# AN APPROACH TO NATIONAL MANUFACTURING PLAN

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CHAPTER 1: INTRODUCTION

Over the years, various policy initiatives and economic reforms have made India one of the fastest growing economies in the world. However, the performance of India’s manufacturing sector causes concern particularly when compared with the manufacturing sectors of other countries in similar stages of development. The increasing gap in both, the sectoral share of manufacturing and the productivity of the manufacturing sector in India, compared with such countries, including China, indicates that the country has not been able to fully leverage the opportunities provided by the dynamics of globalization.

Today, the manufacturing sector contributes about 15.6% of India’s GDP, with estimated revenue of about Rs 40 lakh crore in 2008–09. While the recent growth of manufacturing makes India among the better performers amongst the large and rapidly developing economies (RDEs), the sector’s share of GDP is among the lowest in this group. Notable examples of other RDEs which have a significant share of GDP from this sector are Thailand (40%), China (34%), Poland (30%), etc. In addition, over the last two decades the contribution of the services sector to GDP has grown by almost 10%, whereas the share of manufacturing has remained stagnant. These statistics indicate that manufacturing has not been the engine of growth for the Indian economy and needs to grow at a much faster rate to have a higher multiplier effect on the national economy. A closer look at the disaggregated historical growth rates for the sub-sectors of manufacturing show that growing at the same rate would lead to an overall growth of ~10-11% till 2025. In order for manufacturing to capture ~25% of share of GDP, it would need to grow at ~3-4% higher than GDP growth, i.e. ~12-13% for GDP growth of 9%.

In most RDEs today, the manufacturing sector provides a major share of employment. However, in India the manufacturing sector employed 58 million people or just about 12% of the workforce in 2008. This share is low compared not only to other developing countries, but even with more developed economies where there is a higher demand for services. This is further compounded by the fact that many studies have shown that over 90% of the manufacturing jobs in India have been created in the ‘informal’ sector with hardly any growth in organized sector jobs.

This has significant socio economic manifestations in the form of over dependence of a large section of the population on agriculture for its livelihood and disguised unemployment. India is a young country with over 60% of population in the working age group of 15-59 years. India will have to create nearly 220 million jobs between now and 2025 if it has to exploit its demographic dividend. A large share of these jobs will have to be for the migrating labor from rural to urban areas which will see rural population decreasing from about 70% in 2010 to less than 63% by 2025. This means about 50-60 million low skilled people will move out of agriculture and related jobs and will be looking at alternate employment options. It is estimated that every job created in manufacturing has a multiplier effect of creating 4 additional jobs in related activities. Thus job creation in the sector can be a major instrument for reaping the demographic dividend.

Labor productivity varies by sub-sectors in manufacturing. While some sectors like metals are capital intensive on account of the nature of production processes required and hence inherently not labor-intensive, other sectors like textiles and paper are employment intensive. At the same time, it is expected that labor productivity for all sectors should gradually improve over time. If we were to look at the disaggregated historical growth of the sub-sectors of manufacturing, then a similarly distributed growth of ~11-13% would yield an additional ~80-120M jobs by 2025,
assuming an annual improvement of 3% in labor productivity. Thus, an improvement in the growth of the manufacturing sector would have significant benefits on employment as well.

Besides growth and employment, there is a third issue facing the manufacturing sector - the lack of depth\(^1\) - that manifests itself in two ways: (i) the relatively low level of ‘value-addition’ in the products manufactured in the country, and (ii) the growing imports of capital equipment – the building blocks of a country’s manufacturing competitiveness. Between 2003 and 2009, while the manufacturing GDP has grown only about 2 times, the import of plant and equipment has grown nearly 8 times. Low value-addition is illustrated in the domestic manufacturing of mobile phones, for example. Since India is the fastest growing market with the second largest mobile subscriber base in the world, many Multi National Corporations have entered the Indian market. Large scale manufacturing units have been set up to avail of various incentives. However, mobile handsets assembled in India have a very low level of local value addition with most of the key technologies, components and sub-assemblies being imported.

Finally the growth in the manufacturing sector has to be made sustainable. While sustainability will cover many dimensions such as creating a good system of innovations, providing an institutional framework for dynamic and evolving policy making and continuous efforts to map emergent skill gaps, perhaps the most important dimension would be ensuring environmental sustainability. Globally industries are coming under attack for their huge environmental impacts. The National Manufacturing Plan has to ensure that industrial development in the country does not create unsustainable environmental costs.

1.1 OBJECTIVES OF THE NATIONAL MANUFACTURING PLAN

In the light of the above discussion, India’s strategic objectives for the manufacturing sector in the next 15 years should be to bring about a quantitative and qualitative change via a set of policy choices with the following five core objectives:

i. Increase manufacturing sector growth to 12-14% over the medium term to make it the engine of growth for the economy. The 2 to 4 % differential over the medium term growth rate of the overall economy will enable manufacturing to contribute at least 25% of the National GDP by 2025.

ii. Increase the rate of job creation in manufacturing to create 100 million additional jobs by 2025. Emphasis should be given to creation of appropriate skill sets among the rural migrant and urban poor to make growth inclusive.

iii. Increase ‘depth’ in manufacturing, with focus on the level of domestic value addition, to address the national strategic requirements.

iv. Enhance global competitiveness of Indian manufacturing through appropriate policy support.

v. Ensure sustainability of growth, particularly with regard to environment.

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\(^1\) ‘Depth’ is defined as capability and expertise in all aspects of a product value chain, from R&D and product design to manufacture of components and final products to installation and servicing, where appropriate.
1.2 THE STRATEGY FOR DEVELOPMENT OF MANUFACTURING SECTOR

A close look at the impact of the policies adopted by India since 1990 shows that while the performance of some sub-sectors of manufacturing e.g. automobiles and auto parts, has improved, overall manufacturing has failed to contribute to the economy as much as expected. In fact India’s growth has been, unusually from economists’ perspective, service led. The relatively weak growth of the manufacturing sector against expectations of contributions from it, and the contrast with the rapid growth of manufacturing in other countries during the lift-offs of their economic growth, China in particular, compels a re-thinking of strategy. While clearly the country must not revert to the system of government controls from which industry was freed by liberalization, government must shape policies to stimulate faster and broader growth of manufacturing. There are constraints on manufacturing growth that the first wave of reforms has not addressed adequately so far, such as infrastructure. Also, the more open global trade regime since the 1990s requires new approaches and more sophisticated policies to grow depth in Indian manufacturing. Protection will not do, but neither can we go on as we are.

Investments must be attracted to manufacturing sectors that will provide the country with the benefits it needs, of rapid growth of employment, technological development and depth in sectors that are strategically important—some for the security of the country, others for the base they provide for sustaining the competitiveness of the manufacturing sector. Just as policymakers make choices about what types of transport infrastructure would be best to promote in the country, not leaving this entirely to the market, and make assessments of which types of renewable energies it will be desirable to promote considering the country’s resource endowments, they must consider which types of manufacturing industries are desirable to promote to achieve the outcomes expected from the growth of the manufacturing sector.

The integrated development of the Manufacturing sector also requires an appreciation of the trade-offs to be made to develop manufacturing more systematically. A national Manufacturing Plan cannot be merely an aggregation of policies for sub-sectors of Manufacturing. The country is developing and implementing fairly successful policies for sub-sectors such as automobiles. However, the connection of these policies with the growth of other critical sectors, such as machine tools is insufficiently understood until the whole of Manufacturing is considered together. Similarly, policies for the power sector and telecom sector effect the growth of the manufacturing capabilities required to support the growth of those sectors. Therefore a more holistic view must be taken. For this, the participation of several ministries and several sectors of industry is necessary.

Sustainable growth of the manufacturing sector will be achieved by the growth of internationally competitive enterprises in the country. Therefore the policymakers’ role is to create conditions for the growth of such enterprises. This requires that constraints within the country on their growth and competitiveness must be addressed. Recent analysis by economists of countries that grew their manufacturing sectors rapidly show that the strength of the process of collaboration between producers (in the private sector as well as public sector if significant) and policy-makers has been the key to the evolution of appropriate strategies and policies.

