CHAPTER VI
DEFENCE AND DEVELOPMENT

Introduction

The Nehru-Mahalanobis philosophy of self-reliance, to a great extent determined the design of development and economic planning in India. This was also reflected in the goal of achieving self-reliance in Defence.

Over the years, Defence technology has grown rapidly, as also the costs have become a significant component of the State budget and have invited closer scrutiny. The debate on Defence expenditure is an on going phenomenon: Its intensity usually increases just before the presentation of the Union Budget and a number of articles appear in the press on this subject. While the pro-Defence lobby - the Hawks, want increases and point out to the inadequacy of the preparedness of our Defence forces, the anti-Defence lobby spares no breath to point out that Defence as non-plan expenditure is necessary but non-developmental. Economists around the world have spared no efforts to derive complex mathematical and econometric models in support of their contention. Unfortunately, such attempts have only looked at the extrinsic elements - the measurables, while completely ignoring
the non-quantifiable indirect benefits of Defence expenditure. A simplistic "butter versus guns" comparison is totally unsuited for analysing the benefits of Defence spending.

**Keynesian Model**

Keynesian Economics relates to Governmental intervention to ensure full employment during the recession phase of the economic cycle, so that the propensity to spend is increased thereby generating demand in the market, reversing the depressive spiral into one of growth. He advocated full employment of factors of production ie capital, land, labour and entrepreneurship to generate wealth. Defence was considered non-developmental in the thirties, when Keynes wrote his famous treatise on "General Theory of Employment, Interest and Money", as the Defence activities were restricted to armament development and preparation for war, resulting in employment of some of the factors of production with little tangible fiscal benefits. This concept is no longer relevant today, as the Services indulge in a wide variety of activities which contribute directly to development and growth of economy.
**Historical Resume**

Very few studies before Benoit (1973-78) have tried to analyse the issue of defence and development in a detailed theoretical perspective. Most academicians have concentrated on the nature of trade-off between Defence expenditure and other forms of Government expenditure. Pryor (1968) for instance, found a statistically significant substitution between Defence expenditure and public investment. Benoit shifted the focus of debate from trade off to a more general question; does Defence expenditure help economic growth?

The interest of economists, researchers and sociologists in Defence expenditure and its consequences for society, is of comparatively recent origin. For a fairly long time, Defence spending was treated by economists as a necessary but non-development expenditure. Despite the controversies regarding the level and purpose of Defence expenditure, its desirability has never been in doubt. Smith (1776) for example, considered protection of society from external aggression as the first duty of the State and justified the Public expenditure on this account. The war between France and Britain accompanying the rise and fall of Napoleon, greatly influenced the views of economists on the subject. Ricardo (1817) for example, was mainly concerned with restraining governments from embarking on costly wars.
at the expense of the Public exchequer. He even analysed the consequences of war on normal trade among nations and concluded that war and Defence activities normally had a diversionary effect on use of capital resources, leading to excess idle productive capacity in the economy. Ricardo's main contribution, however, was in the area of war finance, where he examined two alternative methods of financing—public debt and taxes and settled in favour of taxes, so that the burden of war could be shared by the generation involved in it.

One of the most important contributions in this field was that of J.B. Say (1803), who introduced the concept of human capital in Defence economics: a concept which was revived in the sixties in the economics of education and training. Keynes (1940) carried forward the discussion on alternative methods for financing war (as initiated by Ricardo) and rejected the Ricardian solution of increased taxes. Instead, he suggested that "deferred income" should be used for financing war. One of the major elements in the arguments of all the economists, before and after Keynes till Benoit, was the commonality of their views about the non-developmental nature of Defence expenditure.

Russett (1970) computed the opportunity cost of Defence expenditure for several countries: Using time series data
from 1939 to 1968, he found that Defence expenditure involves opportunity cost in the form of decreased expenditure, on other components of GNP like investment, consumption, etc. Moreover, he also found a negative relationship between Defence expenditure and exports. Lotz (1970) tried to analyse the determinants of Defence expenditure in the developing countries: His analysis of determinants of military expenditure, was a part of his general analysis of each of the main elements of government spending. Lotz, using data for the mid-sixties from 37 countries, was able to show the negative relationship between Defence spending and per capita income as also the positive relationship with urban population and with total government spending (as a proportion of GNP).

