



Centre for Arab Unity Studies

yezid
sayigh

arab military industry

*capability,
performance
and impact*



Brassey's



Centre for Arab Unity Studies

ARAB MILITARY INDUSTRY

Capability, Performance and Impact

YEZID SAYIGH



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Preface

The first draft of this book was prepared some months before the Iraqi invasion of Kuwait in August 1990, but the text has since been revised and updated to take account of the Gulf crisis and war, and of subsequent events up to October 1991.

Originally written for the Centre for Arab Unity Studies (Beirut), the Arabic version of this book contains additional chapters that deal with Israel and other comparative cases of Third World arms-producers – India, Brazil, Iran, Turkey and Pakistan – and that propose a strategy for Arab military industrialization. I have excluded these chapters from the English version, mainly for reasons of space but also because there is already a substantial body of writing on most of the other countries mentioned, making the comparison less useful for an English-reading audience.

Various people provided me with valuable research assistance while I was preparing this book. In particular I wish to thank the staff at the libraries of the Centre for Arab Unity Studies in Beirut, al-Ahram Strategic Studies Centre in Cairo, and the International Institute for Strategic Studies in London, among others. Haifa Sayegh and her colleagues at the library of the League of Arab States in Tunis cheerfully responded to my numerous requests for material and made me feel at home during my repeated visits.

I also owe a special debt of gratitude to Heino Kopietz for sharing with me his own archival material and his knowledge of Middle East defence budget accounting. My father, Yusif Sayigh helped me understand the more complex industrial and economic concepts, while Tony Zahlan and Nabil Sha'th willingly discussed the problems and pitfalls of science and information in the Arab World. I am further grateful to former Egyptian Minister for Defence and Defence Production, Amin Hewedy, for giving me the benefit of his experience, as I am to the participants in the special panel on Arab Military Industrialisation convened by the Centre for Arab Unity Studies, in Cairo, in November 1988. Finally, special thanks go to Khaireddin Hasib, director of the Centre, both for asking me to write this book and for his patience and understanding as deadlines came and went.

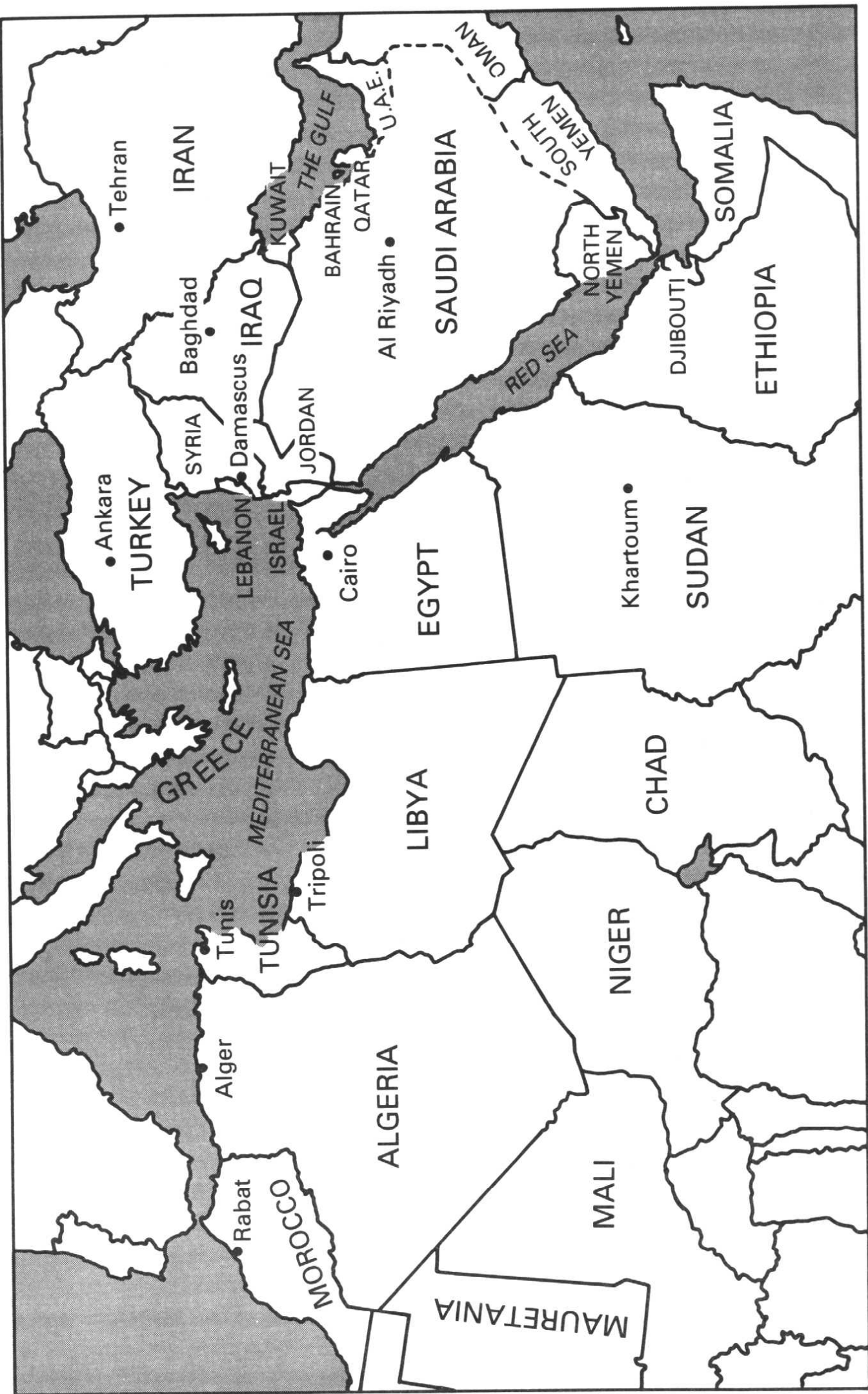
As ever, Liz, Serine and Yusif surrounded me with love and support during the preparation of this book. Yusif was born just as I started writing, reminding me once more that there are far more important things in life than arms industries. For their sake and mine I hope the message gets through.