These analyses of the successful growth of the manufacturing sector in several countries highlight the quality of the process of learning that results in ‘getting it right’. The manufacturing sector is complex. Not only are there inter-relationships between its sub-sectors as mentioned before. Several constraints affect the sector, such as infrastructure, labor institutions,
technology acquisition, trade policies, etc. It is not necessary to relieve them all at the same time; but to relieve those that, at that stage of development of the sector in the country, are the most binding constraints; and to relieve them in contextually appropriate ways. In other words, each country that successfully grew its manufacturing sector developed innovative solutions to overcome its constraints. Mere imitation of other countries’ solutions cannot work. Producers in the country who know where exactly the shoe pinches and policy-makers have to devise solutions together. In sum, the quality of the process of consultation and policy-formulation is the key to a good industrial strategy/policy for the 21st century. Indeed, some suggest that, in a dynamic world in which strategy and policy must respond dynamically, to build a strong process for consultation to evolve policies is the best strategy.

The architecture of the strategy described above can be schematically represented as follows:

**Fig 1 : Structure of Manufacturing Plan**

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1.3 THE COMPONENTS OF THE MANUFACTURING PLAN

In line with the architecture suggested above the National Manufacturing Plan will have three components, namely:

1. Special focus on some sectors of manufacturing which will enable the country to more rapidly achieve its goals for manufacturing and strengthen the overall manufacturing sector. This focus may shift over time as new threats and opportunities emerge.

2. An identification of the constraints that cut across manufacturing sectors, and policies to relieve these constraints. The constraints that need most attention at the time, and the policies to relieve them, must be developed through effective processes for consultation between stakeholders and policy makers. Since many stakeholders are involved, and various ministries in government too, a nodal agency must be accountable to coordinate the evolution of the policy in each area and to manage its progress within the overall Plan.

3. Active attention to improving the processes of implementation. Consultation between policy-makers and producers are required within each of the policy-areas, as well as for overall co-ordination since the various sectors and policy areas interact systemically. Accountability for development of the overall framework and also accountability for coordination of its implementation must be appropriately and clearly located.

These three parts of the Manufacturing Plan for India are described in the sections that follow.
CHAPTER 2: PRIORITY SECTORS

Experience has shown that countries gain by prioritizing investment of effort and resources in industries which have strategic significance. This would enable the economy to get the maximum benefit from investment of limited resources. This would also enable the government to address its critical strategic needs in the shortest possible time. In India the maximum benefits can be harnessed by concentrating on the following industry verticals:

1. Employment intensive industries
2. Capital goods
3. Industries with strategic significance
4. Industries where India enjoys a competitive advantage
5. Small and Medium Enterprises

2.1. EMPLOYMENT INTENSIVE INDUSTRIES

The best form of poverty reduction is to provide productive employment to the millions joining the workforce every year. The demographic dividend can be harnessed only when the jobs are created in large numbers and the skills of the job seekers match the job requirements. Increase in the number of job seekers without creation of appropriate jobs would be the surest recipe for disaster. The social tensions which are manifesting themselves in lawlessness of various forms are attributable to the failure of the system to make use of the energies of the youth for productive purposes. Unless this is corrected, the increase in the proportion of youth in the population which is expected to provide a demographic dividend to the country could end up as a demographic disaster. It is in this context, that the question of balanced growth and support to the employment intensive industries becomes extremely important. Policies and programs need to be put in place which would encourage the employment intensive industries. Specifically the following employment intensive industries need to be given additional focus and attention:

i. Textiles and Garments
ii. Leather and Footwear
iii. Gems and Jewelry
iv. Food Processing Industries

This list could be expanded as necessary to include other labor intensive industries also such as utensils, wooden furniture and fixtures, pre fabricated construction materials including doors, windows, etc. Individual action plans will be drawn up in respect of these industries. Once these are recognized as priority sectors for the purpose of employment creation, the policy package would need to be constantly reviewed so that these sectors are protected from the vicissitudes of developments external to the industry. At the same time, the sector should continuously improve productivity, quality and costs which are internal to the companies, Government, through appropriate policy measures will ensure that their competitiveness is not eroded due to external factors. The Government will encourage industries in these sectors to link up and form clusters, which will provide them with significant economies of scale and lead to a stronger supply chain,
faster turnaround in operations, higher negotiating power in the market (e.g., access to superior talent), lower costs etc.

2.2 CAPITAL GOODS

If the country is to manufacture products of world-class technologies, it would require a strong and substantial capital goods industry of high quality. Considering that the economy is expected to grow at 9 to 10 per cent on average, the capital goods industry in India today is of a miniscule size when compared with what is required to enable this growth. More than 50 percent of the capital goods requirements of the country are currently being imported and with the targeted economic growth the demand for capital goods will increase enormously leading to much higher imports unless action is taken urgently to build a modern capital goods industry of substantial capacity. As an illustration of our low production base in this sector one may note that while China’s overall GDP is only 3.8 times that of India, when we compare machine tool production, China’s production is 55 times that of India.

Since it is not possible to give focused attention to all sub-sectors within the capital goods industry, due to resource limitations, the following more important industries from the strategic point of view need to be supported with focused attention:

i. Machine tools

ii. Heavy electrical equipments

iii. Heavy transport, earth moving and mining equipments

iv. High technology equipments like telecommunication equipments and upper end of IT and Electronic Hardware

In each of these sub-sectors, a time bound action plan will be prepared for building high class modern capacities with R & D facilities in line with the requirement of meeting the long term strategic demands of the country. The plan would also contain programs which would encourage growth and development of these sectors in the private sector while strengthening the existing public sector. Competitiveness shall be the touchstone for governmental support.

2.3 INDUSTRIES WITH STRATEGIC IMPORTANCE

Manufacturing is not only the backbone of the economy but is also the muscle behind national security. Therefore, a robust manufacturing sector is sine qua non for any major country. Keeping this in view, four manufacturing sectors have been identified as strategic for strengthening the national capabilities from the long term point of view. These are:

i. Aerospace

ii. Shipping

iii. IT Hardware and Electronics

iv. Solar Energy

v. Defence Equipment
All these sectors require high technology components and subassemblies. Mastery of those technologies would bestow spill over benefits to the rest of the civilian industry also. Thus, these sectors are important not only from the strategic point of view but also from the point of Technology Development.

i. **Aerospace:** India is one of the few developing countries to have had an aircraft manufacturing programme almost 60 years ago. However, the progress of development and operation of India made aircrafts has been slow. The country has not been able to bring out commercially viable aircraft of international quality even in the smaller capacity segments.

The Aircraft manufacturing industry is important both from the civilian as well as the defence point of view. One of the key reasons for the inability to push this programme forward appears to be organizational. The space research programme, which started much later than the Aircraft programme, has made major strides because of the focus given to the programme. There is a need to restructure the Aeronautics programme into a Mission Mode and put in place a suitable organization structure. A programme for making India a major force in this field in the next 10 years will be worked out and launched as early as possible. The long-term vision will also include futuristic development of aircraft requirements in both civil and military areas.

ii. **Shipping:** India has a vast coastline as well as a huge external trade requiring large fleet of ships both for civilian and military purposes. India’s emergence as a major economic power would mean greater integration in terms of trade with the rest of the world requiring huge shipping tonnage. Also, the need for strengthening the naval forces would place an extra urgency on ship building activities. The existing facilities for shipbuilding are inadequate even for the limited demand at present, let alone the demand that would be generated by high growth. Therefore, a comprehensive plan to enhance domestic ship building capabilities and building large new shipyards will be taken up on an urgent basis.

iii. **IT Hardware and Electronics**

In the modern era the strength of ICT industry of a country would determine the course of its future development. The greater the advancement in technology in this area the greater would be the potential for domestic value addition as well as for the growth of the economy. To make the country technologically strong, it is necessary to treat IT/Electronic hardware industry like a mother industry similar to the capital goods industry.

It is estimated that the total requirement of ICT manufactured products would be of the order of US $ 320 billion by the year 2015 and of which less than 50% would be manufactured in India indicating the very low domestic manufacturing capacity in the country and the need to increase it very substantially.