In the light of growing poverty and scarcity of resources to finance development, the role of Defence expenditure and its desirability is now being questioned; because some of the most developed countries like the USA, Germany, France, Austria, Sweden, Britain and Russia and even some developing countries like Iran, Brazil and China have generated enough surpluses in their Defence sector to finance economic activities. The study of the impact of Defence expenditure on the economy in general and the nature of the interaction between the Defence and civilian sectors, as well as the transmission of the effects of Defence expendi-
ture on the rest of the economy (and vice versa) has now assumed greater importance. These kind of studies, generally began with a simpler economic framework and methodologically simple techniques but assumed greater methodological sophistication and developed into the ratio of Defence expenditure to GDP/GNP) and its relationship rate with various macro economic parameters like economic growth rate (Benoit 1973, Whynes 1979 and Kennedy 1974), private investment (Eldestein 1990), savings (Hess 1989 and Deger 1986), employment (Dunes) public expenditure (Looney 1985 and 1987). Some representative studies were reviewed to look at the emerging trends in research on Defence and non-Defence economic interaction within a macro-economic framework, for the sake of comparing their conclusions regarding the interaction between the Defence sector and the civilian economy, keeping in mind:

(a) The hypotheses tested by these studies.
(b) The conceptual framework used by the researchers.
(c) Various methodological approaches to the problem, within the time-frame and sample chosen by them.
(d) Their explorations into the channels of 'spin-off' effects, through which the Defence burden is transmitted to the rest of the economy.

1. Benoit, for example, used simple correlations to measure the positive impact of Defence expenditure on the civilian sector's economic growth.
(e) The conclusions of the researchers regarding the Defence-development interaction.

(f) The implications of various studies for the present work.

Researchers have generally taken three stances regarding the Defence-development/economic growth relationship:

(a) Defence expenditure has a positive impact on the overall growth rate of the economy (GDP). This is the approach taken by Benoit (1973,1978), who found a positive association between the two. This positive association between "Defence burden" and GDP growth was later confirmed by Kennedy (1974), Kaldar (1976), Whynes (1979), Deger (1986) and partially by Fredericksen and Looney (1982), in respect of resource-rich countries.

(b) Defence expenditure retards economic growth. Most researchers now seem to be converging in favour of this hypothesis. For example, Smith (1977,1980), Rothschild (1977), Deger and Smith (1983), Faini, Annez and Taylor (1984), Lim (1983), Fredericksen and Looney (1983), Leontief and Duchin (1983), Deger (1986), Maizels and Nissanke (1986) etc, have shown evidence that increased Defence expenditure hurts economic growth. It may be observed here, that most of the studies which have pointed out the negative nature of this relation-
ship have not been direct in nature. The researchers have tried to study:-

(i) Various trade-offs between Defence expenditure and other forms of Government expenditure; important among such studies are those of Hewitt (1991), Looney (1986) and Deger (1985).

(ii) The trade-off between Defence expenditure and other components of GNP affecting the growth rate of the economy, especially savings, investment ratios and those hurting economic growth through various channels of 'spin-off'. Important among this category of studies are those of Deger (1986), Deger and Sen (1988), Leontief and Duchin (1983), Russett (1970) and Pryor (1968).

(iii) The impact of resource constraints like foreign assistance, fiscal deficit, adverse export performance and their adverse effect on the economy, due to the increased Defence burden. The studies of Hewitt (1991), Fredericksen and Looney (1987), and Rothschild (1977) come in this category.

(c) Defence burden and GDP growth are not correlated: A large number of recent studies in this regard take this stand. Their basic contention is, that there is no uniform pattern of relationship between the two and the degree of association depends on a host of fac-
tors. Important studies in this field are those of Chaudhary (1991), Biswas and Ram (1986), and Fredericksen and Looney (1983): These share the view, that the impact of Defence expenditure on the economy cannot be generalised and differs from country to country, depending upon their level of development, nature of governance and nature of Defence activity itself. For example, if the Defence industry is developed and largely self-reliant, Defence does not seem to affect economic growth much (Looney 1986).

The diversity in views and results as Biswas and Ram (1986) point out, is mainly because of sample variations, specification choices and the time period analysed. Moreover, different sources of data often produce different results. Be that as it may, the impact of Defence expenditure on economy cannot be treated in the form of a simplistic econometric model.

