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# The National Strategy for Manufacturing



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# The National Strategy for Manufacturing

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# 1 The Manufacturing Imperative

1.1 Manufacturing has been recognized as the main engine for economic growth and creation of wealth and accordingly, emphasis was placed on growth of industry

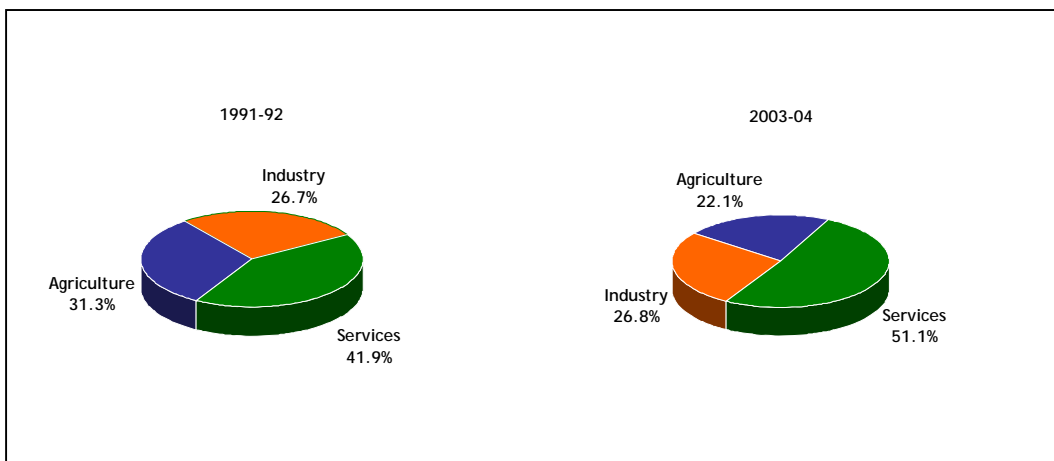
*Manufacturing is recognized as the main engine for economic growth and creation of wealth*

in most of our Five Year Plans. However the share of manufacturing has been stagnating at a low level of 17% of GDP for over two decades. One of the major reasons for the reduced level of contribution by Manufacturing has been the inability of the country to build and maintain

competitiveness needed to meet the global challenges as well as to develop a larger domestic market through low cost production. The negative impact of protection given to Indian industry through the aegis of licensing until 1991 has not yet worn off.

1.2 The average annual growth of the GDP was 5.8% during 1980s and it went up to a little more than 6% during the 1990s. While the contribution of agriculture to the GDP decreased from 31.3% in 1991 to 22.1% in 2003, the contribution of services increased from 41.9% in 1991 to 51% in 2003. The contribution from Industry had, however, remained stagnant around 27% of GDP between 1991 and 2003 which included the manufacturing component of about 17 percent. Refer Figure-1.

Figure -1: Share of Agriculture, Industry and Services in GDP

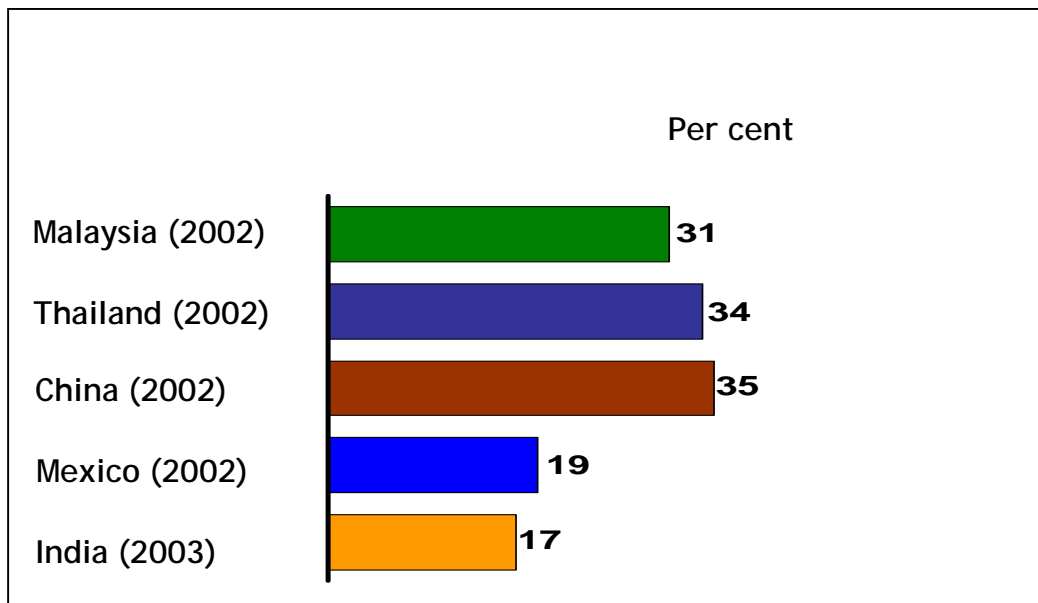


*Share of manufacturing sector in the GDP is about 17% and it accounts for 12 percent of employment*

The share of manufacturing sector within the industry sector has shown only a marginal improvement from 15.8% in 1991 to 17% in 2003. In comparison some of the East Asian economies have recorded a share of manufacturing ranging from 25% to 35% of their GDP as evident from

Figure - 2.

Figure -2: Share of manufacturing in GDP



Source: 2004 World Development Indicators

- 1.3 India's share in the global trade is less than 1%, which is much below the potential. Manufactured goods form three-fourths of all exports from India. Five manufacturing sectors viz., Gems and Jewellery, Textiles and Garments, Engineering Goods, Chemicals, Leather and Leather Goods account for over 75% of India's manufacturing exports. The two trading blocks, US and EU, receive more than 50% of exports from India.
- 1.4 Manufacturing is crucial to the Indian economy. The effect of improvement in manufacturing sector goes far beyond the goods provided by it. Manufacturing sells goods to other sectors and in turn buys materials and services from them for its growth and development. Manufacturing spurs demand for every thing from raw materials to intermediate components. It impinges on software to

financial, health, accounting, transportation, and other services in the course of doing business.

- 1.5 Needless to say that manufacturing sector has to carry the major burden of increasing employment opportunities in the coming decades directly or indirectly. This is particularly valid for the unemployed coming from rural and agricultural sectors. Growth of manufacturing sector lends greater support to

*Robust growth of manufacturing sector is necessary for creating overall growth and employment possibilities in the economy*

Agriculture through more intensive efforts on agro-based Industries. It also creates strong multiplier effects in the services sector in areas like traditional trading, financial services, transport etc. Therefore, the overall employment effect of manufacturing would have to include the indirect generation of

employment in the services sector. Besides, within the service sector those of the sub-sectors that are linked to the manufacturing directly need to be concentrated upon as they provide substantial job opportunities. It is, therefore, necessary that robust growth of the manufacturing sector is ensured for creating overall growth and employment possibilities in the economy.

- 1.6 The backlog of unemployment is estimated to be more than 34 million in 2005. It is expected that over the next twenty years, the total proportion of workforce involved in agriculture is likely to decline from 56 per cent to about 40 per cent, and this would call for finding substantial non-farm employment opportunities. While service sector would provide high quality employment opportunities which are, indeed essential in the growth process, it is likely to benefit only a fraction of the job seekers entering the market. From the year 1990 or so the employment intensity of the growth process of the Indian economy as well as of manufacturing has been declining. The employment elasticity for manufacturing which was at 0.59 between 1983 to 1987 had fallen to 0.38 between 1983 to 1993 and further to 0.33 in the period 1993 to 1999. Increases in capital intensity as well as increase in labour productivity are the important causes for this phenomenon<sup>1</sup>.

- 1.7 For over twenty years, powerful developments globally as well as within the country have impacted on Indian manufacturing sector. First is the substantial

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<sup>1</sup> Tenth Plan document (Vol. I)

reduction in trade barriers across the globe and in India, particularly in respect of manufactured goods. Second is the technology revolution that is taking place impacting on productivity and lowering of costs and the third is the emergence of low cost manufacturing hubs - China and other South East Asian countries. All these meant that the Indian economy and the manufacturing sector in particular, have to necessarily adjust to these challenges. Economic reforms introduced in India particularly since 1991 are aimed at making the Indian economy and Indian industry more efficient and competitive. The Indian economy continues to be progressively liberalized leading to its greater integration into the global economy. Liberalization and globalization have provided unprecedented opportunity for the growth and expansion of the industry in general and the manufacturing sector in particular. At the same time the Indian industry is also faced with stiff competition from imports due to progressive tariff reduction.

1.8 The manufacturing sector in India, for all these reasons, grew annually only at an average of 6.3% during 1991 to 2003 as against over 12% in China. The low levels of manufacturing growth in the above period had its adverse impact on the balanced growth of the economy and on employment generation. Given the background, improving competitiveness alone will enable the Indian Industry to take full advantage of globalization and grow at a healthy rate.

1.9 There is no denying that India possesses a comparative advantage in many respects. With its experienced work force, large pool of scientists, engineers

*Competitiveness is central to robust growth of the manufacturing sector*

and managers, reasonable endowment of natural resources and a large domestic market India has the potential to emerge as a major manufacturing hub for the global market. This can materialize quickly only with improvement

in the competitiveness of its Industry. Rising productivity is the key to maintaining and improving competitiveness of manufacturing. Innovation is the driver of productivity. Productivity gains in turn ensure economic growth as well as higher standard of living. Rising productivity would help provide goods at lower costs, improve the purchasing power of the common man, and thus accelerate the domestic demand. Thus, competitiveness is central to robust growth of the manufacturing sector; In turn the Manufacturing sector is crucial for the overall growth of the economy as well as for providing jobs to the large

work force entering the job market every year, particularly from the rural areas.

- 1.10 The challenges faced by Indian manufacturers raise important questions for both industry and government. While industry has to grapple with problems within the Industry to maintain a competitive edge in a global environment, the

*Meeting challenges faced by manufacturing sector calls for 'breakthrough' thinking on the part of all stakeholders*

government will have to create conditions that foster a healthy and competitive manufacturing sector. This would involve among others improved infrastructure and substantial additional investments for creating capacities to meet the growing

needs and for the modernization of the Industry. Meeting the enormous challenges faced by Manufacturing sector calls for a 'breakthrough' and bold thinking on the part of all stakeholders. Only bold aspirations can enable India to benefit from the emerging opportunities in the manufacturing sector.

- 1.11 The National Manufacturing Competitiveness Council (NMCC) will facilitate this process by functioning as an inter-disciplinary autonomous body to serve as a policy forum for credible and coherent policy initiatives. The NMCC will provide a continuing forum for policy dialogue and to energize and sustain the growth of manufacturing industries. The NMCC is expected to suggest various ways and means for enhancing the competitiveness of manufacturing sector including identification of manufacturing sub-sectors which have the potential for global competitiveness. It will take into account the current strengths and constraints of identified sectors, and recommend National / sector / industry level specific policy initiatives as may be required for augmenting the growth of the manufacturing sector. The Council is also expected to help in the implementation of the strategy.

- 1.12 The NMCC realizes that the issues confronting the manufacturing sector are varied and cover a vast area. They, in fact, span the entire gamut of the Indian economy. In order to attain competitive edge in manufacturing the constraints being faced by the sector have to be mitigated. The generic issues such as lack of proper infrastructure, higher transaction costs, higher interest rates, inadequate power and other disabilities and regulatory issues, among others, are being addressed in document 'The National Strategy for Manufacturing'.

Detailed further studies in respect of the generic issues would be undertaken as necessary.

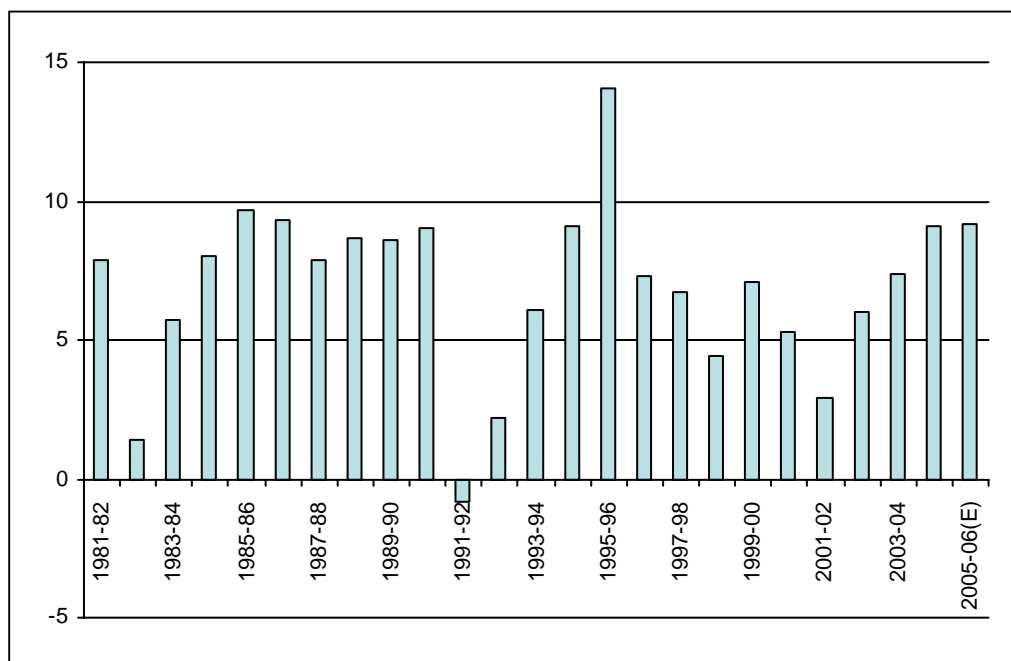
- 1.13 Simultaneously, sub-sectors of manufacturing such as Leather and Leather goods, Textiles and Garments, Capital Goods, Auto Components, Handicrafts, Gems and Jewellery etc., are being addressed by the National Manufacturing Competitiveness Council and action plans for implementation would be prepared. The NMCC would also prioritize the recommendations for implementation into short term, medium and long term time horizon based on their potential to yield results and also follow up with the concerned on their implementation in a time bound manner.
- 1.14 'The National Strategy for Manufacturing' attempts to identify the areas of policy and outlines the strategic directions that need to be pursued in order to realize higher levels of growth and employment. Section 2 of the paper details the manufacturing growth perspective. The challenges faced by the Indian manufacturing sector along with strategy prescriptions are enumerated in Section 3. Section 4 lays out the way forward which include the key recommendations. The steps recommended in this paper are only the start of the process and not the end.

# 2 Manufacturing growth perspective

## 2.1 Growth trends of manufacturing sector

2.1.1. The manufacturing sector grew at an average rate of around 7% per annum during a twenty year period. The share of this sector in the GDP stagnated around 17%. The share of manufacturing in the GDP as well as its own growth rate over the two decades has not been consistent. The share of manufacturing in the year 1980 was 16.3% of GDP. This rose to 17.2% by 1990 and 18.25% by 1996-97. However, it declined in the subsequent years to about 16% by the year 2000. Within this period of two decades while the average growth of manufacturing was 7 percent, the sector was able to achieve a creditable growth rate of around 9 to 10% in spells, i.e., between 1988-91, 1993-97 and again 2003-2005. Manufacturing growth over the years as per the Index of Industrial Production (IIP) is reflected in Figure-3.

Figure - 3: Growth in IIP Manufacturing (*CSO data*)



2.1.2. The industry sector as a whole grew at an average annual rate of 6.8% during 1981-91 while it fell to 6.4% in the decade 1991-2001 despite the fact that many of the reforms undertaken during the period were aimed mainly at this sector. In the post 1991 period while the sector grew at an average rate of 9.3% during 1993-97, its growth fell sharply to 4.9% in the subsequent four years. It once again picked up since 2003 registering a growth rate of 8.9% in 2004-05.

2.1.3. In this Section, the reasons for low growth rate of manufacturing generally, and particularly in the later part of 1990s will be briefly discussed. The next section would consider the rate of growth of

*India has to aim at achieving a long term GDP growth rate of 8 to 10 percent to substantially improve the living conditions of its people*

manufacturing that the country needs to aim at for achieving a growth rate of 8 to 10% of the economy and also for generation of the much needed employment. A brief analytical discussion on the subject has been included in that section. In order to

attain higher levels of growth in manufacturing, it is essential that the enterprises produce goods at globally competitive prices and quality and at the national level appropriate conditions need to be created by Government for fostering competitiveness. The last section in this chapter addresses the issues relating to manufacturing competitiveness.

