



Inputs on

Key Strategy Challenges for the

12th Five Year Plan

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A. ENHANCING THE CAPACITY FOR GROWTH

The medium to long-term prospects for the economy, including industry, continues to remain positive. In fact, on the demand side, a rise in savings and investments and increased private consumption has resulted in GDP growth at constant prices of almost 9.7% in 2010-11. There are various other encouraging signs for the economy that have been highlighted in the recent Economic Survey for 2010-11, such as increased share of services sector in the economy at over 57.3%; savings rate at 33.7% and investment rate at 36.5% coupled with an ICOR of around 4, indicates a prospect of sustained output growth; and lastly there is a noticeable movement towards consolidation of fiscal deficit. Further, the decomposition of growth for 2010-11 shows that it is relatively broad based across major industries and services.

Many sectors do not have institutional arrangement available to ensure transparent flow of public funds from private sector, and there is a need for an exponential increase in the flow of investments to many sectors

Sector specific reform concerns – The need for Governance Reforms, including Public Private Partnerships

There is definitely the need for reforms across sectors if their investment requirements are to be met. For example, there are a multitude of industries that would benefit from an 'infrastructure status', including tax deductions on 100% of the profits and gains derived from operations for a set time period, the savings arising out of these measures could be ploughed back into the industry itself. Similarly, promoting Public Private Partnerships (PPP) would help combine the best of the skills and expertise of the government and private sector agencies. In addition to better coordination among government agencies and sector specific issues, FDI reforms in several sectors would help generate necessary resources to prop up the growth of the sector in particular and economy at large. This would be particularly critical for promoting and developing energy and basic infrastructure as well as social infrastructure in the country.

Flow of funds into infrastructure

Infrastructure has an important bearing on the ability to attain double digit growth rates. However, total funds available for the XIIth Plan are expected to be approximately 31 % short of the INR 4,100,000 crore targets for infrastructure financing, translating into a funding gap of almost 1,273,000 crores for the plan period. There is a need to implement policies to deepen and strengthen the domestic bond markets while ensuring appropriate capital structures according to the requirements of the project.

In the case of banks, they should be

- Allowed to raise tax-free infrastructure bonds;
- Be given CRR/SLR exemption to infrastructure bond liabilities;
- Allowed to lend to rural infrastructure projects under priority sector limits;
- Be allowed to accept pledge of shares as security for infrastructure projects, and treat them separately from bank's investment in capital markets;
- Allowed to access takeout financing which will reduce ALM mismatch; and
- Lastly overall group exposure norms in the context of infrastructure lending also need to be further reviewed

In the case of Insurance Companies, the following reforms are required:

- Investments into SPVs of infrastructure projects, debentures of private limited companies and non-dividend track record companies in infrastructure should be included within the ambit of "approved" investments;
- Single party exposure norms in case of investments in infrastructure bonds issued by entities like PFC, REC need to be reviewed;
- Infrastructure related investments of insurance companies should be exempt from the overall limit of at least 75% of non-Government securities related investments in AAA securities;
- Investments in newly proposed infrastructure Debt Fund should be treated as qualified investments in infrastructure for insurance companies; and
- Minimum credit rating requirements for insurance company investment into infrastructure (from current AA) needs to be reviewed.

Improved mobilisation of domestic and foreign resources

Foreign Direct Investment (FDI) - The rising current account deficit is a source of serious concern to the economy, and if left unchecked, could lead to a weaker rupee and adverse investor perceptions about the economy. Promoting policies to ensure stable long-term capital flows is an important solution, and

this could be ensured through liberalization of foreign direct investment and policies that ensure increased primacy to FDIs. Some of the policy reforms required includes:

1. Rationalization of the tax structure
2. Simplification of procedures for flow of funds
3. Modernization of government systems and reduction in bureaucracy
4. Improvement in infrastructure facilities
5. Rationalisation of labour laws.
6. Liberalization of employment visa rules

Mobilise domestic investments for growth - Studies by FICCI in the states of Punjab and Uttaranchal on the need for state reform, have identified certain developmental constraints to industrial growth in these states, which can however be generalized for other states as well -

1. Shortage of land for industrial development
2. Inadequate industrial infrastructure with acute shortage of power
3. Adverse taxation regime across states
4. Less than favourable approach of the government both in terms of support and incentives offered

In addition to the above mentioned points there are certain other issues that industry brought to the notice of FICCI research team and these relate to land conversion and transfer, environmental clearances, inspector raj, and grievance redressal.

Measures to improve capital productivity

- Shift mix of financial vehicles to reduce cost to borrowers - Spur development of the corporate bond market by simplifying listing and tax procedures, strengthening trading infrastructure and relaxing restrictions on FII participation
- Manage government borrowings to prevent crowding out of capital to the private corporate sector
- Improve banking efficiency to match the spreads (over benchmark rate) to developed markets levels
- Expand retail investor base.
- Increase productivity of the banking system through consolidation, divestment and rationalization of government shareholding, privatization and compensation, succession planning, hiring for specialized roles and marketing orientation throughout the rank and file of the banks.