In the light of diversity of views of the researches, we shall examine some of the major studies, with a view to exploring the various directions that these have taken, concentrating on: (a) the economic models used, (b) the methodology of analysis and (c) the sample and time period of study, thereafter noting the possibilities of further refinement.
Benoit (1973, 1978) hypothesised, that increased Defence burden has both positive and negative impact on economic growth: He used simple regression analysis to analyse the impact of Defence burden (ration of Defence expenditure to GDP) on the growth rate of civilian GDP. He estimated negative impact of Defence burden on GDP through (a) investment effect, (b) productivity effect, and (c) income-shift effect. All the three effects, which themselves are caused by increased Defence burden, have a negative effect on the civilian GDP growth rate. There are however, positive impacts of Defence burden on civilian GDP growth, through (a) training effect, (b) infrastructure effect (c) consumption effect, and (d) security effect. These positive spin-off effects, according to Benoit, outweigh the negative ones. Overall therefore, increased Defence burden increases the growth rate of civilian GDP.

The main drawback in Benoit's analysis is, that while he calculates the negative effects of Defence burden statistically, he fails to do so for the positive effects and bases his arguments on simple correlation analysis. Moreover, he fails to prove the causality of relationship or the transmission mechanism. Benoit's work has come-in for sharp criticism from later researchers, especially on methodological grounds by Nicole Ball (1983) and others and on the

Despite various methodological and conceptual drawbacks, Benoit's study remains important, mainly for two reasons: (a) it was the pioneering study in this field and its claims have yet to be justifiably refuted, and (b) it takes into account both the positive and negative impacts of increased Defence burden. Most of the later studies which criticised Benoit, in fact, generally confirmed his findings about the negative effects of Defence burden and to that extent, Benoit's results almost always get generalised.

In contrast to Benoit, Deger (1979, 1982, 1985, 1986) uses econometric models for analysing the impact of Defence burden on economic growth and the so-called 'spin-off' effects. Smith and Deger (1983) used the 'production function concept' of GDP for the study of Defence burden and developed a simultaneous equation system, for analysing the interrelations between Defence and development through relevant variables. Different versions of the Deger et al. models were developed basically to test: (a) direct effects of Defence burden on growth through resource mobilisation, (b) indirect effects of Defence burden through its effect on savings and (c) exogeneity of military expenditure.
Deger and Smith (1983) point out the channels through which military expenditure may affect production and growth: (a) resource allocation and mobilisation, (b) foregone investment, and (c) foreign resources.

All the three effects, it may be noted, are basically supply-side effects. On the demand side, Deger and Smith also hypothesise, like Benoit, that increased military expenditure may stimulate growth by stimulating aggregate demand. Incidentally, this is the line of argument of 'under-consumptionists' also, who visualise a stabilising role for military expenditure in an over-heated or slack economy (as the case may be). Using data for 50 countries for the period 1965-73, Deger and Smith (1983) concluded that military expenditure diverts resources away from the civilian sector in the form of reduced savings and higher balance of payments gap. Similarly, studies for by Smith (1977, 1978 & 1980) show that military expenditure has substantial negative effects on capital formation and consequently reduces growth even though the 'spin-off' effects may be positive.

In a later study, Deger (1986) shows that although military burden and GDP growth may appear to be positively associated in the growth equation, thier overall impact is
negative due to adverse effects on the savings ratio and inflow of foreign resources. Deger calculates these effects in terms of their multiplier effects. Naib (1990) tested Deger's model for a short-run analysis (1979-1989) for India and found the "reduction in savings" and "negative balance of payments" effects, to be strong enough to offset any positive 'spin-off' effects of military burden on economic growth. In an earlier study using the Harrod-Domer framework, Deger (1979) has shown the inverse relationship between military expenditure and economic growth. Lim (1983) reports the same. In another study of a slightly different nature, Deger (1985) has shown that military expenditure entails an opportunity cost in terms of reduced expenditure on social services, especially health and education.