2.1.4. India followed in the first four decades after independence, an inward-orientated, heavy industrialization strategy with the aim of becoming self-reliant. That strategy enabled, on the positive side, to build a large and diverse industrial sector. Over time, Industry sector also accumulated impressive technological capabilities. Because of lack of competition and restriction on imports the growth was accompanied by wide-spread technological lags and inefficiencies. The sector also suffered from a number of policy-induced constraints. These included restricted access to new technologies and capital goods, restricted foreign investment, limiting the size of private domestic company's, reservations in favour of public enterprises, government direction of investments, inadequate investment in infrastructure and a stifling culture of red tape. The trade and industrial regime followed by India unfortunately resulted in a

situation where it lost its position as the leading exporter of manufactures in the developing world which it once enjoyed. India was largely bypassed by the globalization that drove industrial development and exports in many other industrializing countries.<sup>2</sup>

2.1.5 The fact that in spells the growth rate of manufacturing was much above the average rate indicates that it should be possible to achieve not only those rates of 9 to 10% consistently but also improve upon the same through appropriate measures and action. When one analyzes the reasons for the growth of manufacturing in these spells, it is clear that the spurt in growth rate in the period 1988-91 was partly the result of the unleashing of reforms in the industrial sector for the first time at that time, even though quite modest by the measure of the reforms of 1990s, and also by the expansionary policies that were followed during the period. The growth rate was higher in the period 1993-97 because of the investment boom that occurred following the sweeping reforms of the domestic Industrial Policy in 1991. The years following this boom witnessed a steep decline in growth rates of manufacturing partly because of the excess capacity created in the boom period as well as the cyclical downturn of the business coinciding with that period. However, since 2003 this trend has reversed.

2.1.6 At the policy level, it would be necessary to draw lessons from these episodes of high growth in some years for future strategies. First, it is

*For achieving a 12 percent growth rate in manufacturing government needs to create appropriate conditions whereby there is a consistent level of investment, both domestic and foreign, in manufacturing and in infrastructure*

necessary for the Government to create appropriate conditions whereby there is a consistent level of investment both domestic and foreign, in manufacturing and in infrastructure. Secondly demand needs to be generated for goods and services through domestic policies as well as

foreign trade policies. There are a number of areas where both Government and industry need to act in order that the manufacturing

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<sup>2</sup> Competitiveness, Technology & Skills by Sanjaya Lall

sector becomes competitive and thereby attracts investment and also provides necessary growth impetus to the economy.

## 2.2 Desirable Growth Rates

2.2.1. Manufacturing growth is imperative for achieving balanced growth of the economy and generating adequate employment. For this purpose, it is necessary to determine the manufacturing growth that would help a higher growth rate of the economy as well as ensuring longer employment.

2.2.2. In order to substantially improve the living conditions of Indian people, it is necessary to achieve a growth rate of GDP of 8 to 10 per cent

*Manufacturing growth is imperative for achieving balanced growth of the economy and generating adequate employment*

consistently over a longer period. The mid-term appraisal of the Tenth Five Year Plan (2002-2007) of the Planning Commission observed that the overall GDP growth rate for the Plan as a whole is unlikely to exceed 7 per cent during

this period. Given this projection, a growth rate of 8 per cent plus would be well within reach for the period 2007-12. Notwithstanding the low base in 2002-03, the GDP growth of 8.5% in 2003-04 is significant. Similarly, the GDP growth of 6.9% in 2004-05, given the high base in 2003-04 is also noteworthy. In this background and looking at the potential of the economy to aim at a long term growth rate of 8.5 to 9 per cent appears reasonable.

2.2.3. GDP's sectoral composition has agriculture, industry and services components. Pure agriculture and allied activities account for 22.1% of GDP<sup>3</sup>. The historical trend for growth in this sector has never been more than 3%. Even if one assumes that an optimistic rate of 4% is achieved, with a share of 22.1%, this would contribute 0.884% to GDP growth. In case of services sector, a trend growth of more than 10% is not unreasonable and with a share of 51%, this would contribute 5.1% to GDP growth. Therefore, achieving a 9% GDP target would still require a 3.016%

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<sup>3</sup> *Economic Survey 2004-05* points to a further decline in agriculture's share of GDP to 21% and a decline in work force employed in agriculture to 57% (1999-2000).

contribution from the Industry sector. With a contribution of 26.9% (including mining and quarrying), the industry sector needs to grow at 11.21%. Even though industry sector includes components of (i) mining and quarrying, (ii) manufacturing, (iii) electricity, gas & water supply and (iv) construction, manufacturing alone accounts for a weight of 79.36%<sup>4</sup> in the IIP index. An average growth of 6% in the other three components of industry requires manufacturing to grow at 12.26%. In case the growth rate of 10 percent per annum for the economy is to be aimed at the rate of growth of manufacturing may have to be much higher.

2.2.4. The fact that the manufacturing sector grew at 9 to 10% in three spells of three to four years in the past two decades indicates the growth potential of the sector. With appropriate policy interventions by Government and renewed efforts at improving productivity by the Industry it is possible for the manufacturing sector to achieve an average growth rate of 12 per cent over a period of next ten years.

2.2.5. Industry's share of GDP was 27% in 2003-04 which manufacturing, contributed 17% to GDP and, non-manufacturing (mining and quarrying; electricity, gas and water supply; construction) contributed the remaining

*To achieve a balanced growth of 8 to 10 per cent of the economy, the country should target a minimum manufacturing growth rate of 12 percent per annum*

10% to GDP. Share of manufacturing is a function not only of the manufacturing growth, but also of the growth in the other sectors. The historical trend shows that it has taken more than 20 years to increase the manufacturing share in GDP by

about three percentage points to around 17%. Trend growth rate in manufacturing over the last ten years has been around 7% and the required average growth rate as pointed earlier, over the next decade has to be, at least 12%. Given manufacturing's present share of 17% of GDP, the difference in its growth rates of 7% and 12% translates into 0.9% incremental GDP growth. Even with a growth rate of 12 per cent, the share of manufacturing in GDP is expected to reach only 23% by 2015 on the assumption that other sectors of the economy grow at their trend rates. Therefore, the aim of the country should be to ensure that the

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<sup>4</sup> As a weight in the index of industrial production.

manufacturing sector grows at a minimum average rate of 12% over the next ten years.

- 2.2.6. The overall or aggregate target of 12% growth, needs to be disaggregated according to manufacturing sub-sectors to enable identify policy as well as

*Jobs to the millions joining the workforce can be provided adequately only through a robust revival of manufacturing sector*

firm level actions required to achieve reasonable levels of sub-sectoral growth rates. The index of industrial production (IIP), is divided into 17 industry groups at the 2-digit level of classification<sup>5</sup> based on the National

Industrial Classification (NIC). Based on the manufacturing sector performance in 2003-04 and 2004-05, the table at Annex-1 shows aspirational growth targets for the 17 industry groups ranked in descending order. As the table shows, 10 per cent growth rate in manufacturing is within the realm of possibility and a target of 12 per cent can be achieved by sustained implementation of various reforms and other actions recommended in this paper.

## 2.3 Manufacturing and Employment

- 2.3.1. Provision of gainful high-quality employment has been a key element of the goals of successive Five Year Plans including the 10<sup>th</sup> Five Year Plan. However, it is noticed that the GDP growth in the 90s did not translate into higher rates of growth of employment. The reason for this, as noted elsewhere, is due to the twin effect of capital intensity as well as increase in labour productivity.

- 2.3.2 The National Sample Survey (NSS) held in 1999-2000<sup>6</sup> points to a slowdown in the annual average growth in employment. While the average annual growth rate in employment was 2.89% between 1983 and 1988 and 2.50% between 1987 and 1994, it declined drastically to 1.07% between 1993 and 2000. It is estimated that nearly 10 million people will join the workforce annually between 2005-2015 and would require to be provided with employment. In this context, it needs to be noted that the

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<sup>5</sup> IIP only covers 80% of manufacturing.

<sup>6</sup> Large NSS surveys are roughly held at five-year intervals. Before 1999-2000, the last one was in 1993-94.

present growth pattern led by high service sector growth and a stagnant manufacturing sector is leading to a rural-urban divide. The history of economic development followed a pattern of pulling people out of agriculture, moving them into non-farm activities such as into manufacturing and then into services. Hence the solution to provide jobs to the millions joining the workforce can mainly be through a robust revival of manufacturing sector which can match the rapid growth performance of the services sector.

2.3.3. Within industry, the employment in manufacturing was 40 million in 1999-2000. Between 1993-94 and 1999-2000 the employment elasticity in manufacturing dropped to 0.33 as compared to 0.59 during the period 1983 and 1988. It is estimated that a 12% growth rate will create 1.60 million employments with present employment elasticity. If the employment elasticity were to improve to the earlier higher level of 0.59, then 2.9 million new direct jobs per year would get created in manufacturing sector. These are figures on direct job creation. In addition, indirect jobs estimated at two to three times the direct employment figures would be created as a result of multiplier effects. The questions that arise are: - (i) whether increase in competitiveness in manufacturing would be contradictory to growth in employment and (ii) whether, in the light of the experience of the 90s one can reasonably assume an increase in employment elasticity to the levels of the period of 1983-88.

2.3.4 It is important for India that the GDP growth is accompanied by a substantial increase in employment as well. The quest for competitiveness

*Policies of Government should increase the employment content of growth without sacrificing competitiveness; sub-sectors such as Textiles & Garments, Leather & Leather Products, Food Processing etc. are right candidates for such growth*

at firm level might result in reduction of employment to begin with. But the overall increase in competitiveness in the sector in which the firm operates would lead to enhanced opportunities that not only drive demand but also generate employment through the spread effect. There

are also sub-sectors such as Textiles and Garments, Leather and Leather

Products, Food Processing etc., which are good employment generators while being competitive. Special attention to these sectors would also enable employment objective achievement.

- 2.3.5. The elasticity of employment is expected to increase due to the fact that much of the excess capacity created in the first half of 1990s has been utilized in the decade of 1990s and fresh investments in manufacturing have started since 2004. It is expected that higher growth rates which will improve the incomes of the consumer would also generate substantial demand for manufacturing goods and thereby ensuring further expansion. Parallely, the policy of Government should increase the employment content of growth without sacrificing the objectives. There are many labour intensive sectors where employment generation can be achieved through right kind of policies. These include among others food processing, small and medium enterprises, garments sector, leather and leather goods, etc. The focus of the manufacturing strategy would have to be directed in favour of such industries as they would contribute both to overall growth of the economy as well as employment generation.

## **2.4 Improvement in Competitiveness**

- 2.4.1. Competitiveness is crucial to the growth of manufacturing sector. The issue of competitiveness has also come to much greater focus in the recent years in both the developed and the developing countries in the wake of globalization. Countries and the firms are compelled to readjust to the new situation and become competitive.
- 2.4.2. Competitiveness in the case of manufactured products is rather hard to define, because its two basic elements - price and quality of product- are in practice not easily compared. Price comparisons without regard to quality are meaningless and quality is difficult to specify in the face of product differentiation. Competitiveness cannot simply be viewed as a country's ability to export or generate trade surpluses, since these can be brought about at least temporarily by means of artificially lowering the exchange rate and/ or compressing domestic expenditure.

2.4.3. It is also not possible to adopt a simple definition of competitiveness. It is in fact, a multi-dimensional concept that embraces the ability to export, efficient use of factors of production and natural resources, and increasing productivity that ensures rising living standards of a nation. It depends on basically three sets of factors all taken together, viz. (i) the macroeconomic environment; (ii) the ability to absorb, use, and develop technology to reduce production costs, improve product quality, and innovate new products; and (iii) marketing strategy and arrangements covering such diverse factors as packaging, sales networks, and after-sales service. These factors are intimately inter-related. For example technological progress is often embodied in new plant and equipment, which is dependent on the rate of investment and economic growth, a domain of macro economic policy. Economic success therefore depends on a country's ability to break into the virtuous circle of investment-economic growth and competitiveness.<sup>7</sup> Improvement in competitiveness therefore has to ensure improvement in National competitiveness as well as firm level competitiveness.

*Improvement in competitiveness has to ensure improvement in National competitiveness as well as firm level competitiveness*

2.4.4. The OECD definition of competitiveness is most often quoted and appears to cover the wider contours of what competitiveness is about.

‘Competitiveness (should) be understood as the ability of companies, industries, regions, nations and supranational regions to generate, while being and remaining exposed to international competition, relatively high factor income and factor employment levels on a sustainable basis.’

2.4.5. At a very broad level, some indications of National competitiveness can be obtained from *Global Competitiveness Report (GCR)*, published by World Economic Forum<sup>8</sup> (WEF). This has a Growth Competitiveness Index (GCI) which captures an economy's capacity to grow in the future. GCI builds

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<sup>7</sup> INTERNATIONAL COMPETITIVENESS : PUBLIC SECTOR/ PRIVATE SECTOR INTERFACE Edited by Irfan ul Haque. Report on the seminar held in Seoul, Republic of Korea, April 18-21, 1990. Organised by Economic Development Institute of the World Bank and the Korea Development Institute.

<sup>8</sup> Since 1979.

on three pillars of (i) macroeconomic environment, (ii) public institutions and (iii) technology. While the report is not about manufacturing competitiveness alone, manufacturing does form an integral part of the rankings.

2.4.6. Finland with a GCI score of 5.94 ranks 1<sup>st</sup> among 117 countries in 2005-06. India with a GCI score of 4.04 ranks 50<sup>th</sup> compared to its score of 4.07 in 2004-05. On the three pillars mentioned above, following have been the scores for India.

	Rank in 2005-06 out of 117 countries	Score in 2005-06	Score in 2004-05
Technology index	55	3.42	3.72
Public Institutions index	52	4.52	4.45
Macro-economic index	50	4.17	4.05

This indicates that while India improved its performance in respect of Public Institutions Index and Macro-economic Index, it lost in the Technology Index.

2.4.7. Chapter 3 of the report outlines the challenges faced by the manufacturing sector and the actions needed for improving the competitiveness, at the National level as well as at the firm level, in order to achieve the desirable growth rate as well as enable sizeable employment generation.

# 3 Challenges facing Indian Manufacturing

## 3.1. Role of Government and Industry in creating conditions for growth, investment & employment

3.1.1 Challenges facing Indian manufacturing warrant appropriate responses from both the government as well as the industry for improving the

*Growth of manufacturing sector is dependent on government policies which influence the market environment well as on the role played by the industry itself*

competitiveness of the sector. Therefore, to improve overall competitiveness of any product, it is essential to improve National level competitiveness as well as firm level competitiveness. This chapter addresses both these aspects. The

growth of manufacturing sector is dependent on government policies which influence the market environment in which the businesses operate as well as on the role played by the industry itself. There are certain areas where both Government and Industry need to put in efforts, preferably, through a well-designed Public-Private partnership mode. Government would need to deal with, among others, the following principal challenges:

- Ensuring macro economic stability including containment of core inflation
- Ensuring cost competitiveness and stimulating domestic demand
- Strengthening education & skill building
- Investing in innovations & technology
- Enabling speedy development of infrastructure
- Providing right market framework & regulatory environment to reduce transaction costs
- Ensuring effective coordination between Central, State and Local levels

- Creating a standing mechanism for resolving manufacturing policy issues.
- Enabling Small & Medium Enterprises (SMEs) to achieve competitiveness
- Enabling Public Sector Enterprises (PSEs) to meet competitive market conditions

3.1.2. In so far as the Industry is concerned, it needs to deal with the following challenges:

- Investing in R&D and technology,
- Showing a continuing commitment to skills development & knowledge enhancement,
- Adopting global standards and Benchmarking their performance against the best in the class,
- Adopting best manufacturing practices & production techniques, and
- Increasing the scale of operations and delivering on globally acceptable quality levels.

3.1.3 The manufacturing sector in India needs to access the vast market

*The manufacturing sector in India needs to access the vast market possibility available at the bottom of the income pyramid in the country*

possibility available at the bottom of the income pyramid in the country. For this, they need to design, produce and offer at affordable prices products suitable for Indian conditions and appropriate for these people. This large potential market still remains to be

exploited.