Yezid Sayigh
October 1991

List of Abbreviations

a/c	Aircraft
AA	Anti-Aircraft
AAM	Air-to-Air Missile
ACC	Arab Co-operation Council
AD	Air Defence
AFV	Armoured Fighting Vehicle
AIC	Advanced Industrialised Country
AIPAC	American Israeli Public Affairs Committee
ALESCO	Arab League Education, Science and Culture Organisation
AMU	Arab Maghreb Union
AOI	Arab Organisation for Industrialisation
AP	Anti-Personnel
AP	Armour-Piercing
APC	Armoured Personnel Carrier
AT	Anti-Tank
ATGM	Anti-Tank Guided Missile
AWACS	Airborne Warning and Control System
BAe	British Aerospace
C ³ I	Command, Control, Communications and Intelligence
CEP	Circular Error Probability
CSCE	Conference on Security and Co-operation in Europe
DIDA	Defence Industry Support and Development Agency (Turkey)
DIPF	Defence Industry Promotion Fund (Turkey)
ECM	Electronic Counter-Measures
EW	Electronic Warfare
FAC/M	Fast Attack Craft, armed with Missiles
FAE	Fuel-Air Explosives
FCS	Fire Control System
FMS	Foreign Military Sales (USA)
FTZ	Free-Trade Zone
FY	Fiscal Year
GCC	Gulf Co-operation Council
GDP	Gross Domestic Product