The aim of the country has to be to produce bulk of the requirements domestically which are also competitive enough to export substantially. A mission mode approach will be initiated specifying goals for the Mission in terms of development of products and new technology.
iv. Solar Energy

Development of Solar Energy needs to be looked not merely from the point of view of climate change, but also from the point of view of energy security for the nation in the longer term. Already India is facing the consequence of the rising oil prices. Coal and other fossil fuels are not inexhaustible and would impose limits on growth in the longer term apart from the damage they cause to the environment. Besides, particularly for oil, the country is overly dependent on other countries. The levers controlling the availability of oil at a reasonable price would be in the hands of others. In turn, the growth of the economy and the manufacturing sector would be subjected increasingly to these external factors. On the other hand the country is blessed with an abundance of solar energy. India, therefore, needs to tap into this energy source on a war footing for meeting the long-term needs.

If the country is to achieve substantial growth in solar energy generation, it is necessary to concentrate not only on science and technology, but also on the design and development and commercialization of the products. Appropriate policies need to be put in place for rapid long-term growth of this sector and a major programme will be launched in a coordinated manner to cover all aspects of this potential energy source for the country.

v. Defence Equipment

India’s neighborhood is volatile. India’s armed forces must be adequately equipped at all times with up-to-date equipment for them to fulfill their role of ensuring the country’s security against external threats. The quality and capability of the equipment must match or exceed the capabilities of the equipment of the other armed forces, with whom ours must contend. Moreover, access to supplies of equipment and to spare parts and maintenance support must be ensured during times of hostility when the equipment is required most. Therefore national security demands that the country is able to secure supplies at such times. Hence, while the equipment must be of latest technology, production within the country is also very desirable.

Moreover, since spin-offs from the development and production of defence equipment have large multiplier effects on the manufacturing sector, especially on growth of high technology production capabilities, defence production is a strong pillar for the overall development of the manufacturing sector.

2.4 INDUSTRIES WHERE INDIA ENJOYS A COMPARATIVE ADVANTAGE

As mentioned earlier, the growth of Indian manufacturing has not been uniform across all sectors. There are areas in which India today has emerged as a major global player. Further due to its large pool of talented manpower as well as presence of significant R&D hubs, the country is well poised to become a leading value creator. The automotive sector and the pharmaceutical and medical equipment sectors are two such examples.

i. Automotive Sector

Following economic liberalization in India in 1991, the Indian automotive industry has demonstrated sustained growth as a result of increased competitiveness and relaxed restrictions.
Several Indian automobile manufacturers have expanded their domestic and international operations in recent years. Further, India's robust economic growth led to a major expansion of its domestic automobile market which has attracted significant India-specific investment by multinational automobile manufacturers. In 2009 India's passenger car and commercial vehicle manufacturing industry was the seventh largest in the world, while its scooter and motorcycle industry was ranked second. Given the rapid increase in income levels this progression is unlikely to stop in the coming decades.

The large and growing domestic market combined with India's strong engineering base and expertise in the manufacturing of low-cost, fuel-efficient cars provides an opportunity for positioning the country as a leading global automotive hub.

ii. Pharmaceutical and Medical Equipment:
Increasing urbanization, superior demographics, better health consciousness and higher life expectancy has enhanced the demand for quality healthcare products in the world today. A vibrant and dynamic pharmaceutical and medical equipment sector is vital for enhancing average life expectancy and improving the quality of life and productivity. India is very well placed to tap the growing potential of this due to the widespread availability the relevant skill-sets along with globally recognized companies in the country. Competition has proved to be a blessing for the sector. Several big corporate houses have ventured into the sector. The recent interest of MNCs in India is also a clear sign of the growing strength of the country in this sector.

2.5 SMALL AND MEDIUM ENTERPRISES
The Small and Medium Enterprises (SMEs) contribute about 45% to the manufacturing output and about 40% of total exports of the country. The sector is estimated to employ about 59 million persons in over 26 million units throughout the country, and produce over 6000 products, ranging from traditional to high-tech items. SMEs provide the maximum opportunities for both self-employment and jobs, after the agriculture sector. The sector is also employment intensive and generates employment for 7 persons on every investment of Rs.5 lakhs as against employment for one person in the organized sector for same investment. Further, given the dispersal of the units all over the country, it provides substantial employment in the rural areas. Therefore, ensuring that the SME sector grows at a healthy rate is crucial for the overall growth of Manufacturing Sector as also the national economy.

India is integrating with the world economy, compelling the Indian Industry to adjust to global competition. This scenario provides both opportunities as well as challenges for MSEs. An opportunity to grow in a global market place is 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 challenges include inadequate access to resources, poor technological and managerial skill sets, and above all the competition due to the opening up of the economy.
CHAPTER 3: POLICY AREAS

Several constraints must be addressed at this time to attract more investment into Manufacturing in India and to provide an enabling environment for the growth of competitive enterprises. These include Land; Physical/hard Infrastructure, especially transportation and power; Administrative/soft Infrastructure—government machinery, plethora of agencies, etc; Labor relations—laws and practices; Skills; Environmental management; and Technology.

These constraints and requirements will be addressed by suitable interventions under the following Policy Areas:

i. **Business Regulatory Framework:** A good system of regulatory procedures reduces the transaction and compliance costs of industries, thereby accelerating the rate of growth. Such systems also encourage entrepreneurship and innovation. This would also cover inclusion of measures of good governance like speeding up and simplification of regulatory procedures

ii. **Environmental Sustainability & Energy Availability:** Environmental sustainability has several facets. Reduction of carbon emissions is one that is engaging the international community, and Indian policy-makers too, to reduce global warming. Another critical dimension, especially for India, is water resources. A third, related facet is use of land. The manufacturing plan has to ensure that industrial development in the country does not create unsustainable environmental costs. Striking the balance between environmental sustainability and industrial growth through the right policies and incentives is critical.

The energy infrastructure in India requires significant improvement. The supply of power lags the demand. In addition, the full installed capacity is not being fully utilized due to inefficiencies. Given that power is a critical component required for industry, this shortage in power generation could significantly impede manufacturing growth. However plans for power generation and supply must be weaned away from coal and hydro-carbon fuels. Therefore alternative forms of energy must be developed. While the overall energy security policy is beyond the scope of the manufacturing sector, the country’s manufacturing plans must factor in policies for improvement of energy utilization and reduction of emissions.

iii. **Land & Water:** As mentioned before, land and water are fundamental inputs required for the manufacturing sector. As manufacturing expands, requirements of these resources will also increase rapidly. Meeting these requirements is a challenging but critical task to achieve the high growth rates and additional employment aspirations set in the manufacturing plan. As such, it is essential to evolve and enforce policies and measures to manage the demand for these resources and ensure that it is met. This requires innovations as well as consensus-building amongst stakeholders competing for the same natural resources. The processes for innovation and consensus must be built into the manufacturing plan.

iv. **Increasing depth in manufacturing:** Acquiring depth in manufacturing is important for long term competitiveness for various reasons. Depth allows for greater value
v. **Human Resource Development and Management:** India’s manufacturing competitiveness and growth strategy must build upon its demographic strengths as well as demographic needs. India has the world’s largest pool of trainable and employable human resources. Moreover, India’s youth need employment opportunities so that they can earn and contribute to the growth of the economy. Productivity of the workforce results from good skills, good management, and a good industrial relations climate.

vi. **MSME growth:** The Small and Medium Enterprises (SMEs) contribute about 45% to the manufacturing output and about 40% of total exports of the country. As India continues to integrate with the world economy, the Indian Industry is compelled to adjust to global competition. This scenario provides both opportunities as well as challenges for MSEs which must be addressed to foster growth.

vii. **Clustering/Aggregation:** As a strategy for overcoming constraints of physical infrastructure and land, as well as ‘virtual’ clusters to promote technology development.

viii. **Boosting India’s exports:** Despite the robust growth of exports, India’s merchandise trade deficit has risen, and continues to rise, as import growth has regularly outpaced export growth. If we want to maintain a growth rate of 9% over the medium term, and ease domestic supply constraints, a relatively high growth of imports is going to be unavoidable. We have, therefore, no option but to focus on higher export growth, and devise a strategy for rapidly increasing merchandise exports to ensure that the Balance of Trade and Current Account Deficit remain within manageable limits.

ix. **National Manufacturing and Investment Zones:** To create alternative urban centers with highly productive environments, and to develop national best practices in the manufacturing domain.

x. **Reforming Role of PSE’s:** Wherever ‘patient capital’ is required to create deeper capabilities and coordination of contribution of several organizations is necessary (including private sector) to achieve national objectives, government will have a critical role to play. This requires new forms of public-sector led or public-sector enabled organizations, rather than conventional ‘production’ organizations (the role PSEs have hitherto performed).
While coordinated action will have to be initiated in each of these areas on the highest priority, it has to be recognized that the full impact of different measures in each area would materialize only over different time horizons. Thus while strengthening of existing clusters with state of art infrastructure, and investments in creation of virtual knowledge networks, may result in a relatively quick rise in production and productivity, and good governance may have a similar rapid impact on investments in the manufacturing sector, initiatives in the domain of technology and trade can only contribute to the deepening of the industry over a longer time period of, say, ten years. The creation of Greenfield National Manufacturing and Investment Zones would require a minimum of ten to fifteen years to show a visible impact on rise in production and employment. The expected timelines for interventions in each of the policy areas to reach maturity is shown in the figure below. However, the fact that the benefits of some policies will take a long time to materialize does not mean they should not be given priority. Indeed they must be initiated without delay to obtain their benefits as quickly as possible.