## 3.2. Ensuring macro-economic stability

3.2.1 The first essentiality for ensuring manufacturing competitiveness is

*The first essentiality for ensuring manufacturing competitiveness is macroeconomic stability*

macroeconomic stability. Large fluctuations in economic variables like output, employment and inflation add to the uncertainty for firms, consumers and the public sector, and can reduce the economy's

long-term growth potential. Therefore, it is important to maintain long-term economic stability through a macroeconomic framework which includes appropriate monetary and fiscal policies and ensures sound public finances based on the principles of transparency, responsibility and accountability. This would enable to plan more effectively for the long term, improving the quality and quantity of investment in physical and human capital; and help to raise productivity and sustainable rates of growth and employment in the manufacturing sector in India. These however call for a coordinated approach between the central, state and local governments.

- 3.2.2 In order to achieve a 12% growth rate in manufacturing, the government policy framework should encourage the sector to become competitive, among others, by : (a) encouraging global scale of operations, (b) enabling financial institutions to finance such projects, (c) attracting large scale investment both domestic and foreign, (d) addressing issues faced by companies, particularly the Small and Medium Enterprises, such as risk management and debt restructuring, and (e) catalyzing infusion of modern technologies for improving competitiveness.

### **3.3. Ensuring cost competitiveness and stimulating domestic demand**

- 3.3.1 Recent studies have shown that India suffers on competitiveness due to various factors such as:

- higher import duties including inverted duty structure
- higher incidence of indirect taxes
- sub-optimal levels of operations
- lower operational efficiencies
- higher transaction costs
- lower labour productivity
- higher cost of capital
- inadequate infrastructure

3.3.2 One such study<sup>9</sup> points to the retail price of Chinese products being lower by 30% in general in comparison to Indian products inspite of similar labour and other input costs. Indian manufacturing would be competitive only when the cost of manufacturing is low. Scaling up of operations would be difficult to achieve without a strong demand and robust growth of domestic demand is essential for achieving the overall growth rates. Policies for enhancing domestic demand should also be expeditiously put in place by the Government as these would also drive an increase in share of manufacturing in the economy. Lowering the cost of manufacture and improving the quality are of high priority.

*Lowering the cost of manufacture and improving the quality are essential for competitiveness*

#### 3.3.4. Import duties

3.3.4.1 The argument that import duties need to be reduced is usually advanced when items imported are raw materials and intermediates and not finished goods. The Kelkar Task Force<sup>10</sup> recommended a four-tier import duty (for manufactured goods) structure in 2006-07: 5% for basic raw materials (coal, ores and concentrates, xylenes, etc.), 8% for intermediate goods (capital goods, basic chemicals, metals, etc.), 10% for finished goods other than consumer durables and 20% for consumer durables. The peak import duty is already down to 15%<sup>11</sup>. It is evident that the peak import duty will be no more than 10% in future. In the interest of a stable policy regime stage wise downward duty reductions should be calibrated so that the Indian Industry gets time to readjust.

3.3.4.2. There is a plethora of Free Trade Agreements (FTAs) entered into outside the WTO system, which invariably involve manufactured products providing for zero duties eventually. Some of them have given rise to inverted duty structures which needs to be addressed. The policy

*The inverted duty structure caused by FTAs as well as in all cases even otherwise needs to be rectified*

<sup>9</sup> Learning from China to unlock India's manufacturing potential, CII-McKinsey Report, October 2002.

<sup>10</sup> Report of the Task Force on Indirect Taxes, Ministry of Finance and Company Affairs, December 2002.

<sup>11</sup> Union Budget 2005-06

problem is the following. Should we standardize the duties or should we attempt to differentiate? And as long as general reduction of import duties is not acceptable, the FTA problem will remain. However the inverted duty structure caused by FTAs as well as in all cases even otherwise needs to be rectified.

- 3.3.4.3. In the cases where the basic customs duty is zero, imported products should face duties equivalent to domestic indirect taxes paid by domestic manufacturers. The countervailing duty (CVD) is meant to do precisely this, but is presently only equal to central excise and ignores State-level sales tax and other local levies. The 2005-06 Budget has a provision for an additional CVD of 4%, but that is presently restricted to IT products and needs to be extended to other items. Unfortunately, this reform gets linked with reform of the domestic indirect tax system. An alternative would be to levy VAT on all imports at a normal VAT rate of 12 ½%.

### 3.3.5. Domestic indirect taxes

- 3.3.5.1. Domestic indirect taxes are often singled out as a major reason why Indian manufacturing is uncompetitive. For instance, many studies argue that total taxes on manufactured goods are 25 to 30% of the retail price in India, compared to 15% in China. Indirect taxes contribute 50% to the difference in retail prices between India and other low-cost countries. Lower duties would also boost the domestic market and permit synergy (exploitation of economies of scale, attracting FDI) between domestic and export markets. Therefore, there is a case for reduction of domestic indirect taxes both from the point of boosting domestic demand as well as improving export competitiveness.

*Domestic indirect taxes are often singled out as a major reason why Indian manufacturing is uncompetitive*

- 3.3.5.2. Reforming indirect taxes is also contingent on reforming direct taxes. In 2004-05, total tax revenue is 10.2% of GDP if one includes

Central taxes alone<sup>12</sup> and 15% if state and local level levies are added. Given expenditure commitments and demands on the government, this ratio probably needs to be 3% more as share of GDP. Finance Ministry's Task Force on implementation of the Fiscal Responsibility and Budget Management (FRBM) Act, 2003 also argues that fiscal consolidation will primarily have to occur via the revenue route rather than the expenditure contraction route.<sup>13</sup> Central tax revenue as a share of GDP has stagnated at around 10% (sometimes even 9%) of GDP since 1990-91. FRBM projections visualize an increase to 12.96% in 2008-09, provided tax reforms take place. The simple point is that the indirect tax contribution to GDP must also increase. The argument for reducing multiplicity and increasing transparency should not be confused with a drop in this share.

- 3.3.5.3. The broad shape of indirect tax reform is clear. Indirect tax reform will perhaps work only if all exemptions are terminated over a period of time - viz. product-specific exemptions, SSI exemptions, location-based exemptions. Further, as per the FRBM, the total tax burden on most goods - by Centre and States - would in any case may not go below 20 %.

*It would be better to work towards a national VAT that would run in parallel at both Central and State levels in the absence of a GST*

combined Goods and Service Tax (GST) with service sector taxation integrated into the VAT framework instead of being a tax on turnover. Whenever it is accepted, this should be accompanied by a withdrawal of all other taxes like

central excise, central sales tax, octroi, State-level sales tax, entry tax, stamp duties, transportation taxes and so on. However, under the given Constitutional framework the comprehensive tax on goods and services would be difficult to materialize quickly. Instead, it would be better to work towards a national VAT that would run in

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<sup>12</sup> *Economic Survey 2004-05.*

<sup>13</sup> *Implementation of the Fiscal Responsibility and Budget Management Act, 2003, Report of the Task Force, July 2004.*

parallel at both Central and State levels which would achieve the same objectives of the GST.

### 3.3.6. Export incentives/export subsidies

3.3.6.1. Sustained export growth is crucial for maintaining and accelerating the GDP growth momentum. Export subsidies involve differential treatment to exports as compared to sales in the domestic market and are in general WTO-incompatible, although there are some

*Procedures connected with export incentives/subsidies continue to be cumbersome. These need to be simplified on a priority*

exemptions for India. Export incentives are WTO-compatible, as they involve reimbursements. Export procedures connected with export incentives/subsidies continue to be cumbersome.

These need to be simplified on a priority basis. In the long run, implementation of both DEPB and duty drawback will become simpler if there is a complete VAT system.

3.3.6.2. With liberalization across the board, liberalization in selected enclaves (EOUs, SEZs and AEZs) becomes somewhat irrelevant. Quite often, debates about SEZs/AEZs vis-à-vis EOUs are about equal treatment in sales to the DTA and about concessional customs duties on such DTA sales. With import duties declining, restrictions on DTA sales need a relook in the absence of complete liberalisation. The SEZ and other enclaves would have to continue in order to promote manufacturing. However the concept of economic regions with world class infrastructure but with no or minimal fiscal concessions should be considered as a long term solution.

### 3.3.7. Foreign Direct Investment (FDI) and Procedures

3.3.7.1. Foreign investments mean both foreign portfolio investments and foreign direct investments (FDI). FDI brings better technology and management, access to marketing networks and offers competition, the latter helping Indian companies improve, quite apart from being good for consumers. This efficiency contribution

of FDI is much more important. FDI inflow figures are 3.40 billion US dollars in 2001, \$ 3.45 billion in 2002, \$ 4.27 billion in 2004 and \$7.5-8 billion in 2005, there being a gap between approvals and inflows. This is still a far cry from China's \$ 53.51 billion in 2003 and the target of annual FDI inflows of \$ 10 billion a year. As per the UNCTAD FDI potential index 2001-2003, India's FDI ranking was 85<sup>th</sup> out of 140 countries<sup>14</sup>. In a large country like India, FDI as a share of GDP may not be very high. Barring certain sectors, FDI as a share of total investments will also not be very high. But there is no denying that India has under-performed and there is a need to attract FDI as it is a catalyzing factor for growth.

*There is no denying that India has underperformed in attracting FDI, which is needed as a catalyzing factor for growth*

3.3.7.2. The reasons for the under performance of India are obvious enough. First, FDI in manufacturing is now completely open, with Press note No.18 having been scrapped for new entrants, although there are some restrictions on mergers & acquisitions. Second, the bulk of cross-border FDI inflows are in the services sector and the services sector is still subject to equity caps, not everything having been placed on automatic approval. Third, policies in the infrastructure sector are often not in place. Fourth, there are procedural problems at all three levels of an enterprise's functioning - entry, functioning and exit, although foreign investors often tend to focus on the first. The expression transaction costs is sometimes used and such an expression also subsumes under it costs associated with inadequate infrastructure. A 2005 World Bank report benchmarks India's transaction costs with some other countries in the world.<sup>15</sup> According to this, it takes:

- 89 days to start a business in India, compared to 41 days in China.
- 67 days to register property in India, compared to 32 days in China.

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<sup>14</sup> UNCTAD Inward FDI Potential Index, 2001-2003

<sup>15</sup> *Doing Business in 2005*, World Bank, IFC and Oxford University Press.

- 425 days to enforce contracts in India, compared to 241 days in China.
- 10 years to complete insolvency proceedings in India, compared to 2.4 years in China.

Further in the 2006 World Bank Report<sup>16</sup> India is ranked 116<sup>th</sup> and China 91<sup>st</sup> among the 155 economies studied on the ease of doing business.

- 3.3.7.3. Conversion ratios (percentage of approvals converted to inflows) in respect of FDI vary widely across different States because of the fact that implementation of procedural reforms was not uniform.

### 3.3.8. Interest rates

- 3.3.8.1. High interest rates and availability of credit are problems which hinder growth of Industry. The 52 week average WPI inflation rate as of November 2005 was 5.07%.

*High interest rates and availability of credit are problems which hinder growth of Industry. Good macro-economic management is essential to contain interest rates*

With a PLR of 10.25%-10.75%, this means a real rate of interest of 5.18%-5.68%. It is recognized that the Banks are providing credit to some at sub-PLR rates, but the bulk of industry still gets credit at around PLR rate. In a capital scarce country,

real interest rates will never be as low as global interest rates, although this is qualified to some extent by the harmonization that has taken place between global and domestic interest rates. Some parts of the Indian corporate sector are now allowed to borrow globally, though the quantum is relatively small and all others have to access domestic market. Therefore, the need for good macro-economic management to contain interest rates needs to be addressed.

<sup>16</sup> *Doing Business in 2006*, World Bank, IFC and Oxford University Press.

### 3.3.9. Labour laws

- 3.3.9.1. It is essential to look at various labour related issues with the focus on creating an enabling environment that encourages growth and new employment in the manufacturing sector as well as promotes skill development/upgradation to enable such a growth to happen.
- 3.3.9.2. Reforming labour law has many dimensions and issues. The less complicated issues are dealt with in Chapter V-B of the Industrial Disputes Act (IDA). Labour is on the concurrent list of the Constitution and there are 45 Central Acts and 16 associated rules that deal directly with labour. There are others that indirectly deal with labour, like *the Boilers Act (1923)*, *the Collection of Statistics Act (1953)*, *the Dangerous Machines (Regulations) Act (1983)* and the *Emigration Act (1983)*. There is thus an issue of unification and harmonization.
- 3.3.9.3. Welfare provisions are an important part of labour law, however, this should not lead to unnecessary inspector raj. Each labour legislation has a separate inspector and visits of inspectors are not synchronized across all labour enactments. Barring *the Payment of Wages Act*, where a maximum period of three years is stipulated, no other labour statute prescribes a maximum period for which records and registers must be maintained and this aspect needs to be streamlined. Compliance thus becomes difficult. The present system is also not distributionally neutral as it tends to hurt the small-scale sector much more than it hurts large-scale industry.
- Each labour legislation has a separate inspector and visits of inspectors are not synchronized across all labour enactments*
- 3.3.9.4. Three statutes that impinge on industrial relations are: The Contract Labour (Regulation and Abolition) Act, 1970; The Trade Unions Act, 1926 and The Industrial Disputes Act, 1947.

- 3.3.9.5. *The Contract Labour (Regulation and Abolition) Act, 1970* allows flexibility and permits outsourcing. Section 10 of the Act provides the appropriate Government the discretion of prohibiting contract labour in selected areas. Government should retain the 1970 Act and tighten up Section 10 so that ambiguity about continuance of contract labour and absorption following abolition is removed.
- 3.3.9.6. The Government has introduced amendments in respect of *The Trade Unions Act, 1926* following the recommendations of the Second Labour Commission. The number of persons required for registration of a trade union will change from seven to 10 per cent of the labour force. Not more than one-third of office bearers (subject to a maximum of five) can be outsiders. And the holding of annual elections and auditing of accounts will be mandatory.
- 3.3.9.7. In *The Industrial Disputes Act (IDA), 1947* following is a list of sections which require a re-examination - Section 9-A, Section 11, Section 11-A, Section 17-B, Sections 22/23 and Chapter V-B/Sections 25-K, 25-L, 25-M, 25-N and 25-O. The argument about Chapter V-B of IDA is indeed a valid one. The provisions of the Act make recourse to the government and thus to Labour Commissioners, mandatory. Unless this rigidity in labour markets is removed, higher growth will not necessarily translate into greater employment. Competition cannot function without free exit. What is involved is not primarily an exit policy for labour. The Act makes it impossible for companies to exit. It becomes imperative that given the other provisions of labour legislation, the requirement of governmental permission can be dispensed with, without adversely affecting the interests of labour. While continuing to attempt a consensus on Chapter V-B of the Act it should be possible to amend other sections of IDA and also implement other labour law reforms.
- 3.3.9.8. The Second National Labour Commission on Labour submitted a report in 2002 which contained a number of recommendations including those relating to harmonization of Labour laws. If implemented, these recommendations will harmonize the laws

under five heads, viz., industrial relations, wages, social security, safety & welfare and working conditions. With the harmonization

*Government has to move in the direction of implementing the recommendations of The Second National Labour Commission on Labour*

Government has to move in the direction of implementing all the recommendations of the Second National Labour Commission.

not only will the flexibility improve in the organized labour market, simultaneously better social security provisions will also be made in the unorganized sector.

Government has to move in the

### 3.4. Strengthening education & skill building

- 3.4.1. Skill development is important especially for the manufacturing sector. Strengthening education & skill building need the attention of both the government as well as the industry in association with the academia.

*If Indian manufacturing sector has to grow at around 12 percent per annum, it will be necessary for the education and training system to produce at least 1.5 million technically skilled people every year*

Isolation of education (even training) from the production sector is the basic flaw of the Indian system. A serious mismatch is observed between the needs of the Industry and the availability of skilled engineers and technicians for manufacturing industry. In spite of surplus graduates in popular engineering streams, deficits were witnessed in computer, metallurgy, mining, sugar, paper, leather and rubber technology between 1997 and 2002. If Indian manufacturing has to grow at around 12 percent per annum, it will be necessary for the education and training system to produce at least 1.5 million technically skilled people every year. It is estimated that the country would need an incremental requirement of about 20 million skilled technicians by 2015<sup>17</sup>. As the country moves up the technology ladder and begins to produce more complex products in greater volumes, manufacturers will require workers able to use judgment and other thinking skills in the operation of advanced manufacturing processes

<sup>17</sup> CII-McKinsey Report 'Made in India' The next big manufacturing export story, Oct 2004.

and in the maintenance and repair of complex production equipment. Hence, qualitative growth in skilled manpower is essential.