GDR	German Democratic Republic
GEMI	General Establishment for Military Industries (Saudi Arabia)
GIAT	Groupeement Industrielle d'Armements Terrestres
GNP	Gross National Product
HE	High Explosive
HEAT	High Explosive Anti-Tank
HUD	Head-Up Display
IAF	Israeli Air Force
IFF	Identification Friend or Foe
IFV	Infantry Fighting Vehicle
IR	Infra-Red
ISI	Import-Substituting Industrialisation
JCSS	Jaffa Center for Strategic Studies
JTG	Jordanian Technology Group
LDC	Less Developed Country
MAP	Military Assistance Program (USA)
MBT	Main Battle Tank
MIA	Military Industrialisation Authority (Iraq)
MICV	Mechanised Infantry Combat Vehicle
MoU	Memorandum of Understanding
MRL(S)	Multiple Rocket Launcher (System)
NBC	Nuclear, Biological, Chemical
NIC	Newly-Industrialising Country
NODP	National Organisation for Defence Production (Egypt)
OAPEC	Organisation of Arab Petroleum-Exporting Countries
PGM	Precision-Guided Munitions
PLO	Palestine Liberation Organisation
RAP	Rocket-Assisted Projectile
ROF	Royal Ordnance Factories
RPV	Remotely Piloted Vehicle
SA	Sud Aviation
SAM	Surface-to-Air Missile
SCA	Supreme Committee for Armament (Egypt)
SDI	Strategic Defence Initiative
SIDF	Saudi Industrial Development Fund
SIPRI	Stockholm International Peace Research Institute
SP	Self-Propelled
SSM	Surface-to-Surface Missile
STOL	Short Take-Off and Landing
UAE	United Arab Emirates
UNESCO	United Nations Education, Science and Culture Organisation
V/UHF	Very/Ultra High Frequency
VTOL	Vertical Take-Off and Landing



The Middle East

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Introduction: Incentives and Determinants of Third World Defence Production

A growing phenomenon in international security is the increased activity of Third World arms producers and exporters. From a mere handful in the 1950s, the number of developing countries involved in major defence production reached around 20 in the late 1980s, with as many again undertaking limited activities, such as the manufacture of small arms and light ammunition. Although at 1.5–3 per cent during the 1980s their share of total world military trade remained minor, its importance for their economies and its impact on local conflicts has been more significant.

The Arab countries have witnessed a similar development, with Egypt long-established as an important arms-producer and Iraq (at least until the Gulf war of 1991) and Saudi Arabia proceeding with their own plans for major military industrialisation. In addition, half a dozen other Arab states have undertaken limited, relatively small-scale production at one time or another in the past two decades. This has taken place against a background of extremely high defence spending, accompanied by a high level of arms imports that has made the Middle East region the largest single recipient of arms transfers within the Third World. The overwhelming importance of ensuring defence and reinforcing national security, coupled with the costs of weapons acquisitions, has encouraged Arab military industrialisation as a means of reducing political and strategic vulnerability to foreign suppliers and of improving the economics of military expenditure.

Despite these sweeping opening statements, little systematic study has actually been made of the incentives, performance, and prospects of Arab defence production.¹ It is the purpose of this book to redress this situation and present a complete picture of the present reality of Arab defence industries, as well as an assessment of their technical,

operational, and systemic dimensions. This also involves an evaluation of their economic impact, and an examination of the requirements of wider and more effective military industrialisation. It cannot be emphasised enough, however, that relatively little information has been made public by the Arab governments and industrial organisations concerned regarding output, costs, labour, technological and manufacturing levels, and research and development (R&D). What is available is often undependable or inconsistent, and the researcher is compelled to draw on a variety of sources, including newspaper and magazine articles, although they may not be equally reliable. Great effort has been exerted to corroborate information and ensure its credibility and consistency, but the reader should keep this note of caution in mind.

This book is divided into four main parts. Part One deals with the theoretical and strategic context of Arab arms production. The classic arguments concerning incentives and disincentives of Third World military industrialisation are discussed in the introduction to offer an overall framework for studying the Arab case. Chapter 2 provides the strategic context by reviewing the patterns of defence spending and arms imports in the Arab region. A critical assessment of the trends in Arab military development follows in Chapter 3, in order to identify areas of need and set the basis for evaluating indigenous industrial efforts.

Part Two examines local defence production in the Arab countries. It opens with Chapter 4, which provides a country-review of Egypt, the largest Arab arms producer, followed by Iraq and Saudi Arabia in Chapters 5 and 6. Chapter 7 summarises industrial developments among the remaining, smaller Arab arms producers.

Part Three assesses Arab military industrialisation on the basis of the preceding chapters. Within it, Chapter 8 focuses on technical and operational dimensions, in which the role is evaluated of inputs such as technology transfer, civilian industry, manpower, and exports. Chapter 9 then discusses the balance between security and economic incentives as the main driving force for Arab military industrialisation, examining linkages between the defence sector and the civilian economy as a whole. Finally, Chapter 10 reviews the Arab scientific and industrial base, which ultimately forms the key determinant in the long-term success or failure of indigenous defence production.