**Fig 2: Time Frames for Benefits to be Realized**

![Fig 2: Time Frames for Benefits to be Realized](image)

### 3.1 BUSINESS REGULATORY FRAMEWORK

A good system of regulatory procedures reduces the transaction and compliance costs of industries thereby accelerating the rate of growth of the manufacturing sector. In particular, such systems encourage entrepreneurship and innovation.
It has been experienced in India and elsewhere that irrespective of their size or ownership, businesses fundamentally need from government (a) a favourable investment climate that minimizes costs and promotes predictability, and (b) competitive markets which also address policy-related risks and barriers for enterprises.

Consultation and better understanding are required on competition policy, regulatory reforms, and business regulation & corporate conduct for the Approach Paper for 12th Plan in view of the changes during the last two decades in the regulatory framework governing businesses and also in the market structure across sectors. Also, a more intense public debate, during the last few years, on corporate social responsibility - geared towards the development needs – requires consideration here.

Good governance also has to include speedy and fair process for obtaining land for industry, which could include the identification of land banks suitable for establishment of manufacturing units and a process for transparent and speedy transfer of its assets to industry. This would create a sense of confidence in potential investors.

**Speed and Simplification**

Manufacturing in India is today regulated by a multiplicity of laws. Compliance with these laws involves numerous permissions, inspections, and filing of returns leading to high transaction and compliance costs for the industry and a consequent loss of entrepreneurial activity. Keeping in view the importance of granting fast track approvals the following general principles for simplification and rationalization of the regulatory procedures should be adopted:

i. Exemptions will be provided under Acts/rules which provide for exemptions from compliance under certain enabling conditions, by creating those enabling conditions within industrial clusters/NMIZs

ii. Wherever possible, powers of competent authorities under all Central and State Acts will be delegated to local authorities; this will be augmented through ‘Self-Certification’ and/or ‘Third-Party Certification’, with the onus of proof of correctness on the certifying entity;

iii. Attempts will be made to develop Combined Application Forms and Common Registers; Submission of multiple returns to different departments will be replaced by one simplified Monthly / Quarterly return wherever feasible;

iv. Systemization of inspections and introduction of joint annual inspections with a prior intimation to the industry will be introduced;

v. Timelines will be defined in respect of all clearances. In case no extension of timeline is specified and clearance is not given within the specified timeline, the clearance will be ‘deemed’ to have been given on expiry of timeline;

vi. The entire process of clearances by Central and State authorities will be progressively made web-enabled.
3.2 ENVIRONMENTAL SUSTAINABILITY & ENERGY AVAILABILITY

The regulation of environment and promotion of clean and green technologies is also an integral part of good industrial governance. In their absence growth of the sector will not be sustainable.

The development of the manufacturing sector has to take into account both, the growing global concern about environmental degradation, as well as the emergence of new “Green Manufacturing Technologies” which offer both challenges and opportunities for Indian manufacturing. In addition, a policy to promote development of manufacturing also has to take into cognizance the current commitments of the Government in respect of its international obligations in the field of conservation of environment and the aspiration of the future generation of its citizens for a healthy living environment. In order to drive the “greening” of manufacturing operations to reduce their carbon footprint, and to explore the emerging technologies in this area which offer opportunities to build local and global leadership, the government will have to take recourse to both regulatory as well as market based policy interventions.

Regulatory approaches will prescribe technology or design standards, mandating specific control technologies or production processes or performance based standard that requires polluters to meet an emissions/discharges standard, but allows the polluters to choose any available method to meet that standard. Market-based approaches or incentives, on the other hand, will provide continuous inducements, monetary and otherwise, to encourage polluting entities to reduce releases of harmful pollutants.

The broad incentives that will be provided for promoting Greener and Cleaner Technologies include:

i. Incentives for adopting technologies for common facilities for SMEs (like for establishing CETP, creating Zero discharge facilities)

ii. Incentives for bringing products that use Greener & Cleaner technologies to the consumer (like CFL bulbs) or to the producer (like bridging the viability gap between renewable energy sources like solar or wind power compared to thermal power)

iii. Incentives for purchasing relevant technologies and equipment

iv. Measures to identify and promote environmental conservation through efficient use of natural resources like water and energy

v. Capacity building for adopting Greener & Cleaner Technologies by way of conducting demonstration studies, training etc.

vi. Combination of the above schemes.

3.3 LAND & WATER

Availability of industrial land and infrastructure is critical for sustained industrial growth. However, due to the high pressure of population, land is a scarce commodity in India, and the rising costs of land acquisition for industrial purposes have acted as a serious constraint on growth of manufacturing sector. Investors need a high degree of certainty regarding the assured availability of land before making an investment decision. The Government of India must work
with the states to prepare a state specific strategy on planned industrial development wherein the advantages of logistics and infrastructure synergies are better addressed.

The specific policy measures which will be examined include:

i. Creation of land banks by states
ii. Digitization of land and resource maps,
iii. Standardization of compensation and rehabilitation measures
iv. Programmes for utilization of lands locked under non productive uses, including defunct or sick industries

Water is another fundamental input to the industry. Growth process and the expansion of economic activities inevitably lead to increasing demands for water for diverse purposes: domestic, industrial, agricultural, hydro-power, thermal-power, navigation, recreation, etc. While irrigation is the primary consumptive use of water, it is critical to ensure widespread availability of water for the industry to ensure that it does not become a limiting factor for the growth aspirations as set for manufacturing.

As a result of increasing water demand, water will become an even more scarce resource. Another important aspect related to water is the water quality. Improvements in existing strategies, innovation of new techniques resting on a strong science and technology base are needed to eliminate the pollution of surface and ground water resources, to improve water quality. In addition, a well developed information system, for water related data in its entirety, at the national / state level, is a prime requisite for resource planning. A standardized national information system would go a long way in improving the quality of data and the processing capabilities, and help in this planning. Water-zoning is a key strategy which helps plan economic development and activities including industrial development, agriculture, etc according to the constraints imposed by the configuration of water availability.

3.4 TECHNOLOGY & DEPTH IN MANUFACTURING

Acquiring depth in manufacturing is important for long term competitiveness for various reasons. In certain industries such as defense and telecommunications, it is important to keep the value chain indigenous from the perspective of national security. Controlling the upstream value chain in some industries is critical to safeguard growth in the downstream segments. For example given the required investments in infrastructure and industrial capacity, a greater base for capital goods and equipment manufacturing in India would provide greater stability to potential growth plans in these sectors. Depth allows for greater value capture along the chain. Higher the proportion of economic activity for an industry that is conducted within the country, greater is the share of economic benefits that accrue to the country, with consequent implications on key parameters like GDP growth, employment generation, etc. Greater scale and depth sustains long term global competitiveness as it is the key to technological innovation and allows greater pricing flexibility. Greater depth also makes the industry position more stable and less exposed to shifting global demand–supply situations and increasing volatility.
Three key issues that need to be addressed to influence the level of depth in Indian manufacturing are technology development, IPR policies and trade & fiscal measures.

**Technology Development & IPR**

India’s Manufacturing Plan must promote more rapid growth of labor-engaging industries and create more jobs. However, a strategy to grow manufacturing built only on low cost labor intensive manufacturing cannot be sustainable. Some countries are already entrenched in markets for low cost labor intensive products. Besides, as Indian labor costs rise, as they would with desired increases in income levels, India could progressively lose its cost advantage to other countries with lower labor costs.