- 3.4.2. Possibility of increasing the availability of technically skilled personnel at a rapid pace can only be achieved by involving professional institutions where necessary training and skills building infrastructure is available already or where they can be created at an incremental cost. Upgradation of the industrial training institutions can be ensured through a well designed public-private partnership. Some kind of government control will be necessary if planned target numbers are to be achieved.
- 3.4.3. The Indian manufacturing needs to attract the best brains to the sector if it has to become globally competitive. Conditions of service in the manufacturing areas would need to be improved to attract better candidates to this sector.
- 3.4.4. The quality of technical education at the vocational level as well as at the University and sub-university levels is a cause for concern. Special focus needs to be given to issues relating to the emerging requirements of Industry while designing the syllabi for these institutions. This calls for a revision of the curriculum at degree and diploma levels for all technical courses to keep in step with the changing requirements of the Industry. It is necessary that complex procedures for changing curricula and course syllabi are simplified through appropriate autonomy to concerned institutes which would enable them keep pace with developments in technologies.

- 3.4.5. It is important to attract the best minds to teaching and research in our institutes of higher learning especially in science and technology. The

*It is important to attract the best minds to teaching and research in our institutes of higher learning especially in science and technology*

current salary structure with the upper limit set is unable to attract the best talent. At present the salaries of Assistant Professors are well below those offered to fresh B. Tech. and MBA graduates by the industry. In the long run this is detrimental to the interests of the nation.

Generally there are 20,000 Post Graduate (PG) seats in engineering of which only 10,000 are filled while 4,00,000 enter Under Graduate (UG) education every year. This is to be contrasted with the USA where there

are about 60,000 seats each at the UG and PG level in engineering. At this rate there already is and there will continue to be a very severe shortage of teachers in Engineering and Technology. This situation calls for urgent steps to be taken by various concerned institutions and the government for attracting the best minds to teaching & research. PG education should also be strengthened and made more attractive through creation of world class research infrastructure in the IITs and IISc.

3.4.6. Any effort to improve human capital has to take into account the needs of not only the domestic market but also the increasing opportunities in the global market. It can be done only when the technical personnel are equipped to produce products of global standards. The public sector driven initiative, through The Apprentices Act, 1961 and ITIs (Industrial Training Institutes) has not been able to keep pace with changing requirements. The upgradation of the Industrial Training Institutes should therefore be pursued vigorously through public-private partnerships, with training authorities de-linked from certifying ones. The private sector should be encouraged to establish and operate demand driven technical training centres through financial and other incentives, under a carefully designed industry-managed, and government supported, quality control and accreditation system. Further, there is a need for developing a comprehensive 'National Vocational Education Qualification System' and setting up a Vocational Education & Training Institute in each State. Large private sector manufacturing/ engineering organizations must be encouraged to adopt Vocational Education Institutes through appropriate schemes.

3.4.7. At the shop floor level as well as at the entry levels in engineering departments relating to manufacturing a vast number of positions are manned by diploma-holders from the polytechnic institutions. Quite often, these diploma-holders form the backbone of the manufacturing sector at the 'hands on' level. In view of the rapid changes in the manufacturing technology it is essential that the polytechnic institutions are strengthened both in terms of the equipment, teaching faculty as well as the curriculum to meet the emerging needs of the manufacturing sector. The polytechnics are under the purview of the State Governments. Some programmes to strengthen the polytechnics particularly in terms of the hardware have

been implemented by some State Governments. However, considering the enormous requirement of skilled and well-trained technicians at this level, new investments will have to be made on nation-wide scale and in most of the States. Therefore, suitable schemes for accessing funds for this purpose should be urgently prepared and implemented. Wherever possible the public-private partnership mode may be explored to ensure that the training imparted is in line with the market requirement.

- 3.4.8 Government must take a lead role in initiating close interaction between academia-industry-government for creating 'Centres of Excellence in Manufacturing Technologies'.

### 3.5. Investing in innovations & technology

- 3.5.1. Innovation holds the key to increasing productivity, and productivity gains are the key to both economic growth and rising the standard of living.

*Innovation holds the key to increasing productivity and productivity gains are the key to both economic growth and rising the standards of living*

Increasing productivity is the key to maintaining competitiveness in manufacturing. In manufacturing, technological innovation comes in two forms. First, new Inventions provide a leap forward in technology. The other

form of innovation comes from the steady improvement in products and manufacturing processes within major technology life cycles. Such improvement involves many less dramatic innovations, but collectively these innovations have a significant effect. For example, incremental improvements in the ability to etch a higher number of functions on a microprocessor or to multiply the number of calls a fiber-optic cable can transmit have a remarkable effect over time. Both major and incremental innovations improve the competitiveness of the manufacturing sector and the economy as a whole.

- 3.5.2. Investing in innovations is one of the pre-requisites to attain global competitiveness. Investing in R&D to innovate in technology by the industry and the Government ahead of markets is necessary and should be encouraged. In fact the industry clusters encouraged by the government

accelerate the learning curve and confidence with opportunities for firms to learn from firms.

3.5.3. There are a number of areas relating to innovation and R&D in which government intervention including public investment is essential.

3.5.4. A review of the existing policies relating to R&D funding, incentives for supporting generic technologies, engineering and physical sciences by the

*A focused approach on Advance Technology Products is essential. A special group to study the potential for manufacture and export of Advanced Technology Products should be constituted*

government is necessary so as to take steps to encourage better coordination of efforts with greater focus on innovation and productivity enhancing technologies. The Advanced Technology Products have a sizeable market in the world. United States alone imports about US \$ 240 bn. worth of these products annually. The share of India in

this is very small and with its technical capabilities India should be able to manufacture and garner a sizable portion of this market. For this to happen, a focused approach on Advance Technology Products is essential. Hence it is suggested that a special group to study the potential for manufacture and export of Advanced Technology Products should be constituted. Further, priorities should be established for supporting advanced manufacturing technologies and prototype development and design innovations need to be supported through fund sharing/ enabling establishment of references, etc. Further, a coordination mechanism on Manufacturing Research and Development should be created.

3.5.5. The need is for creation of common testing facilities and centres of manufacturing technology excellence, if necessary through public private partnerships. Management of these by the beneficiaries themselves would encourage the Indian manufacturing industry to invest in innovations. Further, the Intellectual Property Rights framework needs strengthening by providing necessary infrastructure and human resources particularly in the case of the Patent and Trade Mark systems to encourage more Patenting and Trade Mark registrations.

- 3.5.6. Government should consider establishment of technology parks on the lines of those existing in USA {The Stanford Research Park OR Route 128 near Massachusetts Institute of Technology (MIT)} around institutions of higher technological learning..
- 3.5.7. In critical areas, in addition to tax relief measures on R&D expenditure government funding of research & development should be enhanced to support the efforts of the manufacturing sector. This would call for sector wise study of technology status and development of a model for R&D support by the government, especially in the areas of emerging technologies which have the potential to transform products, processes and services.
- 3.5.8. Government should consider setting up a 'Global Technology Acquisition Fund' to enable Indian industry to acquire very high technology intensive companies abroad, when ever such opportunities arise. Framework for administering such a fund needs to be separately worked out. This would also incorporate a national knowledge management centre with a technology-tracking cell. Attention is required to be paid to incentivisation of R&D in National R&D Laboratories and provide greater market orientation to Government funded R&D. The merger or consolidation of national technology institutions in similar areas of work also requires consideration in order to derive synergy and economies of scale.
- Government should consider establishment of technology parks around institutions of higher technological learning on the lines of those existing in USA*
- 3.5.9. It is equally important for the government to address issues related to Small Business innovation Research and Small Business technology transfer focusing on Manufacturing. The unique capabilities of the National Laboratories and the IITs and other Technical Institutions need to be leveraged to benefit the Small and Medium Manufacturing Industries. Special incentives should be provided for Innovation and Development of products that are needed by larger section of Indian society.

### 3.6. Infrastructure Development

3.6.1. Inadequate infrastructure renders Indian manufacturing uncompetitive. Economic Survey 2004-05 lists power, telecom, posts, roads, ports (airports and seaports), civil aviation, railways, urban infrastructure and legal infrastructure as infrastructure. As per the survey published in Global Competitiveness Report<sup>18</sup>, the top five problematic factors for doing business in India have been identified as inadequate infrastructure, inefficient bureaucracy, corruption, restrictive labour regulations and tax rates.

3.6.2. Poor infrastructure has been identified as major constraint in the growth and employment generation capacity of the manufacturing sector. There is

*The manufacturing sector is critically dependent on the infrastructure facilities particularly, in transportation sector – roads, railways, ports, airports etc. for movement of goods*

a need to reverse the trend of declining public expenditure in infrastructure creation by making concerted efforts. Recognising this Government has created a High Level Committee on Infrastructure

chaired by the Prime Minister which is a welcome initiative. The public-private partnerships route is being emphasised for raising funds and to improve techno managerial efficiency in implementation.

3.6.3 Among infrastructure sub-sectors there has been visible improvement in telecom, with roads sector following as a somewhat distant second. The contours of unbundling, user charges and regulatory agencies are known and the issue is simply one of getting infrastructure reforms implemented to stimulate private sector investments and public sector viability. From the manufacturing perspective, perhaps the most important infrastructure areas where reforms are to be speeded up are power, ports and railways, followed by roads.

3.6.4 Energy availability is critical to sustain industrial growth and competitiveness. Power supply remains the main physical infrastructure bottleneck to industrial growth on account of chronic shortages, high cost

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<sup>18</sup> World Economic Forum, Executive Opinion Survey (2003)

and unreliability. The average manufacturer in India loses 8.4 per cent a year in sales on account of power outages as opposed to less than 2 per cent in China and Brazil. The adverse impact on similar units in the

*It is estimated that power shortage alone contributed to a production loss of at least one per cent of GDP*

unorganized sector could be higher. It is estimated that power shortage alone contributed to a production loss of at least one per cent of GDP. The holistic perspective on the issue of energy needs to be developed through a comprehensive national energy policy to encourage investments in the area. The critical importance of the reliable power supply at reasonable cost for healthy growth of manufacturing sector needs to be recognized. In addition to the electricity sector there should also be added focus on harnessing coal mining potential, developing pipeline infrastructure for transportation of gas, encouraging renewable energy resources including bio fuels etc.

3.6.5 The manufacturing sector is critically dependent on the infrastructure facilities particularly, in transportation sector - roads, railways, ports, airports etc. for movement of goods (both manufactured as well as inputs for manufacturing). Therefore, improvement of these sectors should be urgently undertaken in view their direct impact on the competitiveness of the manufacturing sector.

3.6.6 Given the above challenges, government would need to:

3.6.6.1 Shortage of power has been an important factor in slowing manufacturing growth. Creation of power capacity ahead of demand would act as a catalyst for industrial growth. It is necessary to ensure that the State level power reform supported by rationalized regulatory framework is put in place to enable better access of quality power to the industry. The Electricity Act 2003 is a step in the right direction. It should be implemented speedily. Cross subsidisation of agriculture by industry has been rendering the industry less competitive. It is, therefore, necessary to study whether cross subsidy by the industrial users to meet the deficit from other user sectors is in the overall

national interest of growth and employment and further steps taken accordingly.

3.6.6.2 Ensure that additional investments are made, both in public and private sector, in increasing the port capacities (over and above the currently planned expansions). Further, port operations & procedures need streamlining by simplifying the number of procedures, automating the processes, etc. with a view to bring down customs clearance time.

3.6.6.3 While the Golden Quadrilateral (GQ) and the east-west and north-south corridor projects launched by the National Highways Authority of India (NHAI) are steps in the right direction. Further action in this regard needs to be taken to add further routes to the programme. Port connectivity is a major concern and needs to be addressed urgently and the GQ through targeted road development projects.

*High speed road and rail corridor projects connecting respective hinterlands to the ports should be taken up on priority*

High speed road and rail corridor projects connecting respective hinterlands to the ports should be taken up on priority.

### **3.7. Providing right market framework & regulatory environment**

3.7.1. Government has a major role to play in providing the right market framework and regulatory environment as these provide invaluable impetus to the competitiveness of manufacturing sector. Sound regulatory regimes increase competition, encourage efficiency and also enhance productivity growth. The regulatory reform in respect of economic regulations can promote cost savings, have positive effects on labour and capital productivity and thus promote growth and increase efficiency. The framework should ensure fair competition, better access to markets - both domestic and foreign, trade negotiations that ensure a level playing field for domestic manufacturers, review of existing regulations and reduce the burden of paperwork and inspector raj in respect of existing Laws, promote

sub-sector wise policy on regulation and examine the issues relating to regulatory accountability.

- 3.7.2. The adverse impact of regulations on SMEs is particularly large. This is because the SMEs are less equipped to deal with the complex regulatory requirements. The inherent strength of SMEs which is flexibility would also be hampered by unnecessary and complex regulations. Besides, the costs of administration of compliances have a disproportionate effect on them. The design and implementation of regulations need to take this into account.
- 3.7.3. Procedures related to compliance with environment & safety regulations have to be simplified. In this respect, on the lines of 'financial audit firms', government should identify certain special institutions or firms of reputation specifically in the area of 'environment & safety' to carry out necessary certifications.
- 3.7.4. The recommendations of the high powered committee<sup>19</sup> set up for improvement in the extant procedures for investment approvals and implementation of projects and for simplification of the procedures for both public and private investments should be implemented as soon as possible.
- 3.7.5. Consolidation of regulatory frame work by weeding out legislations that have outlived their utility, bringing others in line with the present day technological, environmental, competitive and social requirements will ensure effective administration as well as compliance.
- 3.7.6. Only clear cut rules, rationalizing approval/permission requirements of manufacturing industries, optimizing inspections by Regulatory Authorities etc. can significantly reduce the transaction costs to the manufacturing sector. Hence, government should focus on transforming the regulatory processes through re-engineering of procedures to reduce ambiguity & the need for discretion.
- 3.7.7 The Procedural and regulatory hassles inhibiting both domestic and foreign investment have been studied by a number of Committees of the

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<sup>19</sup> Report on Reforming investment approvals and implementation procedures, Dept. of IPP, November 2002.

Government in the past and have been well documented. The key issue is implementation of the findings of these committees. The implementation is

*An empowered group which can take decisions regarding reduction of procedures be constituted for a given period of time to ensure that the recommendations are issued in the form of government's decisions*

at the Central, State and local levels. Currently, the implementation is left to the individual Ministries in the Government of India as well as in the State Governments. It has been weak generally and in some cases non-existent. Many State Governments are also aware of the need for procedural

reform not only from the point of view of investors, but also to improve the overall Governance. However, the experience in this respect is not uniform across states and it is necessary to ensure that the State Governments are fully involved in pursuing the procedural reforms. The problem is pervasive and, therefore, requires a concerted action similar to what is being done in respect of the VAT by involving the State Governments in the entire process. It is, therefore, recommended that an Empowered Group which can would prioritize and persuade the States to implement reforms in respect of specific laws and regulation is constituted. The Group should be empowered also to review the implementation by both Central and State Governments periodically.