Increasing domestic participation in capital markets in india

While initiative has been taken in increasing the range of products available, the capital markets do not yet touch the bulk of India's population. The retail market tends to be skewed, both in terms of participation of investors and types of products available. In fact, challenges to growth faced by the market include low depth in equity markets; low retail equity ownership; limited capital formation; and higher costs per trade.

A Two-pronged approach to strengthen domestic institutional investors (DII) as well as increase retail participation is thus a must. This includes increasing DII participation by allowing higher investments by pension funds in equities which has the potential to create equity inflows of up to Rs 2,500 billion at current levels, and secondly expanding the retail customer base through increased investor education, reduction in the complexity and costs of trade and increase NRI participation.

Long term debt markets & a nascent corporate bond market

There is a need to move beyond AAA rated paper to at least AA to bring more depth to the market. Apart from corporates, the Insurance sector too needs long term paper to match their Asset-liability requirements. Historically the development of corporate bond markets across the world has been in reaction to the limited capacity of the banking system to fund corporate growth. The Indian market is definitely in a position of advantage to capitalize on the growth of the debt market.

With effective reforms, corporate bond market issuance could be increased to US\$ 75 billion to US\$ 125 billion by 2014. A series of reforms on both the supply and demand side are needed:

- On the supply-side:

- Allowing pension funds to invest in investment-grade corporate bonds
- Allowing insurance companies to invest in all investment-grade corporate bonds
- While there has been a relaxation of the FII limits for corporate bond participation, there is a need to further analyse its impact.
- Creating a liquid benchmark index that can be used for pricing

- On the demand-side:

- Allowing credit hedging instruments such as Credit Default Swaps

- Rationalise and harmonise stamp duty regulations – Stamp duty is currently around 37.5 bps; though the central government has lowered stamp duty, all states have not yet done so.

NBFCs

Non-Banking Financial Companies (NBFCs) form an integral part of the Indian financial system. They have been very instrumental in contributing to the Government's agenda of financial inclusion by filling the important gap of supplying credit to retail customers in the relatively under-served and un-banked areas. Thus, in order for NBFCs to contribute effectively in future, the regulatory framework needs to address the following roadblocks:

- Absence of any refinancing agency for the sector, combined with restrictive caps on banks' lending to the NBFC sector
- Limited access to ECB funding, which would help address funding cost and tenure issues
- Restrictions on issuing hybrid financial instruments for meeting regulatory capital needs
- No access to SARFAESI and Debt Recovery Tribunals for recovery of bad loans
- Multiplicity of taxes combined with differential and discriminatory tax treatment of the sector

The role of venture capital and private equity in funding innovation

In India venture capital, initially came in behind IT and Telecom industries, has now spread to virtually all sectors with India being the largest recipients of venture capital. However, in India there is very little domestic venture capital, and the setting up of **National Innovation Council** and proposing a \$1 – billion fund to facilitate innovations for inclusive economic growth in India is laudable. With this backdrop, following points needs to be considered during the 12th Plan:

1. The fund created should focus on the bottom of the pyramid
2. The fund invested should act as a fund of funds (similar to Yozma programme of Israel), investing in smaller funds/entities which will also raise their own capital thereby increasing Indian VC players
3. It should fund innovative ideas, start ups and early stage companies
4. The fund should help in skills development, technical assistance and creation of mentoring network
5. It will establish strong linkages with Academia, R&D institutions, VC industry, Govt. and Industry
6. The focus of this VC initiative will not only be on IP/Patent but also on solutions, business models and innovative approaches that have a major impact on the chosen segments.

Subsidies as a means to enhance the capacity for growth

There is a need for a viable subsidy regime in order to ensure efficient utilization of capital and also that the benefits of the same reach the right person. The following policy changes in could reduce food and energy subsidies to certain extent:

Food subsidy

- A framework for decentralized procurement and meeting PDS requirements in each state wherever feasible, this will reduce the procurement incidentals and distribution cost of food grains
- Authorize multiple agencies including private sector entities to procure food grains, which would also result in lowering procurement and distribution cost
- Once the Unique Identification Number system is in place, the government should consider rolling out the 'Smart Card based Food Distribution', where in the beneficiary can procure food grains from any kiranas/retail outlet and the subsidy amount will be directly transferred to the shop owner.

Energy subsidy

- Auto fuels should be made available to customers as per market determined pricing mechanism.
- It is imperative to device a mechanism to exclude the rich availing highly subsidized fuel and focus on areas where LPG penetration is low & target customers that need to be given subsidy directly.
- Kerosene supplies are being diverted for black marketing and adulteration purposes, denying the benefit to the intended groups. To curtail this practice, the use of technology to track movement of kerosene, distinctive coloring for subsidized fuel and coupon system and Smart Cards is important.