In the short term, open markets provide opportunities for cost-price arbitrage at various steps in the value chain. Large profits are made by taking advantage of these: for example by exporting iron ore without processing it, or by assembling products for export (and local consumption) using cheap labor. However, Indian manufacturing must expand across the manufacturing value chain. It must move backwards from labor intensive assembly into the production of the inputs for assembly in the production of which more technology is required. And it must move forward from export of raw materials to add value to the raw materials within the country where too more technology is required. A challenge for Manufacturing Policy in an open market and trade regime is to induce longer term thinking in investors (both foreign and domestic) and foster a manufacturing rather than trading mind-set which is required to build manufacturing strength within the country.

Manufacturing and technology development are closely connected in practice. Technologies become useful when they are converted into products through manufacturing. The feedback from manufacturing fosters continuing technology development. Therefore manufacturing companies with the best technologies are those that maintain very close links between their R&D and manufacturing activities. So too with nations; those with deep and strong manufacturing bases host good technology development too. Therefore, policies for domestic technology development and policies for growth of domestic manufacture must be connected. And since trade policies do have effects on the growth of domestic industries, effects of trade policies on domestic production and domestic technology development must be carefully analyzed.

India has the ingredients for developing technologies. It has low cost, well trained engineers, as well as domain knowledge in several industries developed ever since the period of ‘self sufficiency’ preceding liberalization. MNCs in several industries have set up R&D bases in India to take advantage of these resources. These foreign companies are mostly taking advantage of the cost-price arbitrage. They export the technology developed in India back into their international supply chains. While such activities engage Indians and create high value jobs here, the ownership of the technology, the strategic use of it, and the financial returns from it, all lie elsewhere. China has announced an ‘indigenous innovation’ policy to compel foreign companies to bring their technologies to China, and to develop technologies within China under arrangements that will ensure that the technology remains in China. Foreign investors and governments are protesting against the Chinese policy. However they are continuing to do business in China because they need access to the large Chinese market.

India has a large, growing market too, which is very attractive to foreign companies whose traditional markets are slackening. Unlike China perhaps, India would like to comply fully with WTO regulations. Therefore India cannot imitate China’s policies, though it should also leverage
the attraction of its growing domestic market. Therefore Indian policy makers must develop more sophisticated policies that ensure both, access for Indian companies to foreign technologies as well as more development of technology within India. For this purpose, appropriate policies should be developed in the following areas to promote growth of more domestic production and technology development while attracting more foreign investment too:

i. Incentives, in the form of tax concessions and government subsidies, for indigenous development of technology

ii. Partnerships between industries and government laboratories

iii. Preferential purchases by government agencies of indigenously developed products and technologies (Government procurement is one freedom that has not been taken away so far by WTO policies)

iv. Judicious development of an Intellectual Property regime to enable more collaborative innovation, as well as more indigenous innovation. India must comply with the present WTO/TRIPS framework that India has committed to. However India should be very cautious about further expansions beyond the present TRIPS regime which could have implications on development and ownership of technologies within the country.

v. Joint ventures between foreign companies and Indian partners

The competitiveness of Indian manufacturing is impacted significantly by trade and fiscal measures such as the incidence to tax, exchange rate, ability of Indian companies to acquire strategic offshore assets and other policies promoting technological transfer and creation of economies of scale. In this context, the National Manufacturing Plan will focus on four given areas, namely: (i) Offset policy; (ii) Government Procurement; (iii) Fiscal and Exchange rate measures; and (iv) Strategic Acquisitions. Care will be taken to ensure that all the proposed measures are in conformity with India’s international obligations.

**Trade related measures**

- **Offset Policy**

  Offset policy is an important means to ensure that a proportion of the total equipment imported is manufactured in India. The Defence Ministry already has an offset policy in place. Further, an offset policy is under preparation by the Commerce Ministry for all major purchases of Government of India/Public Sector other than Defence, Space and Atomic Energy Ministries. While finalizing a comprehensive offset policy the government must ensure that it will

  i. Enable upgradation of technological capabilities in various strategic industries over a period of time;
  
  ii. Mandate technology transfer in addition to manufacturing content, wherever feasible; and
  
  iii. Create appropriate organizational structures to enable quick decision making, in close interaction with industry and other stakeholders, so as to enable quick absorption of technology.

- **Government Procurement**

  Public procurement is a major policy instrument for development of technological competence. Historically many countries have used it in their path to development (Procurement for defence
needs has invariably been a large area: and infrastructure requirements have been often). Public procurement with stipulation of local value addition will be used in areas where we can club public procurement needs over a number of years to create the volumes and scales which would enable the development of domestic manufacturing capabilities; in particular, capabilities in critical technological areas like LED, solar energy equipment, IT hardware and IT based security systems and fuel efficient transport equipment such as hybrid and electric automobiles.

All government contracts for purchase of equipment by the central government, state government and Public sector undertakings may be required to contain provisions for local value addition without unduly compromising either quality or cost. This can provide a required boost for domestic manufacturing.

**- Fiscal and Exchange Rate Measures**

The competitiveness of domestic manufactures in the international markets is significantly dependent on the incidence of taxation, the structure of taxes and the exchange rate of the domestic currency vis-a-vis other major currencies of the world. Inverted duty structures, which encourage import of intermediate goods, will be identified and eliminated on priority. Sharp appreciations in the exchange value of the Rupee should be prevented through appropriate fiscal and monetary interventions and exporters should be provided with suitable instruments to hedge the risk of exposure to vagaries of international currency markets.

**- Strategic Acquisitions**

The proposed growth of manufacturing of over 12 percent per annum over the medium to long term would exert a lot of pressure on raw materials markets. Some of the raw materials required for manufacturing such as coking coal, chrome ore and iron ore are not available domestically or not available in adequate quantity. Arrangements for assured supply of such materials over the long term must be put in place. Similarly, acquisition of advanced technology companies would facilitate transfer of technology to the parent manufacturing company, while acquisition of companies enjoying better brand value or strategic location advantages would enhance market access of Indian firms. For these to be achieved a clear set of policy guidelines should be put in place by the Government. Some of the measures would include:

i. Creation of a policy framework after a review of the benefits in terms of income, employment generation and technology transfer of outward investments made so far to the country;

ii. Incentives to direct outward investments into purchase of raw material assets in the long-term interest of the country;

iii. Facilitation of acquisition of companies with marketing network; and

iv. Establishment of a centralized fund for acquisition of foreign companies/assets in various sectors.
3.5 HUMAN RESOURCE DEVELOPMENT AND MANAGEMENT

India will have the largest pool in the world over the next thirty years of young people of employable age. This pool can provide the ‘demographic dividend to the country’s economy that economists are counting on. However, this dividend will be realized only if these young people earn through employment in productive and competitive enterprises. The country must convert its human assets into assets in enterprises. Good human resource management within enterprises and across industries will be essential for the country to realize its demographic dividend.

Three thrusts are required for the country to obtain the benefit of its human resources for improving the productivity and competitiveness of manufacturing enterprises:

i. Large scale, and rapid skill development
ii. Practices and laws to provide more fairness to employees while giving more flexibility to industries to adjust the levels of their production
iii. Development of world-class manufacturing management capabilities

Continuous improvement of skills of employees, fair and effective management of employees, and the integration of human resource management into the management of the manufacturing process, must be integrated within enterprises to improve their competitiveness. The infrastructures and policies to support enterprises in these three areas must be closely inter-related too. Hence, even though several ministries and agencies may be involved, these three thrusts should be considered as parts of one integral policy area to improve Human Resource Development and Management.

A related issue, the multiplicity of laws and inspections regarding factory working conditions and employment regulation, and the need to simplify and speed up their administration, is covered in the Policy Area regarding Governance.

Skill Development

It is worth recalling that skill building was a vital thrust for building Indian industry as far back as the 1950s and 1960s. In fact India was able to successfully and rapidly build indigenous manufacturing capabilities in several sectors such as commercial vehicles, machine tools, etc. because skill building through government ITIs and government mandated apprenticeship schemes within industry provided the foundation. Not only were many of these schemes based on best international practice at that time viz. the German model, by the 1970s Indian private industry was able to assist the Singapore Government to set up and run institutions for manufacturing skill development as Singapore embarked on its industrialization after its Independence.