Fredericksen and Looney (1983) tried to resolve the apparent controversy between Benoit's results. The economists subsequent to him, analysed not only the magnitude of Defence expenditure, but also the nature of Defence activity and level of economic development. Methodologically, they also used Defence burden as regressor, but made a distinction between 'resource-rich' and 'resource-constrained' countries: They found Benoit to be true in the case of resource-rich countries. Thus, their finding was that while Defence expenditure and economic growth are positively correlated in resource-rich countries, the two are negative-
ly correlated in resource-constrained countries. Similar results have been reported by Biswas and Ram (1986).

In an earlier study also, Fredericksen and Looney (1982) noted that 'resource position' is an important determinant of the impact of military expenditure on a country's economic development. According to them, a country facing a severe resource constraint will face budget cuts. Hence, for maintaining Defence programmes, development programmes have to be sacrificed.

Defence Forces are tasked to provide a secure environment within the nation for developmental activities. Country's resources in terms of manpower, weapon systems and technological back up are utilised for Defence Forces, to remain in a state of constant readiness and defend her sovereignty and integrity. The nation spends (Defence Budget) money to secure optimal utilisation of these committed resources. Therefore, notionally, Defence Forces come to be regarded as consumers of national wealth. Another notion, that develops along the same thought process, in a developing nation like India is, "that more the expenditure on Defence, lesser the money available for development". Cost of weapon systems is continuously rising. Manpower resources committed to National Defence are also not available for developmental effort. Hence, need to economise on
Defence expenditure and accelerate growth is constantly emphasised. Question which we need to answer is whether a balanced growth is supported and accelerated through contribution of Defence Forces or not?

India's erstwhile Prime Minister Jawahar Lal Nehru while inaugurating National Defence College, New Delhi had said "Defence itself is not an isolated matter now, it is intimately connected with the economic aspects, industrial aspects and many other aspects in the country... Nevertheless, no Defence apparatus can exist in a purely idealistic way. It has to be very realistic and remain prepared for any emergency". Self Reliance in Defence, implicit in the above address, was however found wanting in Oct 1962 when India was attacked by China. Defence and Development have been considered antithetic to each other, by most economists and politicians: Accordingly, time and again, developing countries have been advised to reduce 'Defence' to give an impetus to 'Development'.

National security and development are symbiotic: Successful Defence and successful development are not at the cost of each other. The aim has always been to achieve balanced and rapid development, in a manner and under conditions which would ensure national security. Integrated development has been attained with proper appreciation of
the international strategic environment in which India was to grow.

Proper appreciation of security is important. The conventional definition of security implies 'territorial integrity' and 'maintenance of sovereignty'. However, as per Walter Lipmann, the noted columnist, it could be defined as "the ability of a nation to protect its internal values from external threat": This definition seems to have greater relevance today.

A country's 'security' can now be gravely affected in many ways without any armed intervention: Therefore, national security environment should enable a nation to apply its resources to activities, it considers germane to its national purpose, without having to be unduly concerned about extraneous considerations. Defence Self Reliance per force will propel, as hypothesised, Development which is an essential ingredient to security.

Seen in relation to the basic growth model there is a very small percentage of Defence expenditure that could be termed as wastage. A large proportion of salaries paid to Defence personnel, get ploughed back into the market. Defence production units generate employment and impart skills. Defence R & D efforts find utilisation in civil
sectors. In fact, presence of Defence establishments in remote border areas and tribal belts, provides necessary boost to the economy of that region. It may be pertinent to point out, that there are many common areas where distinction between civil and military usage is only notional. Communication, transportation and mapping are some of the areas where efforts are mutually rewarding.

Necessity is the mother of invention. History bears out, that longest and quickest strides in the fields of science and technology were taken, in the face of grave danger to national interests during wars or as a result of a reverse. Defence preparedness provides a vast field for active exploitation by R & D organisations. In India, there is neither a dearth of brain-power nor that of areas of application. There is however, an urgent need to synthesise all R & D efforts, so that optimum use of resources is ensured. Study attempts to identify areas of common interest. It is suggested that a well co-ordinated and motivated effort is the need of the hour for mutual growth.