- 3.7.8. The recommendations of the Empowered Group would need to be pursued at the central Ministries as well as at State Governments level. One of the

*It is essential that both at the Central and the State levels independent commissions with a fixed tenure are set up solely for the purpose of cleaning up the procedures including the laws and regulations*

main reasons for weak implementation has been that the implementation has been left to the individual departments for whom this is one of the many activities that the department engages in and, quite often, is an item of low priority. It is,

therefore, essential that both at the Central and the State levels independent commissions with a fixed tenure are set up solely for the purpose of cleaning up the procedures including the laws and regulations. These Commissions would follow up on the specific suggestions of the Central Empowered Committee Recommended at 3.7.7. Ordinarily the recommendations of the commissions should be agreed in toto by the

Governments. The commissions' recommendations should receive the attention at the highest level in order to ensure that they are implemented with the necessary speed and determination by the concerned

### 3.8. Role of State Governments

- 3.8.1. Growth of manufacturing sector is conditioned by various actions, laws and regulations of Central, State and Local level government. It is therefore essential that the Centre as well as the States act in a coordinated manner to create the necessary conditions for investment and growth of the manufacturing sector by undertaking full fledged reforms in respect of the rules and regulations.
- It is necessary that the Centre as well as the States act in a coordinated manner to create the necessary conditions for investment and growth of the manufacturing sector*
- 3.8.2. The State Government have a crucial role to play since the actual activity of manufacturing takes place in the States. It is, therefore, very important that issues falling under the domain of the State Governments need to be addressed adequately and necessary reforms are undertaken in order to achieve the objective of sustaining the growth of manufacturing industry. Hence the need for continuous dialogue with the States and working together in the implementation of the reforms.
- 3.8.3. There is considerable variation between the competitiveness in different sectors and in different states. Several problems at the ground level lead to higher transaction costs. Hence, State Governments would need to address vital areas like taxation, availability of land and other infrastructure requirements like water, electricity, implementation of regulatory laws dealing with labour, environment, etc. in order to make manufacturing competitive.
- 3.8.4. An appropriate continuing mechanism for co-ordination between Centre and States should be established in respect of the Manufacturing Sector. This mechanism should include the States, the Centre, the Industry and the Academia.

3.8.5. Some of the important aspects at the State government level where immediate actions/reforms are necessary include:

- Providing the necessary investment climate for the growth of manufacturing in the states
- Providing infrastructure, particularly in respect of power, water, roads, etc.
- Development of a common format for computerization of required records.
- Doing away with multiplicity of inspections by large number of inspectors.
- Outsourcing various inspections to recognized private agencies.

### 3.9. Enabling Small & Medium Enterprises (SMEs) achieve competitiveness

3.9.1. The Small and Medium Industries form the backbone of Manufacturing Sector not only in this country but even in the developed countries. In India, the Small Scale Sector contributes to 40% of Manufacturing. The *Ensuring the competitiveness of Small Scale Sector is important as it would help in overall growth of Manufacturing Sector as also the National Economy* definition of the segment has evolved in the recent past to include not only the traditional Small Scale Industry (SSI) units but also Small Scale Service and Business Entities (SSSBE). The segment is, therefore, appropriately termed as small enterprises. The Small Industries Sector also contributes substantially to the exports. Therefore, ensuring the competitiveness of Small Scale Sector is important as it would help in overall growth of Manufacturing Sector as also the National Economy. The Globalisation provides both opportunities as well as challenges for the small scale sector. In a situation where the protection through tariffs is rapidly decreasing, the SMEs have to improve their competitiveness to survive. Opportunities to grow in a global market place are available to such of those Small Scale Industries which are able to access entry into the global value chain by virtue of their being internationally competitive. The others would need to reposition themselves and become competitive to meet the challenges if they have to survive. Among the several impediments preventing the

segment from achieving its full potential, the important ones are : access to timely and adequate credit (particularly, as a sequel to the general decline of the State financial corporations), technological obsolescence, infrastructural bottlenecks, lack of R & D linkages, marketing constraints and disabling rules and regulations.

- 3.9.2. One of the options before the SME segment is 'Mergers and Acquisitions' to obtain economies of scale. Another option is the cluster approach which can address the general problems of taxation, interest rate or FDI policies,

*Cluster approach should be the preferred route for improving the manufacturing competitiveness. New and innovative approaches to cluster development should be adopted*

and to harmonize and simplify procedures, including those relating to labour laws. In fact industrial clusters or growth poles approach covers all three (albeit somewhat overlapping) elements of the cluster approach - industrial clusters, artisan

clusters and agro-based clusters. For enhancing flow of credit to small enterprises in clusters, steps should be taken to encourage credit rating of these enterprises in conjunction with cluster-wide measures to minimize credit risks through capacity building of associations/self-help groups of small enterprises. This approach would also facilitate cost effective investment for improvements in common physical infrastructure, enhancement of skills, upgradation of technology and addressing the disadvantages of fragmented markets that small enterprises face individually. Therefore, cluster approach should be the preferred route for improving the manufacturing competitiveness. New and innovative approaches to cluster development should be adopted.

- 3.9.3. Certain set of Small Scale Units which produce items on a stand alone basis need to assess their position in a competitive world and accordingly take up actions to restructure their company. The issues relating to this set of units are indeed very difficult to handle in a globalizing world. They need to undertake expert studies as to specifically what kind of restructuring would be needed by them to become competitive and take actions to implement them. A National Manufacturing Competitiveness Programme (NMCP) being developed subsequent to the Union Budget 2005-06 announcements is particularly aimed to support such SMEs.

- 3.9.4. Small Scale sector should be encouraged as breeding grounds for innovation and technology development where it becomes the technology sources for larger companies. Towards this government must incentivise technology development in SMEs to enhance their competitiveness. Government has introduced the Small and Medium Enterprises Development Bill, 2005 in Parliament which seeks to facilitate the promotion and development of small and medium enterprises and enhance their competitiveness. What is needed is focused assistance (aimed at improving quality, productivity & resources) to the tiny component of the small enterprises because it constitutes over 98 per cent of the small enterprises engaged in manufacturing.
- Small Scale sector should be encouraged as breeding ground for innovation and technology development where it becomes the technology sources for larger companies*
- 3.9.5. Today's products are required to have a holistic convergence of technology, management and design which may not be always possible within SMEs, and which is again the role of a designer, requiring them to look for external expertise. Minimizing mind to market time and minimizing the risks during that has become very important for being competitive in today's market, which will also necessitate a systemic and methodical approach taken by a consultant/designer, which need to be communicated to the SMEs and effectively translated into practice. A Design Clinic approach needs to be considered to bring Indian manufacturing sector and design expertise on to a common platform and to provide expert advice and cost effective solutions on real time design problems, resulting in continuous improvement and value addition for existing products. This approach of Design Clinics at various States and clusters of the country will help in ushering a continuous competitive advantage to the SMEs.
- 3.9.6. It is imperative that in an increasingly globalizing environment the Small Scale sector has to become competitive to survive and thrive. Therefore, the National Manufacturing Competitiveness Programme (NMCP) has to be launched particularly to support medium and small enterprises in their endeavour to become competitive. The programme mainly deals with firm level competitiveness. It is designed to address the issues of competitiveness in the background of global challenges. The important

components of the scheme would include a National Programme on Application of Lean Manufacturing for the SMEs, Promotion of ICT among the SMEs, Technology and Quality Upgradation Support for SMEs, Support for Entrepreneurial and Managerial Development of SMEs, Enabling SMEs to become Competitive through Quality Management Standards, Enhanced use of Design Expertise and Intellectual Property Rights and necessary Marketing Support/Assistance to SMEs.

*A national programme on Application of Lean Manufacturing should be launched*

SMEs, Technology and Quality Upgradation Support for SMEs, Support for Entrepreneurial and Managerial Development of SMEs, Enabling SMEs to become Competitive through Quality

3.9.7 A National Quality Campaign as enabling platform for developing competitiveness of the Indian manufacturing industry is needed. Role of quality is to be visibly demonstrated in making SMEs competitive and more importantly in improving their business/financial performance. The orientation of the existing National Quality Campaign is to be changed with shifting the emphasis shifted from “Promotion of Quality Standards” to “Enabling SMEs to be competitive through quality management standards and quality technology tools”.

3.9.8 Unregistered firms constitute a very large proportion of small enterprises. Government has set up a National Commission for Enterprises in the Unorganized Sector to review, inter alia, the status of the unorganized sector in terms of its nature, size/spread, employment, etc., identify constraints with reference to the sector’s freedom of business and access to raw material, finance, infrastructure, technology, skills, markets, etc., and examine the existing programmes relating to employment generation, arrangements for estimating employment/unemployment and social security system for labour in the sector. Viable programmes for this sector need to be designed and implemented to improve their competitiveness.

*Viable programmes for improving the competitiveness of the unregistered manufacturing sector should be designed and implemented*

Unorganized Sector to review, inter alia, the status of the unorganized sector in terms of its nature, size/spread, employment, etc., identify constraints with reference to the sector’s freedom of business and access to raw material, finance, infrastructure, technology, skills,

3.9.9 The reservation of certain products for exclusive manufacture by the SSI units should be reviewed. To address this, the government has commissioned an independent empirical study to assess the impact of de-

reservation on SSI productivity and employment. The study should be completed early in order to ensure that the manufacturing in respect of the items under reservation becomes competitive leading to substantial growth of those sectors.

3.9.10 Following areas relating to the small scale sector require urgent attention:

3.9.10.1 Ensuring better credit delivery to the SSI sector by RBI and that a larger role given to SIDBI in direct lending to SSI sector. State Finance Corporation (SFCs) should be restructured/ revitalized. A separate law for small enterprises including a chapter on provision of credit to the SSIs, should be framed as prevalent in several other countries;

3.9.10.2 A National Manufacturing Competitiveness Programme (NMCP) announced in the Union Budget 2005-06 is being developed to support Manufacturing and, in particular, the SMEs become competitive. The various important components of the scheme would include a National Programme on Application of Lean Manufacturing for the SMEs, Promotion of ICT among the SMEs, Technology and Quality Upgradation Support for SMEs, Support for Entrepreneurial and Managerial Development of SMEs, Enabling SMEs to become Competitive through Quality Management Standards, Enhanced use of Design Expertise and Intellectual Property Rights and necessary Marketing Support/Assistance to SMEs. The scheme should be approved and implemented expeditiously.

3.9.10.3 The study to assess the impact of reservations on productivity and employment should be completed early in order to decide on the pace and sequencing of future de-reservation and to ensure that the items under reservation presently become competitive and grow substantially.

3.9.10.4 For enhancing flow of credit to small enterprises in clusters, steps should be taken to encourage credit rating of these enterprises in conjunction with cluster-wide measures to minimize credit risks

through capacity building of associations/self-help groups of small enterprises.

- 3.9.10.5 The government needs to encourage the process of self registration of SSI units by empowering Industry Associations to carryout this task.
- 3.9.10.6 Government must incentivise technology development in the SMEs and tiny enterprises in order to enhance their competitiveness.
- 3.9.10.7 A national quality campaign as enabling platform for developing competitiveness in the Indian manufacturing industry particularly the SMEs should be launched.
- 3.9.10.8 Industrial Design expertise needs to be provided to the SMEs with expert advice and cost effective solutions resulting in a continuous improvement and value addition for existing and new products.
- 3.9.10.9 Viable programmes for the unorganised sector based on the work of the National Commission for Enterprises in the Unorganised Sector needs to be designed and implemented.

### **3.10. Enabling Public Sector Enterprises to meet competitive market conditions**

- 3.10.1. As an instrument for self-reliant and accelerated growth of Indian Economy, Public Sector Enterprises (PSEs) were central to India's philosophy of development. The prime objective of the PSEs at the time of independence were threefold : (a) develop the core sectors of economy, (b) to serve the needs of strategically important sectors like Railways, Telecommunications, Power, Steel, Coal, Defence, etc., and (c) to provide a spring board for the economy to achieve a significant degree of self-sufficiency in the critical areas. PSEs managed to meet these objectives to a large extent. In fact the Public Sector was at the vanguard of the manufacturing movement in the country.
- 3.10.2. Economic reforms being implemented by Government since 1991 across sectors have dramatically changed the conditions under which the PSEs had to function. The amendments to the Industrial Policy in 1992 removed

licensing requirement in respect of almost all sectors for the domestic private sector unleashed a wave of fresh investment and growth in

*Economic reforms since 1991 across sectors have dramatically changed the conditions under which the PSEs had to function*

manufacturing. Most sectors which were earlier reserved for development only in the Public Sector were also opened to the private sector. The manufacturing sectors have also been opened up for Foreign Investment without any sectoral caps. The

PSEs as a whole today comprise of an admixture of better performing enterprises as well as loss making enterprises, the proportion of the latter in terms of numbers being larger. Further, PSEs continue to suffer from several disadvantages in terms of over manning, empowerment and multiplicity of overseeing agencies. In spite of several initiatives taken over the years, the operational efficiency of some of the PSEs has not shown improvement. Those PSEs which are better performing and competitive need to maintain and upgrade their competitiveness.

3.10.3. Tariff protection of the Indian industry including the PSEs from imports has been reduced very substantially since 1991 onwards and was brought down to a peak rate of 15% in the Union Budget for 2005-06. The PSEs have been working towards meeting these challenges by reorienting their functioning. In order to make them more efficient in terms of decision-making, government has delegated powers to the Boards of these Enterprises and introduced the concept of Navaratnas and Miniratnas etc. to give these PSEs the much needed autonomy. Further as a means to address the issue of high staff costs, VRS was successfully implemented in many PSEs.

3.10.4. PSEs need to continue with the adjustment process and constantly improve their competitive edge to survive and play their role meaningfully. There are some basic disabilities under which the PSEs in India function and these need to be attended to. Some of the important areas in which further reform of the PSEs are needed t are:-

*PSEs will have to continue their adjustment process and improve their competitive edge to survive*

3.10.4.1. **Autonomy:** For a strong and effective public sector, devolution of full managerial and commercial autonomy is essential. This, however,

needs to be closely integrated with proper governance measures and accountability.

- 3.10.4.2. **Review Mechanisms:** Rationalization and optimization of multiple review mechanisms is necessary.
- 3.10.4.3. **Delegation of powers:** PSE Boards must be delegated with appropriate powers to pursue Joint Ventures, Mergers and acquisitions, Technology Acquisition, etc.
- 3.10.4.4. **Cost and Productivity:** The total cost of labour compounded with low productivity of labour in PSEs needs corrective action. They should also constantly measure themselves against the best in class in the world through suitable benchmarking exercises.
- 3.10.4.5. **Sourcing decisions:** The decision making process regarding purchase of raw material and sale of goods depending upon the market conditions should be streamlined. Most of the Government guidelines and procedures have been evolved over the years for PSEs carrying out production and sales in a protected domestic environment. These guidelines and procedures tend to make these PSEs globally uncompetitive when applied to export/import. Hence, there is a need for re-examination of extant procedures laid down including those by the CVC.
- 3.10.4.6. **Technology:** Adopt policies that make technology transfer mandatory to domestic PSEs in certain areas of manufacturing in order to leverage capacities set up earlier as well as encourage indigenous production bases for products with new technologies.
- It is necessary to adopt policies that make technology transfer mandatory to domestic PSEs in certain areas in order to leverage capacities set up earlier as well as encourage indigenous production bases for products with new technologies*
- 3.10.4.7. **Ancillaries and supporting industry:** For a PSE to be competitive the ancillary units and all the supporting units also need to be competitive. The location of these units could be in India or in any part of the world and need to be competitive in terms of price and quality. The PSEs have to work towards the goal of procuring the best quality goods at the most competitive prices to retain their own competitiveness.

Many of the operations of a company would need to be outsourced to places where the cheapest and the best option is available in order to be globally competitive. Crucially the ancillaries also have to become globally competitive in the products they supply to PSEs. This necessitates a change in the manner in which PSEs operate their obligations towards development of ancillaries.

- 3.10.4.8. **Preference:** Purchase preference for the PSEs has been questioned by some on economic grounds. After considering various view points the government had in July '05 extended the applicability of a modified Purchase Preference Policy to Central PSEs & their subsidiaries with a stipulation that the same will be terminated on 31<sup>st</sup> March 2008.
- 3.10.5. Towards achieving some of these objectives the Government has appointed two Expert bodies, the first one being the *Ad hoc* Group of Experts for making recommendations on some specific issues such as the ownership, the autonomy issue and the delegation of powers. The *Ad Hoc* Group of Experts has submitted its report<sup>20</sup> to the Government on Empowerment of CPSEs.
- 3.10.6. The second Expert body is the Board of Reconstruction of Public Sector Enterprises. The Board is expected to advise Government on strengthening the PSEs, suggest measures to make them autonomous and professional, including delegation of powers, etc. The Board has so far been making its recommendations on restructuring of specific CPSEs for consideration of Government.
- 3.10.7. The National Manufacturing Competitiveness Council will take into account all the work done so far in respect of reform of the PSEs, study the remaining aspects, and make suitable recommendations for improving the competitiveness of the PSEs. Towards this end, various guidelines and procedures with respect to procurement, sales and marketing, pricing, recruitments, manpower planning, salary structures, technology transfer, outsourcing of production and production facilities, outsourcing of sales and marketing and labour laws for PSEs which make them uncompetitive

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<sup>20</sup> Report of Ad-hoc group of experts on empowerment of CPSEs, Department of Public Enterprises, April 2005

would also be studied and necessary changes would be suggested to make the PSEs globally competitive.