Part Four pulls the patterns together and draws out their implications. Chapter 11 re-examines the theoretical issues and interrelationships involved, as well as the security and economic incentives that will continue to drive Arab military industrialisation in the future. The argument is refined in Chapter 12, which debates the assumptions, political framework, and possible aims and needs of Arab defence production and then defines the determinants govern-

ing effective industrial performance. An Epilogue discusses the implications and prospects for Arab military industrialisation in light of the Gulf crisis and war of 1990–91.

General Incentives for Military Industrialisation

A variety of incentives have been suggested as main reasons for the trend towards indigenous defence production in the Third World. These group easily within two broad categories: national security and economic benefits. The literature on the subject is varied, but certain elements are now standard and may be summarised as follows:

National Security and Defence

A primary motivation for the development of local arms industries in Third World countries is the wish to reinforce political independence. The assumption is that self-sufficiency in providing their own needs of military hardware reduces their military and strategic dependence on outside powers.² The USA, the USSR, and other advanced industrialised countries (AICs) exert considerable influence over recipients among the developing countries, especially when the latter rely on a single main source of arms.

Perceptions of external threat, which are a major driving force behind most regional arms races in the Third World, are an additional incentive for local manufacture of weapons.³ This is particularly the case if external suppliers are likely to cut off shipments in the run-up to, or during, inter-state conflict. A third incentive is the desire of governments to enhance regional standing and power projection capability; to this should be added their parallel desire to increase political prestige domestically.⁴

Arab analysts and officials have further refined and developed these now-standard tenets. In forming the Arab Organisation for Industrialisation (AIO) in 1975, its four member states stated a number of general aims, foremost of which were: to provide a measure of self-sufficiency in conventional hardware and so enable Arab armies to fight longer without foreign resupply; and to contain Israeli or other external, political and strategic pressures.⁵ In the 1980s, the rapid expansion of the Iraqi defence industry was fuelled by the concern to achieve the following objectives: circumvent control or interference from supplier countries; avoid vulnerability to arms embargoes; pre-empt political pressure on suppliers from third parties (such as Israel or Iran); and ensure the secrecy and security of local defence needs and projects.⁶ The last is a particularly relevant consideration, given the sensitivity of security and defence in an Arab

environment in which there is heavy reliance on foreign experts, trainers, advisers, and technicians in the operation, maintenance, and support of hardware, as well as in the provision of other services (such as construction).

Several analysts note additional incentives and factors influencing the decision to initiate or expand local defence production. At the military level, a local R&D or production capability allows users to adapt hardware to local combat needs and field conditions, as well as directing industrial activity according to domestic economic and social circumstances and priorities.⁷ At the political level, several groups of people – such as senior army officers, private industrialists, and public sector managers – may have a vested interest in the initiation or continuation of indigenous defence production, which they influence by wielding considerable decision-making power.⁸

Economic Arguments

The economic benefits of local arms production are equally stressed by Third World officials and experts, often as the major motivation. This may initially be a method for obtaining approval and funds, though once activity has started or economic pressures mount, economic and commercial considerations gain added importance, if only as a further argument to ensure continued government commitment to the substantial investment required in the sector. One study asserts that the most important economic incentive for defence production is that it should substitute for imports.⁹ This allows hard currency savings and thus an improved balance of payments – especially important at a time of rapidly spiralling costs of imports and high-tech products – while the trade balance is further improved if exports can be achieved at a later stage.

A second claimed economic benefit is to utilise any excess of capacity in the civilian industry and so increase the dynamic linkages between the defence and the civilian sector. These are especially relevant, thirdly, in the case of generating spin-offs from arms production for the rest of the economy. These include induced R&D, increased labour productivity, and acquisition of skills and technology familiarisation.¹⁰ Finally, governments can work to achieve economic stabilisation by directing military industrial contracts and investment, reducing imports or overall defence spending, or stimulating growth through new weapons production.¹¹