Flowing from R&D and Self-Reliance is a national aim that must be achieved. Defence sector production units are being run like government departments, in stead of profit making industrial units. Cost of developing 'state of the art' technologies are also rising rapidly. India, there-
fore, need to direct her efforts at promoting export on the one hand and seek involvement of private sector on the other. With properly directed efforts she can not only save precious foreign exchange, but also gain her rightful place in the international system. Effective implementation of all the above recommendations will help India realise her dream ultimately. India's industrial growth rate has been reasonably satisfying. The private sector units have recorded laudable growth. The Public Sector Undertakings (PSU's) are also gradually improving. The nation is now required to build on the strengths of both the sectors for cost-effective and responsive methods of production. Success of Integrated Guided Missile Programme (IGPM), proves this point. Better interaction at appropriate levels in many areas, where mutually supportive efforts may prove fruitful, could be identified and pursued for national good.

Human Resource, the biggest asset any nation could be proud of may be imaginatively utilised in national service. A growth oriented approach in national perspective is being projected. Utilisation of talent is necessary. It may be possible to evolve a well meaning strategy, that permits mutual satisfaction of the requirement of the forces, as well as legitimate aspirations of the personnel. It is proposed that a disciplined, motivated and patriotic citizen - the "soldier" may be able to join the national milieu at a
time and place of his convenience and choice, after fulfilling his primary responsibility of 'colour service'. The nation can derive enormous benefit from his dedication and dutifulness, in many other areas related to national development. Human resource may be seen as the single most potent contribution of Defence forces, towards national development during peace, as it indeed is during war towards nation's security.

Advancements in technology the World over, have enhanced the growth potential in all the productive fields. Scientific studies and consequent invention/discovery/novel application of time tested laws and theories, are more often than not a solution to some felt problem of projected difficulty. Tank, aeroplane, radar, helicopter, atomic bomb, space satellite and the latest stealth bomber, are direct responses to the felt need of a nation, specific to its Defence potential or war making and sustaining efforts. There are other examples, where scientists applied mathematical models to optimise a nation's war efforts. Operational Research (OR), development of avionics, Electronic Support Measures (ESM), Electronic Counter Measures (ECM), Electronic Counter Counter Measures (ECCM), Computer aided mapping, over the horizon radar, Inertial platform and the like, assist in more effective utilisation of weapon systems and thereby contribute positively to the nation's Defence capa-
During hostilities, the nation achieving an early break-through in the field of technology, obtains a clear advantage over its adversary, not only in terms of Defence capability but also in economic terms. Describing 19th century struggle for supremacy in Europe, Paul Kennedy asserts, "The fairer aspect of this increasing commercial and colonial rivalry was parallel upward spiral in knowledge - in science and technology. No doubt many of the advances of this time were spin offs from the arms race and scramble for overseas trade; but eventual benefits transcended their inglorious origins... Explosion of knowledge was to buttress Europe's technological and therefore military superiority still further". Eventually technological advances result in improved methods of production and hence enhance the volume of goods produced. Quality of product and life improves and general level of satisfaction among citizens goes up. Story of developed economies the world over is quite similar.

If however, technology is imported, receiving nation continues to remain at a disadvantage. Chinese realised this fact quite early and hence had discontinued the import of Russian Technology in early sixties: They concentrated their efforts towards R&D in military field and gained their rightful status in the World Community. The technological
advances in Japan, US, UK, Europe, Russia, etc, have been so rapid, that today a policy of isolation is impractical. Assimilation of 'state of the art' technology, therefore should be aimed at by developing nations. It is easier to improve on knowledge acquired by own R&D efforts, properly coordinated and correctly directed. Weapon systems all over the world have become so expensive, that even developed nations are looking for collaborative efforts between firms within the nation and between nations, where more ambitious projects are concerned. Even US invited NATO allies Japan and Australia on 26 Mar 85, to collaborate in Strategic Defence Initiative(SDI) R&D.

In India, ancient literature is flooded with knowledge, but most of the Indian's are waiting for the scientists abroad to discover that for their adaptation. However, since independence, Science and Technology have got adequate attention in India. Dr Homi Bhabha wrote to Sir Dorabjee Tata Trust trustees in early fifties, "when nuclear energy has successfully been applied for power production in, say a couple of decades from now, India will not have to look abroad for experts, but will find them ready at hand": A large number of technical institutions have since come up: Dept of science and technology has always been headed by either the PM himself or an eminent person holding cabinet rank. Indian exploits and successes in a number of fields
have also been laudable: Commenting on the most recent success 'Newstime' reports "... Our missile has a much better warhead to weight ratio, as compared to similar products from Russia and China, that have flooded the third world market". Similarly, in the field of computers NAL and Indian Institute of Science have come up with a parallel computing machine. Besides, private sector R&D establishments are working in the field of 'Fundamental Research'. R&D funding has also been enhanced since last few years. India however, needs to optimise her overall R&D efforts through a spirited well co-ordinated approach.

