>11,871</td>
<td>9,380</td>
<td>2,491</td>
<td>0.6</td>
</tr>
<tr>
<td>Germany</td>
<td>10,834</td>
<td>6,320</td>
<td>4,514</td>
<td>1.1</td>
</tr>
<tr>
<td>Italy</td>
<td>5,623</td>
<td>3,395</td>
<td>2,228</td>
<td>1.1</td>
</tr>
<tr>
<td>Japan</td>
<td>16,675</td>
<td>9,069</td>
<td>7,606</td>
<td>3.0</td>
</tr>
<tr>
<td>UK</td>
<td>5,294</td>
<td>2,647</td>
<td>2,647</td>
<td>0.7</td>
</tr>
<tr>
<td>USA</td>
<td>39,695</td>
<td>10,166</td>
<td>29,529</td>
<td>1.0</td>
</tr>
<tr>
<td>Total</td>
<td>94,371</td>
<td>44,047</td>
<td>50,324</td>
<td>--</td>
</tr>
<tr>
<td>Total DAC**</td>
<td>105,404</td>
<td>54,077</td>
<td>51,327</td>
<td>--</td>
</tr>
</tbody>
</table>

Sources: OECD (1991) and calculations of the author based on Tinbergen (1990).

* The percent of military expenditure that would have to be transferred to ODA annually starting in 1990 to achieve the optimum level of ODA by the year 2000.

** For the nations of the Development Assistance Committee of the Organization for Economic Cooperation and Development not specifically listed in the table, pro rata changes in foreign aid have been assumed.

This scenario is optimistic but not unrealistic. Indeed, the "optimum" shares of ODA in GNP are consistent with the target set by the UN that countries should provide at least 0.7 percent of GNP in foreign aid. Many countries are committed to achieve this target, particularly Japan and the nations of the European Economic Community. Others, including the Nordic countries, have already surpassed it.

At the opposite extreme is the pessimistic scenario according to which cuts in defence spending in the same seven nations would reach about $138 billion in the year 2000 and the resources thus freed would be spread out among all expenditure categories (Table 11). In this scenario ODA would benefit from only a very small share of the total savings, while the rest would be used to cover new claims in other budget areas. This "pessimistic" scenario predicts that the ODA of these seven nations would gain only about 22 percent between 1990 and the year 2000. On the other hand, the optimistic scenario forecasts a rise of almost 95 percent.

The optimistic and pessimistic scenarios provide two alternative, but equally realistic, estimates of the extra resources which could become available for foreign aid because of the disarmament dividend. However, they become truly meaningful only in the context of an evaluation of the need for new sources of foreign aid.
### Table 11: The Peace Dividend and ODA: The Pessimistic Scenario
(In Millions Of 1990 Dollars)

<table>
<thead>
<tr>
<th></th>
<th>A: Defence Spending Cuts*</th>
<th>B: ODA/CGE (%)**</th>
<th>C: A x B***</th>
<th>C as a % of 1990 ODA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Canada</td>
<td>3,144</td>
<td>3.70</td>
<td>116</td>
<td>4.7</td>
</tr>
<tr>
<td>France</td>
<td>11,968</td>
<td>2.62</td>
<td>314</td>
<td>3.4</td>
</tr>
<tr>
<td>Germany</td>
<td>11,797</td>
<td>4.82</td>
<td>569</td>
<td>9.0</td>
</tr>
<tr>
<td>Italy</td>
<td>6,238</td>
<td>1.82</td>
<td>114</td>
<td>3.4</td>
</tr>
<tr>
<td>Japan</td>
<td>8,191</td>
<td>2.48</td>
<td>203</td>
<td>2.2</td>
</tr>
<tr>
<td>UK</td>
<td>10,706</td>
<td>5.04</td>
<td>540</td>
<td>20.4</td>
</tr>
<tr>
<td>US</td>
<td>85,687</td>
<td>9.00</td>
<td>7,712</td>
<td>75.9</td>
</tr>
<tr>
<td>Total</td>
<td>137,731</td>
<td>--</td>
<td>9,568</td>
<td>21.7</td>
</tr>
</tbody>
</table>

Source: Calculations of the author based on certain "pessimistic" assumptions.
* Defence expenditure in the year 2000 subtracted from that in 1990.
** It has been assumed that, because of favourable changes in international relations, the share of central government expenditure ("CGE") allocated to ODA by 2000 (the year reflected in the column) will have increased twofold with respect to the corresponding figure in 1990.
*** The additional ODA deriving from the "peace dividend".

For poverty alleviation and the growth necessary to sustain the social fabric, as well as for comprehensive environmental protection, the Third World will need $140 billion more in foreign aid by the year 2000. Central and Eastern Europe, where the demand for fresh foreign aid will be rising very quickly during the next few years and then tapering off, will require another $25 billion. The total "demand" is therefore $165 billion.

On the "supply" side, according to the pessimistic scenario, the share of ODA in GNP would remain at the current level of 0.35 percent. In that case, even if the possibility of a reduction in arms imports is taken into account, the gap between demand and supply would be $133.1 billion (Table 12). Under this scenario, the peace dividend would be $9.6 billion (see above). If this dividend is not subsumed in budgets, but is used instead to raise the ratio of ODA to GNP, the resource gap would still be about $123.5 billion. On the other hand, under the optimistic scenario, the level of ODA would reach the UN target of 0.7 percent of GNP and the resource gap would become somewhat more manageable.