### **3.11. Encouraging Intellectual Property Rights (IPRs) in the manufacturing sector**

- 3.11.1. Technological innovation within enterprises and creating new knowledge for (and from) innovation has become strategically important. This requires recalibration of policies and reconfiguration of competencies both of which are difficult because of capacity constraints and economic, political & social complexities. Enterprises should be able to acquire new knowledge not only for innovation but also in order to be competitive in a TRIPS-compliant IPR environment. Hence, it is important to effectively utilize intellectual property rights particularly patents for technology upgradation and growth as well as wealth creation in a Globalising competitive market.
- 3.11.2. It is a positive sign that many Indian enterprises, particularly in the knowledge intensive sectors (pharmaceutical, biotechnology, ICT, automobiles, etc.) are developing competitive capability in innovative R&D by acquiring new components of knowledge and reconfiguring architectural linkages between these components in new ways.
- 3.11.3. The reconfiguration of the architectural linkages of a firm needs to be accompanied by changing management and organizational structures along with new mechanisms of knowledge transfer and integration, as well as a policy environment more conducive to innovation and IPRs. It is necessary that knowledge-driven industries in India should increasingly attempt to embrace the network model of innovation and R&D by intensifying their collaboration with research institutes, universities and other counterparts. Such efforts need to be particularly supported and encouraged for the manufacturing sector. Improving awareness of Intellectual Property Rights (IPRs) amongst businesses, particularly Small and Medium-sized Enterprises (SMEs), means that they will be able to make informed decisions about their strategies for protecting their idea.
- 3.11.4. The Government has taken several initiatives in the IPR area including revamping of all the laws and modernisation of the IPR/Patent Offices as

a strategic response to the globalisation and liberalization of the Indian

*The manufacturing sector can take advantage of the new IPR regime to enhance its competitiveness for which capacity building and facilitation would be required*

economy. The manufacturing sector can take advantage of the new IPR regime to enhance its competitiveness for which capacity building and facilitation would be required. Key issues

for the manufacturing sector in the IPR regime are:

3.11.4.1. In a product patent regime, one of the new sources of growth in the future for the Indian firms will be productive R&D, which can deliver patentable innovations. Enterprises will have to shift the focus of industrial research towards the acquisition of a more complex knowledge base for innovation.

3.11.4.2. At the macro economic level, the absorption, or assimilation, of modern technologies, and adaptation to change in industrial structure, are increasingly becoming the critical components of

*In a product patent regime, one of the new sources of growth in the future for the Indian firms will be productive R&D, which can deliver patentable innovations*

competitive transformation. This requires accelerated transition from the early stages of accumulation of

minimum knowledge levels of innovative capability and adaptation; to the creation and management of knowledge as a strategic asset. Hence in the manufacturing sector, the new components of knowledge should be acquired by the enterprises by increasing investment, by innovative R & D and hiring new scientists with crucial domain knowledge.

3.11.4.3. Knowledge-driven industries in India should increasingly attempt to embrace the network model of innovation and R&D by intensifying their collaboration with research institutes, universities and other counterparts. Such efforts need to be particularly supported and encouraged by the government for the manufacturing sector.

- 3.11.4.4. It is also necessary for the Government of India and its concerned Ministries jointly with relevant stakeholders/Industry Organisations like CII, FICCI and ASSOCHAM to launch a national campaign for Indian firms to invest in next generation intellectual property in the product, process and practice domain. All such efforts should form a part of the National Manufacturing Competitiveness Programme.

### **3.12. Increasing the usage of Information & Communication Technology (ICT) in manufacturing sector**

- 3.12.1. Current Stage of ICT adoption in Indian manufacturing sector is not encouraging and the lack of global competitiveness in manufacturing is partly due to lack of adequate ICT enablement of business processes and management practices in the Indian industry.
- 3.12.2. Even though there is a clear business case in favour of increased adoption of integrated enterprise-wise ICT application in the manufacturing sector, in most organizations the use of ICT is limited to automation of specific functions like inventory control, external communication, etc. Majority of the manufacturing enterprises under Small and Medium scale categories are still in the nascent stages of the ICT adoption. They lack the knowledge of business performance improvement potential of ICT and it is still used as office administration and accounting automation tools. Most of the enterprises have not been able to adopt the ICT architecture due to unaffordability of the costs associated with it. However, the need is for functional automation and cross functional process integration and hence it becomes necessary for the government to create awareness about ICT application among such manufacturing firms. In many countries government and industry associations have played a vital role in ICT adoption amongst the industries particularly in the SME sector. Proper adoption of ICT requires knowledge transfer efforts along with implementing common ICT infrastructure in aligning with industry clusters development program.
- 3.12.3. The development of the e-economy can be seen as being of major importance for the growth of Indian economy as a whole and would also integrate local manufacturing enterprises more to the regional and global

markets. The relation between quality and certification and the assessment process (auditing) is an extremely important element in the manufacturing and movement of goods and in the whole supply chain.

*The development of the e-economy can be seen as being of major importance for the growth of Indian economy as a whole and would also integrate local manufacturing enterprises more with the regional and global markets*

These concepts have to be adapted in the e-business context too by the industry and applied to the manufacturing sector in India in order to enable them to be competitive. ICT can act as a powerful enabling technology to significantly improve the global

competitiveness of Indian manufacturing sector. India has built its world-class reputation in providing ICT services such as software development, call centre and business process outsourcing. However, the use of ICT by Indian manufacturing industries for its competitive enhancement has yet not reached the desired level.

- 3.12.4. In today's information age, business environment requires new capabilities in manufacturing organizations for competitive success. To compete successfully in this dynamically changing environment, manufacturing firms

*Information & Communication Technology (ICT) can act as a powerful enabling technology to significantly improve the global competitiveness of Indian manufacturing sector*

need to address several key strategic issues effectively. ICT has been fundamentally changing the way organizations conduct their business and compete in the

market place. ICT can significantly improve the productivity of manufacturing sector. The major objectives of ICT application should be improvement of business activities. The role of ICT in manufacturing sector and the capabilities of ICT, which can be used in the manufacturing sector needs to be evaluated thoroughly and the business challenges faced by specific industry sectors and how they can be addressed using ICT need to be attended to. Government must focus on encouraging implementation of a planned model of ICT adoption by the Indian manufacturing sector.

### 3.13. Improving firm level competitiveness

- 3.13.1. Indian companies will need to adopt a global mind set to build scale and achieve cost excellence; acquire market access rapidly; strengthen design and innovation skills; build a global or regional operating foot print; and master the ability to manage a world-class talent pool and organization. These actions will form the foundations for ambitious growth and will need to be supported by a judicious choice of market segments and business models. Firms normally have their own strategies for lowering cost, improving product quality and finding marketing networks. The move towards competitive advantage is to a great degree dependent on the firm's ability to bring about qualitative improvement in the quality of factors, particularly quality enhancement of knowledge resources<sup>21</sup>.
- 3.13.2. While initiatives are taken at the country and sector levels to enhance competitiveness in the economy, maintaining firm level competitiveness is crucial if the growth aspirations are to be realized. Individual firms must do this by building abilities to acquire, assimilate, develop new technologies; reduce production costs; cut down delivery time; practice Total Quality Management; enhance productivity and customer service. Use and development of technology is central to competitiveness. However, using technologies efficiently involves building technical understanding and information skills, managerial practices and links with other firms and institutions which could be termed as 'capabilities' in a broad sense. Such capability development can be a slow, often costly and risky learning process. The secret of competitiveness lies in the effectiveness with which countries promote the development of technological and managerial capabilities.
- 3.13.3. Breakthrough innovation or exceptional growth of a firm is dependent on the leadership of the firm. In India there is an urgent need for more

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<sup>21</sup> Michael Porter, Pankaj Ghemawat and VS Rangan, Developing Competitive Advantage in India, Sept 1994, New Delhi

leaders in manufacturing industries at this juncture. In order to enable development of leaders, special programmes are conducted in the higher learning institutions abroad. E.g., The MIT provides a full-fledged programme for leadership. It is necessary for Government to encourage some of the premier technical institutions like the Indian Institutes of

*Breakthrough innovation or exceptional growth of a firm is dependent on the leadership of the firm. In India there is an urgent need for more leaders in manufacturing industries at this juncture*

management or the Indian Institutes of Technology to collaborate with such institutions and conduct similar programmes in India for developing leadership in the

manufacturing industry. The SMEs would, in particular, be able to utilize these programmes and groom their CEOs and other personnel in leadership qualities. The programmes could be designed as a public/private initiative.

- 3.13.4. While India's industrial policies since independence have lead to development of a diversified manufacturing sector, there has been a lack of technological capability and dynamism. It is evident at both, macro level (relatively low share of manufacturing in GDP, low impact on employment growth and poverty reduction) as well as micro level (low productivity, lack of international competitiveness). Studies on global competitiveness for selected sectors of the industry have shown that among others, the factors inhibiting growth are: inefficient use of resources resulting in poor product quality accompanied by hidden high cost due to rejection and re-work in the course of manufacturing, building up inventory at various stages in the form of raw materials, work-in-process, finished components, finished product etc. This calls for a concerted effort on the part of the industry to increase competitiveness by systematically identifying and eliminating waste throughout the entire business cycle by applying appropriate managerial and technological practices such as Lean Manufacturing Technologies, like 5S system (Sort, Set in order, Shine, Standardize & Sustain), Visual controls, standard operation procedures (SOPs), Just-in-Time (JIT), KANBAN, Cellular layout, Value stream mapping, Total Productive Maintenance (TPM) etc. An important area for focus is process technology development where firms need to build competitiveness.

3.13.5. Ultimately, it is firms that compete in the market and not countries. The firm level competitiveness has to be strengthened by having an appropriate policy environment. Therefore, the National Manufacturing Competitiveness Programme (NMCP) announced in the Budget 2005-06 deals mainly with firm level competitiveness as already mentioned before in para 3.9.6. While some organisations in the country have initiated Lean manufacturing practices to improve their performance and have started to reap the benefits, these practices have not reached many industrial units in the country. A National Lean Manufacturing Competitiveness Programme aimed at improving firm level competitiveness needs to be implemented so that it covers various important sectors of the industry. The general approach in the National Programme on Application of Lean Manufacturing which would be part of the NMCP would be to work in clusters. It is also envisaged to work in collaboration with Industry Associations and other industrial clusters functioning across the country.

### 3.14. Benchmarking against best practices & breakthrough thinking

3.14.1. Adoption of global best practices in manufacturing is another area which *A Manufacturing Advisory Service should be established by the government to deliver practical help to manufacturing sector* requires attention for ensuring sustainable competitiveness. Benchmarking and standard setting has to begin from building the human resource and extended to the entire value chain. In this context, all organizations should collaborate in the development of relevant sub-sector data bases that could help the industry to benchmark and measure itself against the best in class performances. A Manufacturing Advisory Service should be established by the government to deliver practical help to manufacturing sector.

3.14.2. A paradigm shift in manufacturing sector can be achieved, if manufacturing is not just viewed as a process in the factory, preceded by design and followed by sales but as a new way where R&D is as critical a component of product design to supply chain management and customer relations<sup>22</sup>. Conceptually, it is a movement from products to architecture (concept:

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<sup>22</sup> Shoji Shiba, Professor emeritus of University of Tsukuba

classification based on the 'system' of production) where sector wise competitive advantages can be derived. A group should be set up comprising of representatives of CII, FICCI and ASSOCHAM to study the concepts and applicability of manufacturing architecture<sup>23</sup> (integral vs. modular) as relevant to the Indian conditions so as to suggest suitable policy initiatives that need to be taken by the manufacturing sector.

### 3.15. Sub-sector engagement

3.15.1. Preceding sections dealt with the role of government and the industry in dealing with the challenges facing manufacturing sector. As a part of the overall approach toward enhancing competitiveness in manufacturing sector, it becomes imperative to focus on sub-sector interventions because of their own characteristic requirements. It is expected that even as the broad based strategy is being evolved cutting across various sectors, there would be certain sectors which could emerge in the forefront of growth and employment because of the unique opportunities they enjoy at the present time and the inherent comparative advantage which can be realised quickly. Each element of the value chain within a sub-sector would need to be examined and propose action implemented in order to make the entire value chain competitive.

3.15.2. Certain sub-sectors are ideal candidates for attention by the Government as they have obvious competitive advantages in the world market. It becomes

*Certain sectors emerge in the forefront of growth and employment because of the unique opportunities they enjoy at the present time. Textiles & Garments, Leather & Leather products, Auto Components, Drugs & Pharmaceuticals, Food Processing and IT Hardware select themselves at this point in time*

necessary to encourage such sub-sectors and enable them move forward on the growth path quickly. These can be prioritized through a detailed analytical study of each regarding their relative potential in the Global context currently and over a period of time. Textiles and Garments,

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<sup>23</sup> Prof. Takahiro Fujimoto, University of Tokyo

Leather and Leather Products, Auto Components, Drugs & Pharmaceuticals, Food Processing and IT Hardware select themselves at this point in time.

3.15.3. In addition, there are certain core sub-sectors within manufacturing which have a direct impact on the growth of all the sub-sectors. Prominent among these are steel, cement and capital goods. These also need urgent attention. With the increasing integration of India with the world economy, particularly through trade in manufactured goods, shipping sector assumes great importance. The creation of capacity for building mercantile ships needs to be accorded priority.

3.15.4. Sub-sector wise engagement to identify impediments for growth and suggest initiatives aimed at enabling growth and employments have been carried out by the NMCC through sub-group meetings in the following areas:

- Leather & Leather Goods
- Food Processing
- Textiles & Garments
- Auto Components
- Capital Goods
- IT Hardware & Electronics
- Paper
- Chemicals & Petrochemicals
- Drugs & Pharmaceuticals
- Telecom Equipment
- Handicrafts

3.15.5. In addition to the above, more sub-group engagements covering others sub-sectors/generic issues is necessary. Among them, following engagements are planned in the near future:

- Innovation Policy
- Steel
- Minerals/Metals
- Bio-technology
- Fertilizers
- Cement

- Competitiveness of PSEs
- University/Industry Coordination / Collaboration
- Infrastructure
- Tax Issues
- Labour Issues
- Offset Policy & Technology Transfer Issues
- Gems & Jewellery

3.15.6. The sub-sector wise engagements are part of the national strategy for enhancing competitiveness of the manufacturing sector and will feed into the overall manufacturing strategy appropriately. Monitoring of these sub-sectors would need to be done on a dynamic basis keeping in mind the global developments and their implications for the competitiveness of the manufacturing sector. Therefore, the sub-sectorwise follow up will have to be done on a continuous basis and the industry and the concerned Government Departments would need to closely monitor the developments closely and take appropriate corrective measures and interventions required in a timely manner.

### **3.16. Creating a monitoring mechanism & measuring performance**

3.16.1. It is imperative that in order to achieve the high targets of growth and employment being desired, it is essential that the implementation mechanisms as well as institutions are properly designed and created immediately.

3.16.2. The strategy will have to be implemented by synergistic action by all stakeholders from the government, industry and others. The existing way of handling manufacturing sub-sectors requires a change. There is no focus or continuity in terms of goals and implementation. The Mission mode of implementation or a similar Mechanism that will improve efficiency in implementation would be the appropriate mode to begin with in respect of some sectors such as Leather & Leather Products, Textiles & Garments and Food Processing industries. This will help in providing a focal point for decision making in a time-bound manner and help in better monitoring of

the growth objectives. As and when required the other sectors could also adopt such mechanisms.