It is all very well to advocate integrated plans, co-ordinated R&D and self reliance through collaboration, but it is the effective implementation that will ultimately help the nation realise her dream. Implementation is judged by the quality and quantity of industrial products. It must be said, that India's industrial development has been reasonably satisfying: at an average growth rate of about 5.5%. Paul Kennedy, comparing the growth rates of a number of countries, predicts about 5.5% growth rate for India as against nearly 7.8% for China.

There are many successful industries both in the private as well as public sector. Ministry of Defence (Production) is responsible for augmenting and coordinating indus-
trial effort for military products. Thus, all Defence production units are monopoly houses in public sector. Budget of these units has also been merged with the Defence budget. This statement is significant, because through budget separation accountability increases and management abilities are brought into sharp focus: The ordnance factories were being run like government departments and not as entrepreneurial ventures. There has been lack of competition leading to isolation of these units from main industry. Garb of 'Secrecy of Defence related matters' in public interest did not help these units: On the one hand their capabilities remained un-known and their laudable efforts went unsung, on the other hand they hid their inefficiency behind the cloak of 'Secrecy'. Bureaucratic style of functioning has also been detrimental to their progress as industrial units. Besides, their motivation for developing new products and improving an existing product as per given Qualitative Requirements(QR's) is generally not very high.

In the developed countries, due to rising cost and complex designs of 'state of the art' technologies, collaboration is the order of the day: Quality of their products, due to internal as well as international competition is very high. In India, quality is the first casualty. So sure are the potential users that they openly condemn Indian goods as sub-standard: Though, this charge may not always
hold good. Take for instance an electric trolley developed at Hindustan Aeronautics Limited (HAL) Lucknow, for the dual purpose of supplying Direct Current (DC) as well as Alternating Current (AC) for servicing an aircraft: If used at domestic airfields, substantial saving in foreign exchange may result. Similarly, instrumentation of AN-32 is by HAL. Indigenous content in INS Shakti is also substantial. IGMP - India's successful missile programme, a model of active support and cooperation between PSU's and Private entrepreneurs in India, under the overall guidance of DRDO's Dr Abdul Kalam. More programmes on similar lines are required, to enhance the Defence and production capabilities.

General Managers of Ordinance Factories (OF's), HAL divisions and Shipyards may usefully and profitably interact with civil industry, to encourage and motivate small scale entrepreneurs to develop and design common user parts: Such a move might result in saving useful time, effort and money of the OF's who could then devote their resources to more specialised jobs. The assistance/morale boosting dose required to be given, may turn out to be immensely useful for the nation. Training programmes of students at various Defence Production units and IIT's, is one of the right step forward.

The Defence services have made a significant contribu-
tion, towards alleviating the housing shortage in India. By the end of financial year 1991-92, 26180 married accommodation units for officers, 39540 units for JCOs and 153653 units for OR had been constructed. While it may be argued, that the accommodation is primarily meant for personnel serving in the Services, the non-existence of this accommodation would have added to the overall shortage of housing in the country. Besides, this activity generates growth in the Building Industry. An amount of approximately Rs 375 to 400 crores is being spent by the Services each year on this activity, giving a boost to Cement and Steel industries as also all other industries/activities associated with construction work. As an indirect benefit, this activity also offers employment to a large civilian work force.

In the field of health, the Services not only care for the medical requirements of the troops, but also discharge the social function of looking after the medical needs of their families and dependents. These facilities are also available to ex-servicemen, their families and dependents. About 60,000 persons retire from the Services annually, thereby increasing self-imposed medical responsibility by about 240,000 personnel every year, which in normal course would fall on the Central Government Health Scheme, resulting in the consumption of a large sum from 'planned' expenditure. As Defence personnel retire at a young age (about 40
years), the number being provided health care keeps on increasing rapidly. The Services are running 127 hospitals at different places in the country. Absence of the medical facilities being provided by the Defence forces, will impose a heavy burden on the National resources: Thus there is a positive contribution towards national development by the Services in this field.