In taking up these economic incentives, some Arab analysts have offered additional dimensions. In the case of the AOI, for example, emphasis was also placed on the use of defence production as a basis for advanced industrialisation in the Arab region, which would offer an opportunity to acquire technology and train manpower. The Iraqi

analysis cited above offered further refinements, in addition to the above aims: absorb and utilise surplus labour; activate associated industries, such as steel and chemicals production; increase the share of locally-added value and so improve GDP; utilise national resources – human, financial, and natural – better and so reduce dependence on the outside and vulnerability to world fluctuations.¹²

Counter-arguments

The arguments in favour of Third World military industrialisation are by no means unchallenged. One of the most forceful objections is that the high technological content of modern weapon systems leads to cyclical obsolescence, which substantially raises the cost of local R&D and production. However, financial cost is not the real problem, but the fact that the need to keep pace only increases dependence on foreign suppliers. Indeed, *technological* dependence may lead to a position of far greater subservience to external sources than arms dependence or even than the old colonial relationships, in the view of some observers. This is because the former is built into the entire productive system at all levels yet is inherently impossible to master locally in full.

This is the thrust of counter-arguments by Vayrynen and Kemp among others.¹³ Among Arab analysts, Amin Huweidi stresses this aspect in order to conclude that local arms production is essentially counterproductive and should be abandoned in favour of diversification of sources of arms imports.¹⁴ He notes that 'the mirage of indigenous arms production . . . usually ends in the most tyrannical kind of dependence named military technical dependence'.¹⁵ This may not apply to some of the simpler 'combat consumables' – such as infantry and medium weapons and their ammunition, and other types of ordnance from mines to air bombs – which require low technology, but even for these the ability of the local industry to attain surge-production during sudden crises can be limited.¹⁶ In any event, while displaying concern about the eventual deepening of technological dependence and its consequences, Western observers are not as adamantly opposed to indigenous defence production as Huweidi is, with some analysts noting that diversification of arms sources carries its own price in the form of greater expense in stockpiling parts and the provision of follow-on support services.¹⁷

Despite the validity of these objections and the extreme seriousness of technological dependence, most negative commentary focuses on the adverse economic consequences of Third World military industrialisation, or more specifically on the general paucity of the benefits promised. Most prominent is the distinct absence of tangible spin-offs in the form of R&D and training for the civilian sector, even in

Third World countries that have invested heavily in R&D and industrial development (such as India) or in the newly-industrialising countries (NICs), such as Brazil or South Korea.¹⁸ Deger also notes that more advanced and productive methods of arms production tend to be capital-intensive, which is particularly unsuited for labour-intensive countries like India and Egypt.

A contradiction arises in this context: a main drawback of arms imports is that they form a significant share of intermediate-level capital goods, and thus effectively reduce industrial output and productivity; yet the local manufacture of arms does not necessarily remedy the situation as it too relies heavily on imports of production machinery and tooling, as well as on primaries and components.¹⁹ Indeed, a telling technical and financial criticism of local defence production is that it may actually raise overall imports and hard currency expenditure.

Determinants

The economic counter-arguments extend further. The main additional criticism is, in fact, connected to a basic determinant of successful defence production in any country: the civilian industrial base. In the words of Brzoska and Ohlson, 'Arms production on a large scale requires the existence of a sufficiently large and differentiated industrial base'.²⁰ It is this element that allows dynamic linkages to be set up between the civilian and the military sector, but it is also one of the most under-developed areas of economic activity in the developing countries. Thus the linkage may be positive, but the mismanagement that often occurs can actually lead to increased costs.²¹ By implication, moreover, the progress of military industrialisation is very much a function of a given country's overall industrial strategy, and specifically of its approach towards import-substitution or export-generation.²²

In addition to the potential capacity of the civilian industrial sector to sustain a military-industrial complex, Deger identifies two additional, main determinants of Third World arms production. These are the opportunity costs of the resources involved and the various types of spin-off that may occur.²³ The latter may be debatable, though, as a number of Third World arms producers have demonstrably been able to pursue military industrialisation despite minimal spin-offs. More pertinent might be Wulf's characterisation. He defines three central questions that determine the extent to which arms production in a Third World country is possible: (1) how diversified is the country's industry, and does it have a minimum level of R&D and skilled manpower; (2) can production costs be kept low, and to what extent will local resources be allocated to the