- 3.16.3. Manufacturing sector consists of several sub-sectors which are dealt with directly in several Ministries of Government of India dealing with industry. In addition, the policies and programmes of several other Ministries such as the Infrastructure Ministries, Labour, Finance, Commerce etc. also impinge on manufacturing. The National Manufacturing Competitiveness Council has an overarching role of not only preparing a National Strategy for Manufacturing in a medium to long-term perspective, but also coordinate the efforts of various Ministries dealing with manufacturing for a synergic growth of the sector. Also ensuring continuous dialogue with State Governments for working together for the implementation of the reforms in the manufacturing sector with proper and regular interface with the implementing agencies would be required to be done.
- 3.16.4. The key component of any strategy is a means of measuring progress towards a defined goal. For monitoring to be effective, a set of key performance indicators should be identified/developed by the NMCC, which would allow a quantitative and qualitative assessment of the progress of manufacturing sector. These indicators shall allow periodic monitoring of performance and effectiveness of initiatives/ reforms/ actions by the government, industry and other stakeholders of manufacturing. The NMCC would review periodically the implementation of the various recommendations and the elaborations in the sub-sector engagements. The measures to be reviewed would include action taken by the Centre and the State Governments in their respective domain.
- 3.16.5. The monitoring mechanism should also include surveys of business climate based on the opinion of the decision makers/leaders on various macro environmental factors of competitiveness. This would serve as an important feedback mechanism in the implementation of manufacturing reforms.

- 3.16.6. Government has been stressing that the robust growth of manufacturing is essential for achievement of overall growth rates of the economy. Government should announce implementation of the National Strategy for

*Government should announce implementation of the National Strategy for Manufacturing as a National manufacturing initiative with a ten year horizon. In order to ensure that due focus is given in implementation of the manufacturing strategy it is essential that the issues as well as the progress are periodically reviewed by Government at the highest level.*

Manufacturing as a National manufacturing initiative with a ten year horizon. In order to ensure that due focus is given in implementation of the manufacturing strategy it is essential that the issues as well as the progress are periodically reviewed by Government at the highest level. For this purpose, a High level committee will need to be constituted on the pattern of

Trade and Economic Relations Committee (TERC) chaired by the Prime Minister and having Ministers from the various Ministries relating to manufacturing called "Committee on Growth and Competitiveness of Manufacturing". The Committee would deal with policy level issues arising in the implementation of the National Strategy for Manufacturing as well as in the implementation of the medium term growth plans of each sub-sector.

# 4 The Way Forward - Key Recommendations

## 4.1 Goals

- 4.1.1 Competitiveness is central to robust growth of manufacturing sector. Manufacturing sector is crucial, directly or indirectly, for providing jobs for the large work force entering the job market every year, particularly from the rural areas. If the economy is to grow at 8 to 9 per cent per annum on average, the growth rate of manufacturing has to reach at least a level of 12 to 14 per cent as against the trend growth rate of 7 per cent achieved during 1995-2004.
- 4.1.2 The share of manufacturing in GDP would be dependent on its rate of growth relative to the growth rates of other sectors of the economy. With a growth rate of 12%, the share of manufacturing in GDP is expected to reach only 23% by 2015 on the assumption that other sectors of the economy grow at their trend rates. (Para 2.2.5)
- 4.1.3 The growth target of 12% in manufacturing would create with the current employment elasticity, only about 1.60 million direct jobs annually. However, in case the employment elasticity is to increase to 0.59 obtaining in the 1980s, 2.9 million new direct jobs a year would get created directly in the manufacturing sector. By appropriate emphasis on the labour intensive sectors which also enjoy competitive advantage, such as Textiles & Garments, Leather & Leather Products and Food Processing it should be possible to reach higher level of employment elasticity. In addition two to three indirect jobs would also be created per job in manufacturing as a result of multiplier effects. Therefore, it is necessary that this country should aim at the minimum a 12 per cent average growth per annum of manufacturing sector. (Para 2.3.5)

- 4.1.4 The challenges facing Indian manufacturing would require actions from the Government as well as the Industry for making the manufacturing sector competitive. There are certain areas where both the Government and the Industry would need to put in efforts together, preferably, through a well designed public-private partnership. To improve overall competitiveness, it is essential to improve National level competitiveness as well as firm level competitiveness.

## **4.2 The role of the government**

### **4.2.1 Ensuring macro-economic stability**

- 4.2.1.1 It is important to maintain long-term economic stability through a macroeconomic framework which includes appropriate monetary and fiscal policies and ensures sound public finances based on the principles of transparency, responsibility and accountability. (Para 3.2.1)

- 4.2.1.2 In order to achieve a 12% growth rate in manufacturing, the policy framework should encourage manufacturing sector to become competitive, among others, by : (a) encouraging global scale of operations, (b) enabling financial institutions to finance such projects, (c) attracting large scale investment both domestic and foreign, (d) addressing issues faced by companies particularly the Small & Medium Enterprises such as risk management and debt restructuring, and (e) catalyzing infusion of modern technologies for improving competitiveness. (Para 3.2.2)

### **4.2.2 Ensuring cost competitiveness and stimulating domestic demand**

- 4.2.2.1 Scaling up of operations would be difficult to achieve without a strong demand both domestic and external. Policies for enhancing domestic demand should be expeditiously put in place by the Government as these would also drive an increase in share of manufacturing in the economy. Lowering cost of manufacture and improving the quality are of high priority for manufacturing firms. (Para 3.3.2)
- 4.2.2.2 The peak import duty is unlikely to be not more than 10% in future. In the interest of a stable policy regime stage wise downward duty reductions

- should be calibrated so that the Indian Industry gets time to readjust. (Para 3.3.4.1)
- 4.2.2.3 Inverted duty structure caused by FTAs as well as in all cases even otherwise needs to be rectified. (Para 3.3.4.2)
- 4.2.2.4 In the cases where basic customs duty is zero, imported products should face duties equivalent to domestic indirect taxes paid by domestic manufacturers. (Para 3.3.4.3)
- 4.2.2.5 There should be an all India combined Goods and Service Tax (GST) with service sector taxation integrated into the VAT framework. This would be ideal but would be difficult to materialize quickly. Therefore, it would be better to work towards a national VAT that would run in parallel at both and Central and State levels which would achieve the same objectives of the GST. (Para 3.3.5.3)
- 4.2.2.6 With liberalization across the board, liberalization in selected enclaves (EOUs, SEZs and AEZs) has become somewhat irrelevant. With import duties declining, restrictions on DTA sales need a re-look. In the absence of complete liberalisation the SEZ and other enclaves would need to continue in order to promote manufacturing. However the concept of economic regions with world class infrastructure but with no or minimal fiscal concessions should be considered as a long term solution by the government. (Para 3.3.6.2).
- 4.2.2.7 The Procedural and regulatory hassles inhibiting both domestic and foreign investment have been studied by a number of Committees of the Government in the past and have been well documented. Implementation of the findings of these committees has been weak. What is required is a concerted action similar to what is being done in respect of the VAT by involving the State Governments in the entire process. It is necessary that an Empowered Group which can take decisions regarding reduction of procedures is constituted for a specific period of time to ensure that the recommendations are issued in the form of Government's decisions. (Para 3.3.7.4)

- 4.2.2.8 In a capital scarce country, real interest rates will never be as low as global interest rates; hence the need for good macro-economic management to contain interest rates needs to be addressed. (Para 3.3.8.1)
- 4.2.2.9 It is essential to look at various labour related issues with the focus on creating an enabling environment that encourage growth and new employment in the manufacturing sector as well as promotes skill development/upgradation to enable such a growth to happen. (Para 3.3.9.1)
- 4.2.2.10 Government should retain The Contract Labour (Regulation and Abolition) Act, 1970 but tighten up Section 10 so that ambiguity about continuance of contract labour and absorption following abolition is removed. (Para 3.3.9.5)
- 4.2.2.11 Competition cannot function without free exit. The Industrial Disputes Act, 1947 makes it impossible for companies to exit. It becomes imperative that given the other provisions of labour legislation, the requirement of governmental permission be dispensed with, without adversely affecting the interests of labour. While continuing to attempt a consensus on Chapter V-B of the Act it should be possible to amend other sections of IDA and also implement other labour law reforms. (Para 3.3.9.7)
- 4.2.2.12 The recommendations of the Second National Commission on Labour submitted in 2002 contain a number of recommendations for harmonization of labour laws. These recommendations need to be implemented soon, since harmonization will not only improve flexibility in the organized labour market but will simultaneously result in better social security provisions being made in the unorganized one. (Para 3.3.9.8)
- 4.2.3 Strengthening education & skill building**
- 4.2.3.1 Meeting the needs of technically skilled personnel at a rapid pace requires involving professional institutions that already have the necessary training and skills building infrastructure or where these can be created at an incremental cost. Upgradation of the industrial training institutions should be ensured through public-private partnership. (Para 3.4.2)

- 4.2.3.2 Indian manufacturing needs to attract the best brains to the sector if it has to become globally competitive. Conditions of service in the manufacturing areas should be improved to attract better candidates to this sector. (Para 3.4.3)
- 4.2.3.3 Quality of technical education at the vocational level as well as at the University and sub-University levels is a cause for concern. A concerted national initiative is needed on revision of the curriculum at degree and diploma levels for all technical courses to keep in step with the changing requirements of the industry. It is necessary that complex procedures involved in changing curricula and course syllabi are simplified through granting appropriate autonomy to concerned institutes. (Para 3.4.4)
- 4.2.3.4 The current salary structure with upper limit set is unable to attract the best talent into teaching profession. There already is and there will continue to be a very severe shortage of teachers in Engineering and Technology. This situation calls for urgent steps to be taken by various concerned institutions and the government for attracting the best minds to teaching & research. (Para 3.4.5)
- 4.2.3.5 PG education should be strengthened and made more attractive through creation of world class research infrastructure in the IITs and IISc. (Para 3.4.5)
- 4.2.3.6 The public sector driven initiative, through the Apprentices Act and ITIs (Industrial Training Institutes) has not been able to keep pace with changing requirements. Hence, the up-gradation of the Industrial Training Institutes should be pursued vigorously through public-private partnerships, with training authorities de-linked from certifying ones. (Para 3.4.6)
- 4.2.3.7 The private sector should be encouraged to establish and operate demand driven technical training centres through financial and other incentives, under a carefully designed industry-managed, and government supported, quality control and accreditation system. (Para 3.4.6)
- 4.2.3.8 It is necessary to develop a comprehensive 'National Vocational Education Qualification System' and set up a Vocational Education & Training Institute in each State. Large private sector manufacturing/ engineering

organizations must be encouraged to adopt Vocational Education Institutes through appropriate schemes. (Para 3.4.6)

4.2.3.9 Diploma holders from the Polytechnic Institutions form the back bone of the manufacturing sector at the hands on level. Therefore in order to upgrade the Polytechnics and enable the institutions to provide necessary skills, new investments would have to be made on a nation wide scale. Suitable schemes for accessing funds for this purpose should be prepared and implemented. (Para 3.4.7)

4.2.3.10 Government must take a lead role in initiating close interaction between academia-industry-government for creating 'Centres of Excellence in Manufacturing Technologies'. (Para 3.4.6)

#### **4.2.4 Investing in innovations & technology**

4.2.4.1 Investing in R&D to innovate in technology by the industry and the Government ahead of markets is necessary and should be encouraged. For this purpose it is necessary for the government to: (Para 3.5.2)

4.2.4.1.1 Review existing policies relating to R&D funding, incentives for supporting generic technologies, engineering and physical sciences and take steps to encourage better coordination of efforts with greater focus on innovation and productivity enhancing technologies. (Para 3.5.4)

4.2.4.1.2 Establish priorities for supporting advanced manufacturing technologies. It is suggested that a special group to study the potential for manufacture and export of Advanced Technology Products should be constituted. (Para 3.5.4)

4.2.4.1.3 Support Prototype development and design innovations through fund sharing/ enabling establishment of references, etc. (Para 3.5.4)

4.2.4.1.4 Create common testing facilities and centres of manufacturing technology excellence, if necessary through public private partnerships. Management of these by the beneficiaries

themselves would encourage the Indian manufacturing industry to invest in innovations. (Para 3.5.5)

- 4.2.4.1.5 Strengthen the Intellectual Property Rights framework by providing necessary infrastructure and human resources particularly in the case of the Patent and Trade Mark systems to encourage more Patenting and Trade Mark registrations. (Para 3.5.5)
- 4.2.4.1.6 Establish technology parks on the lines of those existing in USA (The Stanford Research Park OR Route 128 near MIT) around institutions of higher technological learning. (Para 3.5.6)
- 4.2.4.1.7 Create a coordination mechanism on Manufacturing Research and Development. (Para 3.5.4)
- 4.2.4.2 In critical areas, in addition to tax relief measures on R&D expenditure government funding of research & development should be enhanced to support the efforts of the manufacturing sector. Sectorwise studies of technology status should be undertaken for developing a model for Government funding of R&D. (Para 3.5.7)
- 4.2.4.3 Government should consider setting up a 'Global Technology Acquisition Fund' to enable Indian industry to acquire very high technology intensive companies abroad, when ever such opportunities arise. (Para 3.5.8)
- 4.2.4.4 The merger or consolidation of national technology institutions in similar areas of work requires consideration in order to derive synergy and economies of scale. (Para 3.5.8)
- 4.2.4.5 It is important for the government to address issues related to Small Business innovation Research and Small Business technology transfer focusing on Manufacturing. Special incentives should be provided for Innovation and Development of products that are needed by larger section of Indian society. (Para 3.5.9)
- 4.2.5 Enabling infrastructure development**
  - 4.2.5.1 Poor infrastructure has been identified as major constraint in the growth and employment generation capacity of the manufacturing sector. From the

manufacturing perspective, the most important infrastructure areas where reforms are to be speeded up are power, ports and railways, followed by roads. In this context government should: (Para 3.6.2)

4.2.5.1.1 Reliable power supply at reasonable cost is of critical importance for healthy growth of manufacturing sector. Shortage of power has been an important factor in slowing manufacturing growth. Creation of power capacity ahead of demand would act as a catalyst for industrial growth. It is necessary to ensure that state level power reform supported by rationalized regulatory framework is put in place for enabling better access to quality power. The Electricity Act 2003 is a step in the right direction. It is necessary to study whether cross subsidy by industrial users to meet the deficit from other user sectors is in the overall national interest of growth and employment. (Para 3.6.5.3)

4.2.5.1.2 Ensure that additional investments are made in increasing the port capacities (over and above the currently planned expansions). Further, port operations & procedures need streamlining by simplifying the number of procedures, automating the processes, etc. with a view to bring down customs clearance time.