The Indian thrust for skill building lost its steam subsequently. Government programs became overly bureaucratized and dis-connected from the requirement of industry. And industry also failed to rejuvenate its internal efforts. Some industries who developed innovative internal solutions for skill development were crimped by the requirement to comply with Government mandated schemes.
Revitalisation and expansion of Indian infrastructure for skill building must be founded on two principles:

(i) That, building the capacity of its citizens to participate in economic growth through education and vocational training is a principal responsibility of Governments; and

(ii) That useful ‘vocational’ skills can only be developed if employers also take responsibility, not only for shaping the curriculum, but also providing their resources for the real life ‘tuning’ up of skills which is an essential requirement of world-class vocational training.

The Government has energized many initiatives to accelerate skill development including the ‘public-private’ National Skill Development Corporation. Coordination mechanisms have been set up at the highest level too. This new national thrust for skill development will succeed when skill development becomes an internal priority for all productive enterprises in the country supported by dynamic Government institutions to which these enterprises contribute and in whose governance they participate. The National Manufacturing Plan must ensure and measure the success of the overall thrust for skill building in these terms.

The Government must also ensure that these endeavours contribute to national goals by:

i. Ensuring inclusivity: Skill-building initiatives should be inclusive and cover all sections of the human resource supply pool, particularly those from disadvantaged socio-economic backgrounds;

ii. Focusing on standards: The curricula will focus on developing a set of standards recognized by employers. Standardization in areas such accreditation, testing and certification to ensure skill-building activities will be supported by linkages with existing government and private agencies; and

iii. Linking incentives to outcomes: Outcome-based measurements should serve to evaluate the effectiveness of skill-building programmes and serve as an input to course correction. Outcomes will be measured to provide appropriate incentives for such skill-building programmes.

**Employment practices and laws**

Employers need flexibility to adjust the volumes of their production to the requirements of the market. In the extreme, if an operation becomes unviable, they should be able to shut it down, recover any assets they can, and invest their resources and energy in other ventures which may be more competitive and sustainable.

It is observed that the industrial relations’ climate differs across states, and it also changes within a state over time for better or worse, even with the same laws. Therefore it is not merely the written laws, but the ‘unwritten rules of the game’ that operate which make a state attractive or unattractive for manufacturing investment. The implications of this irrefutable analysis are that, while attention is required to update labor laws at the center and state levels, as much or more attention must be given to the institutional interactions between employers and employees within states and within units.
The country does not yet have an adequate social security safety net to assist employees when their employers do not require them anymore. Employees in the informal sector are especially vulnerable, as are casual or contract employees in the organized sector. The cost of providing such a safety net to all will be large, and the state will have to obtain the resources for this from additional taxes. Larger social payments and employment related taxes have discouraged investment elsewhere in the world, according to industry. Therefore, while the central and state governments must develop better social security systems, it behooves employers to find other solutions too that are fair to employees while giving flexibility to employers.

Since the liberalization in the 1990s, it is observed that, by and large, employers have been able to right-size the overall scale of their operations when necessary by giving generous VRS and rehabilitation. In this way, rather than paying to a ‘general insurance’ through enhanced state social security schemes, employers have self-insured. Thus very large reductions in work forces have been made, in cooperation with unions, and without labor disputes.

The more difficult problem is the engagement of temporary/contract workers. Employers claim they must do this to have the flexibility to adjust their volumes of production; and also because they should pay less for work that requires less skill. However, many establishments are engaging large numbers of temporary/contract workers on perennial jobs alongside permanent workers doing the same work who get higher wages with more social security too. Unions object to this as unfair. Enlightened employers also accept this as unfair. The most serious, and often violent, labor disputes in recent years in different parts of the country have been on account of injustice to contract workers.

Employers in other countries too have the need to adjust volumes of production and therefore to have flexibility with regard to employment: in China, and even in the European Union with its strong traditions of social justice and employee rights. These countries have evolved institutional solutions that enable employers to take employees for ‘regular’ work on flexible contracts which give such employees a better deal than contract workers have in India today. Some states in India, such as Maharashtra, are approaching such solutions through direct negotiations between unions and employers’ federations in the state. These solutions are ‘ILO compatible’, and meet the ILO requirements of protection of labor rights. They include, inter alia, the creation of large ‘employee provider cum-training firms’ who comply with existing labor laws and provide the sump for managing the ups-and-downs within the production units they serve. Indeed, ILO is suggesting that such solutions be considered in India to break out of the impasse that the country seems to have reached on the issue of the flexibility required in labor institutions to encourage more investment in manufacturing.

The thrust of the National Manufacturing Plan with regard to labor management must be to encourage unions and employers to develop better institutional arrangements and ‘unwritten rules’ in the states, and within production units, through dialogue. A climate of good industrial relations based on direct consultations may be far more beneficial for both employers and employees than changes in laws. The laws should be improved too. However the ability to determine what the essential changes should be and to get agreement to these from both sides requires healthy relationships on the ground.
World class Manufacturing Management

Units producing with the same machinery, producing the same products, operating within the same region, and under the same laws, can have quite different levels of productivity and quality. The quality of their management is key to improving the productivity, quality, and competitiveness of manufacturing enterprises. Indeed, the competitiveness of Japanese manufacturing enterprises was rapidly improved in the 1970s by the development and deployment of better manufacturing management practices. And German mid-size manufacturing firms continue to be world-class because of excellent manufacturing management. A National Manufacturing Plan to accelerate the growth through competitiveness of Indian manufacturing must focus on this key ingredient of good manufacturing.

Another strategic reason why a National Manufacturing Plan for India must focus on the quality of manufacturing management is that India’s manufacturing strategy must build on India’s strengths while recognizing its constraints. India has built deep domain knowledge in many industries—a fortunate legacy of its otherwise difficult period of protectionism. This deeper domain knowledge than available in other countries with cheap labor has enabled Indian enterprises to produce higher value products and services in manufacturing which several are exporting successfully. Such products and services include Indian designed and engineered automobiles and commercial vehicles, capital equipment, and engineering design services. Indian enterprises, albeit somewhat limited by their smaller scale, are able to compete through economies and strategies of ‘scope’. This can be an attractive and a sustainable strategy for units in many industries. Indeed the performance of German manufacturing has been sustained, in spite of rising costs in Germany, by the strengths of its small and medium firms who provide high class engineered products.

The capabilities of Indian manufacturing managers used to be respected by foreign companies. Many, from the public sector too, were even hired by foreign companies for their operations abroad. However, since the 1990s, the best Indian engineering graduates have gone into services or, through the route of management schools, into finance. Manufacturing has been facing a ‘talent crunch’. Manufacturing management must receive more attention in engineering and technical institutions. More of the best teachers and students should be attracted to this discipline. Industry must collaborate with these institutions to improve the curriculum and the quality of teaching provided. Critically, in addition, industry must itself focus on developing better manufacturing managers through dynamic programs for grooming ‘graduate engineers’ to manage various facets of manufacturing.

3.6 MSME GROWTH

The Small and Medium Enterprises (SMEs) contribute about 45% to the manufacturing output and about 40% of total exports of the country. The sector is estimated to employ about 59 million persons in over 26 million units throughout the country, and produce over 6000 products, ranging from traditional to high-tech items. SMEs provide the maximum opportunities for both self-employment and jobs, after the agriculture sector. The sector is also employment intensive and generates employment for 7 persons on every investment of Rs.5 lakhs as against employment for one person in the organized sector for same investment. Further, given the
dispersal of the units all over the country, it provides substantial employment in the rural areas. Therefore, ensuring that the SME sector grows at a healthy rate is crucial for the overall growth of Manufacturing Sector as also the national economy. However, for this to happen, the sector has to be competitive.

Before 1991 the Small Scale Sector existed in a relatively sheltered environment. The levels of protection were high, several goods were reserved for production in the sector, special fiscal incentives were provided and a number of support programmes were also drawn up to ensure that the Small Industries survived. In the post-reform era the situation for the manufacturing sector as a whole as well as for the MSEs has undergone a dramatic change. The tariffs on imports have been reduced very substantially and today the peak rate of tariff is only around 10%. India is integrating with the world economy, compelling the Indian Industry to adjust to global competition.