In addition, the Services also provide health care and medical facilities to the civil population in remote areas, in Ladakh, Arunachal Pradesh etc. They have also established excellent centres for learning, like the Armed Forces Medical College(AFMC) and have specialists institutes which provide service not only to the Defence forces, but also to the civilians: Institute of Nuclear Medicine and Allied Sciences(INMAS) is an example of such a specialised Institute. These are no mean contributions to National Development. A social cost benefit analysis would certainly prove, that these activities contribute to National growth and development.

The Defence forces are dependent to a large extent on PSUs: The large value of Defence orders gives a fillip and boost to the industrial growth and industrial production of these PSUs.
In the field of education, the Defence forces are performing a yeoman's service. They are contributing to the national aim of achieving complete literacy, both in the field of adult education and child education. The adult education is not only being provided to the serving soldier, but also to their families through various Nari Shiksha Kendras, (a major activity of the respective Service Wives Welfare Organisations). Services have also established a number of schools, including public schools which offer education not only to the children of Defence personnel but are also open to public. Though separate outlays are provided for education in the Five Year Plans, yet the contribution is still dubbed under non-plan expenditure. This anomaly needs to be rectified.

The Indian Navy not only protects the maritime interests and ensure unhampered economic activity in her economic zone, but also maintains ship and dockyards, promoting ship building and ensuring employment to a large work force, thereby contributing to the National economy.

The Services make a significant contribution towards training of manpower, through National Cadet Corps(NCC) and Territorial Army(TA): The youth is trained to be disciplined and to shed its parochialism in favour of national integration. The training aims at imbibing in the youth a
spirit of sacrifice, where national interests come foremost and outweigh individual interests.

The Services have a large pool of trained manpower: 60,000 personnel retire from the Services annually and become available for utilisation in other fields. As a majority of the personnel retire at a comparatively younger age, they have a significant period in which they can adopt a second career and contribute to national development. The manpower is not only highly trained, but is also well disciplined, highly motivated and with a high standard of integrity. They are also above the malaise of petty loyalties based on religion or community. The men have a high tradition of nationalism and the ability to get along with other citizens, irrespective of their regional origins. Their influence on others in the sphere of national integration defies quantification. The manpower is also trained in different trades and skills, some of which are highly specialised. The training of this pool of manpower and its availability for employment in other fields is a major contribution to nation building. When the entire budget of Human Resources Development (HRD) Ministry is a planned expenditure, how can Defence spending on above activities be termed as Non Plan?
Savings and Capital Investment

The Services are also making a direct contribution to national growth and economy, by investing large sums accumulated through the respective Services Group Insurance Schemes/Saving Schemes in PSU's, Private Limited Companies and with the Housing Development Finance Corporation (HDFC): Such investments are of the order of about Rs 2000 Crores. The ploughing back of this money, as also the contribution of Defence Personnel in Provident Funds and other Saving Schemes, from their pay and allowances into national economy, has a growth influence on the GDP of the country, like any other planned expenditure.

Remote Area Development

The Defence forces have been pioneers in blazing new trails and developing remote inaccessible areas. The day to day requirements of troops have promoted commercial activity, bringing in its wake basically development of backward regions. The setting up of an Ordnance Factory at Medak and the setting up of a Naval Academy at Karwar, are basically for development of these regions. The very presence of Services has directly contributed to the economic growth of such areas, a burden which would have otherwise been imposed on planned expenditure.
Environment And Ecology

The Services have made a major contribution in the field of environment conservation and ecology protection, a subject which has become important enough to be handled by a separate ministry. India has specially raised three Ecological Battalions, which have carried out excellent work for environmental upgradation of the degraded areas of Rajasthan, UP and J & K. Besides this, the Services undertake tree plantation work every year on a large scale, thereby contributing to national forest wealth and environmental development.

Besides the areas mentioned above, the Services make significant contributions towards ameliorating conditions during natural calamities and provide disaster relief when required. While such activities may not be directly contributing to economic growth, an indirect contribution is made by a rapid restoration to normalcy thereby ensuring least disruption of day to day human and economic activity.