4.2.5.1.3 While the Golden Quadrilateral (GQ) and the east-west and north-south corridor projects launched by the National Highways Authority of India (NHAI) are steps in the right direction, ensure port connectivity to manufacturing clusters and the GQ through targeted road development projects. High speed road and rail corridor projects connecting respective hinterlands to the ports should be taken up on priority. (Para 3.6.5.2)

#### **4.2.6 Providing right market framework & regulatory environment**

4.2.6.1 The regulatory framework should ensure fair competition, better access to markets -both domestic and foreign, trade negotiations that ensure a level playing field for domestic manufacturers, review of existing regulations and reduce the burden of paper work and inspector raj. (Para 3.7.1)

- 4.2.6.2 The adverse impact of regulations on SMEs is particularly large as they are less equipped to deal with the complex requirements. The design and implementation of regulations need to minimize the cost of compliances. (Para 3.7.2)
- 4.2.6.3 Procedures related to compliance with environment & safety regulations have to be simplified. In this respect, on the lines of 'financial audit firms', government should identify certain special institutions or firms of reputation specifically in the area of 'environment & safety' to carry out necessary certifications. (Para 3.7.3)
- 4.2.6.4 Only clear cut rules, rationalising approval/permission requirements of manufacturing industries, optimizing inspections by Regulatory Authorities etc. can significantly reduce the transaction costs to the manufacturing sector. Hence, government should focus on transforming the regulatory processes through re-engineering of procedures to reduce ambiguity & the need for discretion. (Para 3.7.6)
- 4.2.6.5 The Procedural and regulatory hassles inhibiting both domestic and foreign investment have been studied by a number of Committees of the Government in the past and have been well documented. The key issue is implementation of the findings of these committees. The implementation is at the Central, State and local levels. Currently, the implementation is left to the individual Ministries in the Government of India as well as in the State Governments. It has been weak generally and in some cases non-existent. Many State Governments are also aware of the need for procedural reform not only from the point of view of investors, but also to improve the overall Governance. However, the experience in this respect is not uniform across states and it is necessary to ensure that the State Governments are fully involved in pursuing the procedural reforms. The problem is pervasive and, therefore, requires a concerted action similar to what is being done in respect of the VAT by involving the State Governments in the entire process. It is, therefore, recommended that an Empowered Group which can would prioritize and persuade the States to implement reforms in respect of specific laws and regulation is constituted. The Group should be empowered also to review the implementation by both Central and State Governments periodically. (Para 3.7.7)

- 4.2.6.6 The recommendations of the empowered Group need to be pursued by the Central and State governments. It is recommended that to ensure focused attention, independent Commissions should be set up both at Central and State Governments levels to follow up on the suggestions of the empowered Group. The recommendations of these Commissions should be implemented (Para 3.7.8)

## **4.2.7 Role of state governments**

- 4.2.7.1 State Governments would need to address vital areas like taxation, availability of land and other infrastructure requirements like water, electricity, implementation of regulatory laws dealing with labour, environment, etc. in order to bring down the transaction costs. (Para 3.8.3)
- 4.2.7.2 Some of the procedures at the State government level where appropriate reforms are necessary include: (Para 3.8.5)
- 4.2.7.2.1 Providing the necessary investment climate for the growth of manufacturing in the states.
  - 4.2.7.2.2 Providing infrastructure, particularly in respect of power, water, roads, etc.
  - 4.2.7.2.3 Development of a common format for computerization of required records.
  - 4.2.7.2.4 Doing away with multiplicity of inspections by large number of inspectors.
  - 4.2.7.2.5 Outsourcing various inspections to recognized private agencies.
- 4.2.7.3 An appropriate continuing mechanism for co-ordination between Centre and States should be established in respect of the manufacturing sector. This mechanism should include the States, the Centre, the Industry and the Academia. (Para 3.8.4)

## **4.2.8 Enabling Small & Medium Enterprises (SMEs) achieve competitiveness**

- 4.2.8.1 The small and medium industries form the back bone of the manufacturing sector. Ensuring the competitiveness of Small Scale sector is important as it would help in overall growth of manufacturing sector as

also the national economy. Globalization provides both opportunities as well as challenges for the SMEs. In a situation where the protection through tariffs is rapidly decreasing the SMEs have to improve their competitiveness to survive. (Para 3.9.1)

- 4.2.8.2 The government needs to encourage the process of self registration of SSI units by empowering Industry Associations to carryout this task. (Para 3.9.2)
- 4.2.8.3 For enhancing flow of credit to small enterprises in clusters, steps should be taken to encourage credit rating of these enterprises in conjunction with cluster wide measures to minimize credit risks through capacity building of associations/ self-help groups of small enterprises. (Para 3.9.2)
- 4.2.8.4 Certain set of Small Scale Units which produce items on a stand alone basis need to assess what kind of restructuring would be needed by them to become competitive and take actions to implement them. A National Competitiveness Programme being developed subsequent to the Union Budget 2005-06 announcements is particularly aimed to support such SMEs. (Para 3.9.3)
- 4.2.8.5 Small Scale sector should be encouraged as breeding ground for innovation and technology development where they become the technology sources for larger companies. Towards this government must incentivise technology development in SMEs to enhance their competitiveness. (Para 3.9.4)
- 4.2.8.6 A National Quality campaign as enabling platform for developing competitiveness in the Indian manufacturing sector particularly the SMEs should be launched. (Para 3.9.10.7)
- 4.2.8.7 Industrial design expertise is to be provided on a common platform to provide cost effective solutions on real time design problems resulting in continuous improvement and value addition for existing products. (Para 3.9.10.8)

- 4.2.8.8 The reservation of certain products for exclusive manufacture by the SSI units should be reviewed. (Para 3.9.9)
- 4.2.8.9 Government needs to focus on :
- 4.2.8.9.1 Ensuring better credit delivery to the SSI sector by RBI and that a larger role given to SIDBI in direct lending to SSI sector. State Finance Corporation (SFCs) should be restructured/ revitalized. Frame a separate law for small enterprises including a chapter on provision of credit to the SSIs, as prevalent in several other countries. (Para 3.9.10.1)
- 4.2.8.9.2 A National Manufacturing Competitiveness Programme (NMCP) announced in the Union Budget 2005-06 is being developed to support Manufacturing and, in particular, the SMEs become competitive. The scheme needs to be approved and implemented expeditiously. (Para 3.9.10.2)
- 4.2.8.9.3 Government must incentivise technology development in the SMEs and Tiny enterprises in order to enhance their competitiveness. (Para 3.9.10.6)
- 4.2.9 Enabling Public Sector Enterprises to meet competitive market conditions**
- 4.2.9.1 In the context of PSEs, further reforms are needed to make them competitive. These include:-
- 4.2.9.1.1 **Autonomy:** For a strong and effective public sector, devolution of full managerial and commercial autonomy is essential. This, however, needs to be closely integrated with proper governance measures and accountability. (Para 3.10.4.1)
- 4.2.9.1.2 **Review Mechanisms:** Rationalization and optimization of multiple review mechanisms is necessary. (Para 3.10.4.2)
- 4.2.9.1.3 **Delegation of powers:** PSE Boards must be delegated with appropriate powers to pursue JVs, M&A, Technology Acquisition, etc. (Para 3.10.3)
- 4.2.9.1.4 **Cost and Productivity:** The total cost of labour compounded with low productivity of labour in PSEs needs corrective action. They should also constantly measure themselves against the best in class in the world through suitable benchmarking exercises. (Para 3.10.4.4)

- 4.2.9.1.5 **Sourcing decisions:** The decision making process regarding purchase of raw material and sale of goods depending upon the market conditions should be streamlined. There is a need for re-examination of extant procedures laid down by the government including that by CVC. (Para 3.10.4.5)
- 4.2.9.1.6 **Technology:** Adopt policies that make technology transfer mandatory to domestic PSEs in certain areas in order to leverage capacities set up earlier as well as encourage indigenous production bases for products with new technologies. (Para 3.10.4.6)
- 4.2.9.1.7 **Ancillaries and supporting industry:** For a PSE to be competitive the ancillary units and all the supporting units also need to be competitive. This necessitates a change in manner in which PSEs operate their obligations towards development of ancillaries. (Para 3.10.4.7)
- 4.2.9.2 Various guidelines and procedures with respect to procurement, sales and marketing, pricing, recruitments, manpower planning, salary structures, technology transfer, outsourcing of production and production facilities, outsourcing of sales and marketing and labour laws for PSEs which make them uncompetitive would be studied and necessary changes would be suggested to make the PSEs globally competitive. (Para 3.10.7)
- 4.2.10 Encouraging Intellectual Property Rights (IPRs) in the manufacturing sector**
- 4.2.10.1 It is important to effectively utilize intellectual property rights particularly Patents for technology up-gradation and growth as well as wealth creation by the manufacturing sector in a globalizing competitive market. Knowledge-driven industries in India should increasingly attempt to embrace the network model of innovation and R&D by intensifying their collaboration with research institutes, universities and other counterparts. Such efforts need to be particularly supported and encouraged by the government for the manufacturing sector. (Para 3.11.3)
- 4.2.10.2 The manufacturing sector needs to take advantage of the new IPR regime to enhance its competitiveness for which capacity building and facilitation would be required. It is also necessary for the Government of India and its concerned Ministries jointly with relevant

stakeholders/Industry Organisations like CII, FICCI and ASSOCHAM to launch a national campaign for Indian firms to invest in next generation intellectual property in the product, process and practice domain. All such efforts should form a part of the National Competitiveness Programme. (Para 3.11.4.4)

#### **4.2.11 Increasing the usage of Information & Communication Technology (ICT) in manufacturing sector**

4.2.11.1 Information & Communication Technology (ICT) can act as a powerful enabling technology to significantly improve the global competitiveness of the Indian Manufacturing Sector. Government must focus on encouraging implementation of a planned model of ICT adoption by the Indian manufacturing sector. This should be an integral element of the National Competitiveness programme. (Para 3.12.4)

#### **4.2.12 Benchmarking against best practices & breakthrough thinking**

4.2.12.1 Adoption of global best practices in manufacturing is an area which requires attention for ensuring sustainable competitiveness. A Manufacturing Advisory Service should be established by the government to deliver practical help to manufacturing sector. (Para 3.14.1)

4.2.12.2 A paradigm shift in manufacturing sector can be achieved, if manufacturing is not just viewed as a process in the factory, preceded by design and followed by sales but as a new way where R&D is as critical a component of product design to supply chain management and customer relations. A group should be set up comprising of representatives of CII, FICCI and ASSOCHAM to study the concepts and applicability of manufacturing architecture (integral vs. modular) as relevant to the Indian conditions so as to suggest suitable policy initiatives that need to be taken by the manufacturing sector. (Para 3.14.2)

### **4.3 Sub sector engagement**

4.3.1 As a part of the overall approach toward enhancing competitiveness in manufacturing sector, it is imperative to focus on sub-sector interventions because of their own characteristic requirements. Each element of the

value chain within a sub-sector would need to be examined and proposed action implemented in order to make the entire value chain competitive. (Para 3.15.1)

4.3.2 Certain sub-sectors are ideal candidates for attention by the Government as they have obvious competitive advantages in the world market. It is necessary to encourage such sub-sectors and enable them to move forward on the growth path quickly. These can be prioritized through a detailed analytical study of each regarding their relative potential in the Global context currently and over a period of time. Textiles and Garments, Leather and Leather Products, Auto Components, Drugs & Pharmaceuticals, Food Processing and IT Hardware select themselves at this point in time. (Para 3.15.2)

4.3.3 In addition, there are certain core sub-sectors within manufacturing which have a direct impact on the growth of all the sub-sectors. Prominent among these are steel, cement and capital goods. These also need urgent attention. With the increasing integration of India with the world economy, particularly through trade in manufactured goods, shipping sector assumes great importance. The creation of capacity for building mercantile ships needs to be accorded priority.

4.3.4 The sub-Sectorwise engagements are part of the national strategy for enhancing competitiveness of the manufacturing sector and will feed into the overall manufacturing strategy appropriately. Monitoring of these sub-sectors would need to be done on a dynamic basis keeping in mind the global developments and their implications for the competitiveness of the manufacturing sector. Therefore, the sub-sector wise follow up will have to be done on a continuous basis and the industry and the concerned Government Departments would need to closely monitor the developments and take appropriate corrective measures and interventions required in a timely manner. (Para 3.15.6.)

## **4.4 Improving firm level competitiveness**

4.4.1 While initiatives are taken at the country and sector levels to enhance competitiveness in the economy, maintaining firm level competitiveness is

equally essential. Individual firms must build abilities to acquire, assimilate, develop new technologies; reduce production costs; cut down delivery time; practice Total Quality Management; enhance productivity and customer service. (Para 3.13.2)

4.4.2 In India there is an urgent need for more leaders in manufacturing industries at this juncture. In order to enable development of leaders, special programmes are conducted in the higher learning institutions abroad. It is necessary for Government to encourage some of the premier technical institutions like the Indian Institutes of Management and the Indian Institutes of Technology to collaborate with such institutions and conduct similar programmes in India for developing leadership in the manufacturing industry. The programmes could be designed as a public/private initiative. (Para 3.13.3)

4.4.3 A concerted effort is needed on the part of the industry to increase competitiveness by systematically identifying and eliminating waste throughout the entire business cycle by applying appropriate managerial and technological practices such as Lean Manufacturing Technologies, like 5S system (Sort, Set in order, Shine, Standardize & Sustain), Visual controls, standard operation procedures (SOPs), Just-in-Time (JIT), KANBAN, Cellular layout, Value stream mapping, Total Productive Maintenance (TPM) etc. An important area for focus is process technology development where firms need to build competitiveness. (Para 3.13.4)

4.4.4 The National Manufacturing Competitiveness Programme (NMCP) is aimed at improving firm level competitiveness. As a part of this a national programme on application of Lean Manufacturing needs to be implemented so that it covers various important sectors of the industry. (Para 3.13.5)

## **4.5 Creating a monitoring mechanism & measuring performance**

4.5.1 It is essential that the implementation mechanisms as well as institutions are properly designed and created immediately. The strategy will have to be implemented by synergistic action by all stakeholders from the government, industry and others. The existing way of handling manufacturing sub-sectors requires a change. There is no focus or continuity in terms of goals and

implementation. The Mission mode of implementation or a similar Mechanism that will improve efficiency in implementation would be the appropriate mode to begin with in respect of some sectors such as Leather & Leather Products, Textiles & Garments and Food Processing industries. (Para 3.16.1, 3.16.2)

- 4.5.2 The National Manufacturing Competitiveness Council has an overarching role of not only preparing a National strategy for manufacturing in a medium to long-term perspective, but also coordinate the efforts of various Ministries dealing with manufacturing for a synergic growth of the sector. Further, a continuous dialogue would be maintained with State Governments for working together towards the implementation of the reforms in the manufacturing sector with proper and regular interface with the implementing agencies. (Para 3.16.3)
- 4.5.3 The key component of any strategy is a means of measuring progress towards a defined goal. For monitoring to be effective, a set of key performance indicators would be identified/developed by the NMCC which would allow a quantitative and qualitative assessment of the progress of manufacturing sector. These indicators shall allow periodic monitoring of performance and effectiveness of initiatives/ reforms/ actions by the government, industry and other stakeholders of manufacturing. The NMCC would also review periodically the implementation of the various recommendations and the elaborations in the sub-sector engagements. The measures to be reviewed would include action taken by the Centre and the State Governments in their respective domain. (Para 3.16.4)
- 4.5.4 The monitoring mechanism should also include surveys of business climate based on the opinion of the decision makers/leaders on various macro environmental factors of competitiveness. This would serve as an important feedback mechanism in the implementation of manufacturing reforms. (Para 3.16.5)
- 4.5.5 Government has been stressing that the robust growth of manufacturing is essential for achievement of overall growth rates of the economy. Government should announce implementation of the National Strategy for Manufacturing as a National manufacturing initiative with a ten year horizon. In order to ensure that due focus is given in implementation of the manufacturing strategy it is essential that the issues as well as the progress

are periodically reviewed by Government at the highest level. For this reason, a High level committee will need to be constituted on the pattern of Trade and Economic Relations Committee (TERC) chaired by the Prime Minister and having Ministers from the various Ministries relating to manufacturing called "Committee on Growth and Competitiveness of Manufacturing". The Committee would deal with policy level issues arising in the implementation of the National Strategy for Manufacturing as well as in the implementation of the medium term growth plans of each sub-sector. (Para 3.16.6)

**Growth targets for 17 industry groups under Manufacturing (IIP)**

NIC 2 - digit code	Description	Weight in IIP (%)	5 yr. Avg. growth (1999-2003)	Possible target growth (average)	Contribution to manufacturing growth (%) (Weight x Growth rate)
35-36	Machinery & equipment, other than transport equipment	9.6	8.7	20%	1.92%
30	Basic chemicals & chemical products (except petroleum & coal)	14.0	6.9	18%	2.52%
26	Textile products (including wearing apparel)	2.5	3.9	17%	0.425%
38	Other manufacturing industries	2.6	2.5	15%	0.39%
33	Basic metal & alloy industries	7.5	5.9	12%	0.9%
37	Transport equipment & parts	4.0	8.4	10%	0.4%
28	Paper & paper products & printing, publishing & allied industries	2.7	4.5	10%	0.27%
22	Beverages, tobacco & related products	2.4	12.1	10%	0.24%
23	Cotton textiles	5.5	0.3	8%	0.44%
29	Leather & leather & fur products	1.1	4.5	8%	0.088%
20-21	Food products	9.1	4.6	7%	0.637%
31	Rubber, plastic, petroleum & coal	5.7	6.4	7%	0.399%
32	Non-metallic mineral products	4.4	6.6	7%	0.308%
34	Metal products & parts, except machinery & equipment	2.8	2.8	7%	0.196%
24	Wool, silk & man-made fibre textiles	2.3	6.4	4%	0.092%
27	Wood & wood products, furniture & fixtures	2.7	-7	1%	0.027%
25	Jute & other vegetable fibre textiles (except cotton)	0.6	-0.4	1%	0.006%
<b>Total:</b>		<b>80.0<sup>24</sup></b>			<b>9.258%</b>

<sup>24</sup> There are rounding approximations.

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