This scenario provides both opportunities as well as challenges for MSEs. An opportunity to grow in a global market place is 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 challenges include inadequate access to resources, poor technological and managerial skill sets, and above all the competition due to opening up of the economy.

In the 2005-06 Budget, the Government announced formulation of a National Competitiveness Programme, to support the Small and Medium Enterprises (SMEs) in their endeavour to become competitive. Basically, the approach followed under the scheme involves selection of some clusters and firms based on identified criteria and doing a diagnostic study with the help of qualified professionals in order to identify the major gaps in their competitiveness and necessary steps which could be taken to correct the situation. This could mean interventions in technology upgradation, design and IPR protection, marketing and sales promotion strategy, skill upgradation etc.

The following areas are identified for prioritizing policy interventions in the sector:

i. Manufacturing and engineering, including accelerated adoption of Information technology
ii. Access to Capital
iii. Marketing, Financial and General Management

The government of India will endeavour to address the challenges faced by the sector by taking action in the broad areas identified above. The National Manufacturing Competitiveness Programme, being implemented by the Ministry of Micro, Small and Medium Enterprises (MSME), will be strengthened. Recommendations made by the Prime Minister’ Task Force on MSMEs, relating to improving the flow of credit and investments in the MSME sector, and modernizing the dedicated institutional framework for supporting the MSME sector, will be speedily implemented. Initiatives to provide good quality managerial and technical manpower will be expedited to address the skills gap in the sector.
3.7 CLUSTERING AND AGGREGATION

The importance of clusters in industrial development is a well known phenomenon. Industrial development happens in clusters or ‘ecosystems’ of inter-related companies, suppliers and service providers. These clusters develop and grow with a combination of appropriate government policy and the concerted efforts of one or more large companies.

A well developed cluster can give a unit located in it a cost advantage of 5 to 8% because of various reasons such as:

i. Increased supply chain responsiveness because of manufacturing consolidation near suppliers: Geographic consolidation of component manufacture and assembly shortens production cycles, co-location with suppliers facilitates just-in-time inventory and increased competition between suppliers helps reduce parts costs.

ii. Decreased time-to-market: Companies can more effectively leverage the capabilities available with vendors in the cluster.

iii. Superior access to talent: Better and more cost effective availability of labour, and also lower talent recruiting efforts.

iv. Lower logistics costs: Due to proximity of customers and/or suppliers etc.

In India a number of schemes have been operated for the promotion of industrial clusters, such as the Industrial Infrastructure Upgradation Scheme (IIUS), Industrial Park Scheme (IPS) and Special Economic Zones (SEZ) programme. While they have been largely successful in attracting industries, the full benefits of agglomeration have not been achieved yet. These programmes will be further strengthened in term of infrastructure development and provision of appropriate administrative institutions.

A less recognized but critical element of successful clusters is the link to universities. This has been one of the key success factors of clusters elsewhere in the world. Universities have been assigned a crucial role in the policy framework for creating “know-how clusters” and in promoting local enterprise. These universities are given funding and expected to support technology transfer and product development enterprises. Their “design institutes”, such as in building technologies, road construction and industrial automation, play a key role in setting standards and specifications for contracts in many industries. Many of these design houses at the same time make money as system integrators (they buy products from small players) and play a significant role in driving the competitiveness of local companies. The government will endeavour to create and promote similar industry-university linkages in the proposed clusters.

3.8 NATIONAL MANUFACTURING AND INVESTMENT ZONES

In order to meet the increasing demand for urban centers in India there is a need to develop Greenfield industrial townships benchmarked with the best manufacturing hubs in the world. In addition to providing all the benefits of agglomeration discussed above, such an initiative would help to absorb the surplus rural labour which is likely to migrate to cities in the coming decades and provide them with economic opportunities.
In order to achieve these objectives the government will establish National Manufacturing and Investment Zones (NMIZs) in the county. A discussion paper on the proposal has already been developed by the Department of Industrial Policy and Promotion and hosted on their website.

The NMIZs will be planned modern cities aimed at attracting industries through

i. Good physical infrastructure

ii. Facilitative regulatory and exit policies

iii. Incentives to acquire and develop technologies, with emphasis on green manufacturing

iv. In-house facilities for knowledge and skill development

v. Consultative and participatory administrative structures

The NMIZs will promote investments into the manufacturing sector by providing the requisite infrastructure and a transparent and predictable operating environment through a simplified regulatory regime to the investors. The zones would be used to align industrial development of the country with the core competencies of states and regions. A dialogue will be initiated with state governments to identify the hitherto under-productive areas that could be brought within the ambit of planned industrialization. A comprehensive and friendly exit policy would be institutionalized to promote productivity and flexibility e.g., by removing rigidity in the labour market while protecting worker rights. Suitable fiscal and other incentives will be provided to build the hard and soft capacities of these regions in order to attract investment.

3.9 BOOSTING INDIA’S EXPORTS

The world has faced an unprecedented economic slow-down since 2008. In the wake of the financial crisis, economies and markets world-wide were in turmoil. International trade contracted sharply, as did global investment flows. Most of all, it created a crisis of confidence, forcing many developed countries to resort to protectionist measures, adversely impacting the vulnerable and developing economies.

The Foreign Trade Policy 2009-14, which was announced on 27th August 2009 sets out a goal of doubling India’s exports of goods and services by 2014, with the long term objective of doubling India’s share in global trade by the end of 2020 through appropriate policy support.

To attain the policy objectives, it was decided to use a mix of policy instruments including fiscal incentives, institutional changes, procedural rationalization, obtaining enhanced market access across the world, and diversification of export markets. Improvement in infrastructure related to exports, reducing transaction costs, and providing full refund of all indirect taxes and levies, were three crucial pillars of the policy.

Despite the robust growth of exports, India’s merchandise trade deficit has risen, and continues to rise, as import growth has regularly outpaced export growth. It we want to maintain a growth rate of 9% over the medium term, and ease domestic supply constraints, a relatively high growth of imports is going to be unavoidable. We have, therefore, no option but to focus on higher
export growth, and devise a strategy for rapidly increasing merchandise exports to ensure that the Balance of Trade and Current Account Deficit remain within manageable limits. As a result, “business as usual” growth rates of exports will just not suffice; these can lead to an unacceptable widening of the BOT deficit in the range of 12-13% of GDP. It is, therefore, of paramount importance that the BOT deficit be kept within manageable bounds.

3.10 REFORMING ROLE OF PSEs

The process of building depth in industry requires patient investments to develop foundational technological capabilities, returns on which are slow and can be risky too. As the country’s industrial base develops the type of capabilities that require government support will change. In the initial stages, government undertakings may be required, as they were in India, to actually produce things – steel, heavy equipment, etc. – for which larger amounts of capital are required and long gestation periods. However, as the overall size of the economy grows and capabilities deepen too, PSEs may no longer be essential in such production activities. They will then be required for higher level technology development activities.

The nature of the “PSE” must also change as its role changes, and with that, its form of governance too. It must be able to leverage the private sector capabilities available in the economy into networks and missions towards national objectives.

3.11 MANAGING THE PROCESS IN EACH POLICY AREA

Each of the policy areas identified in the last chapter requires defined policies, and specific schemes and programs. The development of effective schemes and programs requires participation of concerned stakeholders. Moreover, such policies must evolve. Since the quality of the processes for consultation and policy evolution is the key to grow a large, competitive manufacturing sector, it is important to also design consultation processes well. The evolution of policies in each area will proceed through four stages.

i. An agreed framing of the issues of stakeholders that the policy must address

ii. Generation of options for consideration

iii. Evaluation of the options with respect to the needs of concerned stakeholders

iv. Conversion of the selected option into a program, and then into detailed schemes

The Policy Areas identified in this chapter are currently in different stages of development which can be schematically represented as shown in the figure below.
The shaded portions under each of the policy areas indicate the current stage in which policy development is. For example, in skill development the need for a large scale process for skill development has been accepted by all stakeholders in industry, amongst labour, and by all ministries of government, and in the states too. The option of public-private partnership is widely accepted too because it can meet the needs of all stakeholders. It is now a matter of converting this option into a large program and evolving various schemes for its implementation. In other words, policy in this area is in stages 3 to 4. On the other hand, on the issue of flexibility for industry while ensuring fairness for labor, the debate has not yet produced options that are
acceptable to all stakeholders. There is not even sufficient acceptance of the framing of the issue as one of flexibility with fairness (with an appreciation of what fairness means) rather than as a resistance of labour unions who want to protect only their own members. Until this happens, appropriate programmes and schemes cannot be developed and widely propagated. Therefore policy-making in this area is stuck in stages 1 and 2. In any policy area (as in the labour area), jumping ahead before the alignment required in a previous step has been achieved will merely result in stuck debates.