The message is clear enough. The world community does have sufficient resources to meet its social, economic and environmental needs, and the military can make a substantial contribution to the release of fresh resources. However, political will is vital. Analysis alone will not produce policy changes.
Table 12: NEW FOREIGN AID: SUPPLY AND DEMAND IN THE YEAR 2000
(In Billions Of 1990 Dollars)

<table>
<thead>
<tr>
<th>The Need for New Aid Sources</th>
<th>The Supply of New Aid Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pessimistic Scenario (ODA = 0.55% of GNP)</td>
</tr>
<tr>
<td></td>
<td>Increase in world ODA</td>
</tr>
<tr>
<td>Third World</td>
<td>DAC*</td>
</tr>
<tr>
<td>Necessary growth</td>
<td>Peace dividend</td>
</tr>
<tr>
<td>Environmental protection</td>
<td>Cuts in arms imports</td>
</tr>
<tr>
<td>Central/Eastern Europe**</td>
<td>Resource gap</td>
</tr>
<tr>
<td>Total</td>
<td></td>
</tr>
<tr>
<td>165.0</td>
<td></td>
</tr>
</tbody>
</table>

* The nations of the Development Assistance Committee of the OECD.
** Including the Confederation of Independent States.

The Cost of the Gulf War

To wage modern war is extremely expensive. The Gulf War provides a telling example. Although a precise accounting cannot yet be made, the cost of that war was clearly very high. Besides the military and direct war-related expenditures, there were also important economic "opportunity" costs.

In 1991 various expert groups estimated the potential economic implications of the Gulf crisis on developing countries. A report by a major independent development research institute claimed that:

"At least 40 low- and middle-income countries suffered an impact of more than 1 percent of GNP; 16 of them over 2 percent, including countries as distinct from the Gulf as Jamaica and Paraguay. The Indian states of Kerala and Gujrat, with a population of over 70 million, would join them if [these states had been] separate countries. The total direct cost for low-income countries [was] at least $3.2 billion; when lower middle-income countries are included, it [was] at least $12 billion." (ODI 1991, page 21)

Meanwhile, the direct cost of the war to the Allies was between $50 billion and $60 billion, most of which was spent for Operation Desert Storm. These estimates are conservative; press reports calculate this cost at $80 billion to $100 billion (for example, see The Guardian, 28 January 1991). Even without taking account of the cost of the reconstruction...
of Iraq and Kuwait, as well as the military spending and the value of the weapons lost by Iraq, which are unknown, the total economic and military costs of the Gulf War was at least $80 billion in 1991 alone. If those other expenses are included, the total monetary cost of the Gulf War could easily exceed $100 billion.

The impact of such vast sums of money on the promotion of sustainable development, if they had been used for that purpose, would have been enormous. As judged by the results of the UN Conference on Environment and Development, held in Rio de Janeiro in June 1992, a major roadblock to the achievement of sustainable development seems to be disagreement over financial transfers from the North to the South for environmental protection. The OECD member countries proposed only an additional $10 billion in foreign aid for environmental protection. This is around one-sixth to one-fifth of the sum which the major powers spent to conduct the Gulf War of 1991. Jayawardena (1991) estimates that environmental protection in the South will require foreign savings worth $20 billion a year during the early 1990s. If this is correct, then the military expenditures for the Gulf War would have financed international environmental protection for the entire Third World for at least three years.

VI. CONCLUSIONS

The disarmament dividend of the end of the cold war could be significant in the Third World and in the North, from which some of the savings could fruitfully be transferred to the South. However, this peace dividend alone would clearly not make as much of a difference as might have been expected. Resource transfer distortions elsewhere, such as those due to the debt crisis, negative net transfers, or usurious interest rates, are causing far more serious problems in development than is militarization. Nonetheless, it is still extremely important to realize the full potential of the economic and political benefits of the peace process.

The world community, particularly the advanced North, can play a special role. First, it must strengthen the ability of the UN to undertake international peacekeeping operations. The governments of smaller countries feel vulnerable at the perceived ambitions of larger neighbours, now that the checks and balances imposed by the struggle between the two superpowers are no longer in force.

Second, cooperative security organizations like the Conference on Security and Cooperation in Europe should be established in the regions of the developing world. Such
organizations should be encouraged to adopt the "three basket" concept, whereby military, political and economic issues are examined together.

Third, arms control must be implemented from the supply side. The experience gained in the restriction by the West of arms deliveries to the East demonstrates that such an approach can work. Immediate steps must be taken so that the surplus weapons now being dumped on the market do not reach the Third World.

Fourth, arms production in the large developing countries must also be controlled. Otherwise the control system will be inequitable and unjust, particularly for smaller nations which do not have a domestic weapons-production capacity.

Fifth, economic aid should be tied to political and military agreements so that nations which do not accept reasonable arms controls will have more reason to do so.

Sixth, all of the above would be meaningless if there are no incentives. An increase in the total volume of foreign aid is obviously necessary, especially because the need for environmental protection is becoming ever more pressing and yet so costly. The potential exists for all sorts of resource transfers from the military to the civilian sector.

If more than lip service is to be paid to the new and wider definition of security, institutional mechanisms must be created that reflect the changes underway in international relations. One effective method would be the establishment of a UN Economic and Social Security Council to manage the already successful initiatives which the UN has ventured in these areas. The five permanent members of this council could be the European Economic Community, Japan, Russia, the US and one rotating Third World country. Without such a highly visible forum, with powers to match those of the existing Security Council, economic security will continue to be undermined or be treated in an ad hoc fashion.

The world has been offered a great opportunity to transform the political and economic system. Yet instability is on the rise, and the opportunity costs of mistakes are far higher now than they have ever been.
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