As discussed in chapter 1, the Manufacturing Plan is a dynamic process aimed at designing the best response to emerging threats and opportunities in a rapidly evolving technological and business environment. It is, therefore, neither possible, nor necessary to wait for all the elements of manufacturing policy to reach the stages of concrete programmes and schemes before announcing a national policy. However a National Manufacturing Plan can be, and must, prepared. It will guide the development of policies in various areas. The National Manufacturing Plan to meet the desired goals must have five elements:

i. Goals of the Plan are agreed

ii. The priority sectors and areas in which policies are required are identified

iii. The stage at which the process for development of policy is in each area is clear

iv. The nodal agencies responsible for policies and programs have been nominated

v. A system of overall, systemic monitoring and periodic evaluation is in place
CHAPTER 4: IMPLEMENTATION OF THE PLAN

Implementation of the Manufacturing Plan involves continuity and synergy with the process of policy formulation. Successful formulation of policy would have to be built upon a very clear understanding of the challenges of implementation, and successful implementation would, in turn, require a complete acceptance of the objectives and strategy of the policy, which can only be developed after considerable debate and discussion in a plural society like India. In order to address the above in an optimal manner it is essential to focus on:

i. Coordination between Government Departments
ii. Government- Industry Consultations

4.1 COORDINATION BETWEEN GOVERNMENT DEPARTMENTS

Policies which have an impact on the development of manufacturing are formulated in India by multiple agencies within the public domain. The important agencies which deliberate on relevant matters at the central level include the Union Cabinet, the Prime Minister’s Office, the National Development Council, the Planning Commission, the National Manufacturing Competitiveness Council, the Department of Industrial Policy and Promotion under the Ministry of Commerce and Industries, and the Ministries dealing with specific industries such as Steel, Textiles, Chemicals etc., as well as those dealing with verticals such as Micro, Small and Medium Industries and Heavy Industries. Policies of ministries like Labour, Environment, Finance, Science and Technology as well as the infrastructure ministries, have a major bearing on the competitiveness of the manufacturing sector too. In addition the State Governments deal with important aspects of the implementation of industrial policies, such as provision of land and raw materials, basic infrastructure, and local taxes, and are also responsible for promoting industrial growth along the lines of their own comparative advantage. There must be better coordination and transparency, at both central and state levels, between the many government ministries and agencies involved with matters critical to Manufacturing policy and performance. The roles of all these in the overall process must be clear, and processes for coordination amongst them must be smoother and faster to boost the performance and growth of the country’s manufacturing sector.

The following table indicates the central Ministries/Departments which can play the role of nodal agencies

<table>
<thead>
<tr>
<th>Objectives and Strategy</th>
<th>Planning Commission</th>
</tr>
</thead>
<tbody>
<tr>
<td>Priority Sectors</td>
<td>National Manufacturing Competitiveness Council/ Planning Commission</td>
</tr>
<tr>
<td>Business Regulatory Framework</td>
<td>Ministry of Corporate Affairs; Department of Industrial Policy &amp;</td>
</tr>
</tbody>
</table>

31
<table>
<thead>
<tr>
<th>Area</th>
<th>Responsible Ministry/Department</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental Sustainability &amp; Power</td>
<td>Ministry of New &amp; Renewable Energy; Ministry of Environment and Forests</td>
</tr>
<tr>
<td>Land &amp; Water</td>
<td>Department of Land Resources; Ministry of Water Resources</td>
</tr>
<tr>
<td>Increasing depth in manufacturing</td>
<td>Department of Science and Technology; Department of Economic Affairs/Commerce</td>
</tr>
<tr>
<td>Human Resource Development and Management</td>
<td>Ministry of HRD/ Ministry of Labour</td>
</tr>
<tr>
<td>MSME growth</td>
<td>Ministry of Micro Small and Medium Enterprises</td>
</tr>
<tr>
<td>Clustering/Aggregation</td>
<td>Ministry of Micro Small and Medium Enterprises / Concerned Ministries</td>
</tr>
<tr>
<td>Boosting India’s exports</td>
<td>Department of Commerce</td>
</tr>
<tr>
<td>National Manufacturing &amp; Investment Zones</td>
<td>Department of Industrial Policy &amp; Promotion</td>
</tr>
<tr>
<td>Role of PSEs</td>
<td>Department of Public Sector Enterprises</td>
</tr>
<tr>
<td>Monitoring and Evaluation</td>
<td>Planning Commission</td>
</tr>
</tbody>
</table>

### 4.2 GOVERNMENT- INDUSTRY CONSULTATIONS

Studies have shown that good consultations amongst producers and policy-makers have been the key to the successful growth of Manufacturing in many countries. The specific strategies of the successful countries have differed, and have changed over time too, to suit the circumstances. What has been common is the effectiveness of the process of interaction between business and government in these countries.

A recent cross-country study of developing countries in Asia and Africa has confirmed the strong co-relation between the quality of State Business Relations (SBR) and growth and poverty reduction. This study has also analyzed progress within Indian states. Here too it shows that the quality of SBR improves the performance of a state’s economy. Other studies of the economic development of countries such as Germany and Japan and their formalized processes and strong institutions for stakeholder representation, also validate the role of good quality SBR. There appears to be broad consensus today that institutionalized public-private sector dialogue processes are necessary for transparency in policy formulation and efficient dissemination of information from both the public and the private sectors. It also appears that given the rapidly evolving ecosystem within which the global manufacturing industry operates in manufacturing, Manufacturing amongst all economic sectors, benefits most of all from better SBR and the multiple linkages and stakeholders.
Good quality, representative business associations, who work in the interests of their members as well as the country, have been a critical requirement of good policy in countries that have performed well. Good associations aggregate inputs from industry; and the best of them synthesize these into a well researched industry view, and are transparent in their processes.

Some subjects relating to manufacturing involve other stakeholders in addition to business and government, such as labor. The involvement of these stakeholders in institutionalized processes for consultation to find ‘win-win’ solutions has been an important factor in the sustainable competitiveness and growth of the most successful manufacturing nations. The contrast between Germany and the UK in this regard makes this point well. Germany has emphasized consensus and it is a manufacturing power-house; UK took the route of contention, and its manufacturing has atrophied.

The history of successful manufacturing nations shows that the ability to create ‘win-win’ situations is a cultural ability developed over time. Cultural practices are a combination of ‘written rules’—laws and official rules, as well as ‘unwritten rules’—i.e. the ways things are done. An examination of the successful economies emphasizes that the ‘unwritten rules’ which are evolved and followed by the participants contribute more to the system’s performance than the written rules. The written rules are required to give a nudge and to put boundaries on behavior, but it is the unwritten rules that the participants evolve together, and police together, that give deeper strength and competitive advantage to the system.

India must improve its SBR to grow its manufacturing sector more rapidly to achieve the goals that the Manufacturing Plan has set out. SBR must be improved in the states too where much of the action lies. Business associations have a critical role to play in this. They must become more transparently representative of their industry’s interests rather than some member’s interests. They should bring well researched content to assist government with the process of policy-formulation. They should also include other important stakeholders beyond their members into their deliberations so that solutions evolved are supported and can be implemented.

In conclusion, the most fundamental need at this time to boost manufacturing through a National Manufacturing Plan is to build transparent and constructive processes for SBR. Good, transparent SBR processes will reduce the slide towards crony-capitalism. They will also develop policies that address the real national issues and, if well conducted, build up consensus around the solutions.

A 3-part agenda is required for strengthening SBR processes.

i. Improving the quality of business associations

ii. Improving the processes of consultation between associations and government agencies

iii. Improving the ability, on the government side, to participate in and obtain value from consultations to improve the quality and implementation of policies

An expert group has been set up by the Planning Commission to delineate the architecture of good SBR processes and develop a road map for their evolution. The agenda listed above for formulation of good, result-oriented policy making will be considered by the group and guidelines will be developed on priority basis.