B. ENHANCING SKILLS AND FASTER GENERATION OF EMPLOYMENT

Currently, India is passing through an unprecedented phase of demographic changes. The ongoing demographic changes are likely to contribute to an ever increasing size of labour force in the country. The Census projection report shows that the proportion of population in the working age group (15-59 years) is likely to increase from approximately 58% in 2001 to more than 64% by 2021. But the overall population is not the issue - the proportion of population in the working age group of 15-59 years will increase from 57.7% to 64.3%. To put it another way, those in the 15-59 age-group would have increased by about 308 million during the period. The large numbers of the 15-59 year olds would also reflect in the workforce. It is estimated that by about 2025 India will have 25% of the world's total workforce. But beyond 2025 the numbers of the aged will begin to increase even more dramatically, and consequently the window of opportunity is between now and 2025.

To tap the demographic dividend, India needs better education and skills indicators and a much better labour ecosystem. A huge challenge is to train a large number of youth in the skills which are required by the industry. The government has been attempting to improve basic education through a host of measures in recent decades and achieving some success. But, vocational education and imparting skills remains a critical area of concern.

The 12th Five Year Plan should aim at creating productive, gainful and sustainable employment opportunities with decent working conditions, therefore, 'Skills led employment' generation is a most sustainable employment generation strategy to address the needs of the technology driven employment market in the coming years. The projected unemployment rate of little more than 1 percent from existing 7-8 percent would require a comprehensive strategy addressing the skill development needs of the following three categories of persons:

- i) Existing workforce rendered unemployed due to technological obsolescence
- ii) Sectoral migrant workers from agriculture to industry and service sector.
- iii) Informal sector workers whose productivity and quality needs to be improved in order to enhance their employability and incomes.



The benefits of demographic dividend, with 54% people under the age group of 30 years, and the mean age of the country at 24 years, can be successfully reaped only through expanding education and skill development opportunities at a wider scale. This will include both software and hardware facilities, adequate number of trainers and life-long training opportunities. It is indeed a matter of concern that only 5% out of 470 million Indian workforces is vocationally trained.

FICCI feels that there is a massive opportunity for India to transform its vast manpower resource to a skilled and globally competitive workforce and emerge as a global leader in this space.

Keeping the above in view, the above challenges, the following are the recommendations for the 12th Five Year Plan:

Recommendations:

- 1. Setting up of Skill development centres through Public-Private Participation:** To encourage the concept of setting up new Skill Development centres under PPP mode, Central and State Government should take 49% equity and 51% equity from Industry. While setting up the Skill Development Centres in different locations, the State governments can provide land under subsidized rate while the Central Government can provide funds for the capital equipments. This will motivate the industry players to be involved in training the youth to meet the future skill demands. The private sector representation in Joint Council for Vocational Education should further be increased to involve them more in setting course contents & curricula.

In addition, the Private sector training providers should be given adequate **freedom on fees to be charged** from the trainees while the fees for the BPL category can be charged as per the government norms as done in the ITI's.

- 2. Vocationalisation of Government Schools:** The vision and target of 12th Five Year Plan should be vocationalisation of schools. In next 5 years every govt. school should have vocational education department from Class 9 onwards and plan should give 100% capital subsidy for vocational skill department.

- 3. New ITI and Polytechnics under PPP mode:** To accelerate the expansion of the capacity for Skill Development, the 12th Five Year Plan should explicitly lay down plans for setting up of ITI(s) in each block and Polytechnics in each district involving both Ministry of Labour & Employment and Ministry of Human Resource Development and industry partner under PPP mode. This could ensure Industry linkages for better curriculum & quicker placements. Those in backward /naxal affected areas would have 100% capital subsidy by the Government.
- 4. Fiscal Incentive for Private Players:** The Private training providers should be given fiscal incentives to attract large scale investment by private sectors in skill development such as:

 - Skill Development being a priority sector should be given the infrastructure status which would make the training institutes to be eligible for 10 year income tax holiday.
 - Exemption from service Taxes on: Fees Charged, Books & Equipments
 - Land to be provided on subsidized rate
- 5. Skill Development Schools** being set up by various ministries in Sectoral Parks should be formed jointly by the respective Ministry alongwith the state govt. each giving 25% capital subsidy (total 50%) for setting up training centres. All Industrial units in that park/industrial estate should jointly take 51% equity share in the training facility.
- 6. State Skill Development Corporation:** Each state should be encouraged to set-up State Skill Development Corporations like National Skill Development Corporation (NSDC). 60% corpus should be given by Central Govt. and 40% by the state govt. Skill Development Centre should be set-up for a cluster of villages. Proposals from private sector should be invited by State Skill Development Corporations.

The focus should be on trades like latest agri practices, cattle rearing, poultry, piggery and value added products from agri or forest products of that area.

Self employment of rural youth should also be focus. Entrepreneurial courses with banking technical input, marketing strategy should be part of the training curriculum.

7. **Skill Development Voucher under NREGA:** In addition to short term employment skill training courses taken by the rural youth should qualify for payment under NREGA.
8. **Training of Trainers:** The 12th five year plan should aim at massive teachers trainers programme to train at least 10 million trainers to train 250 million people across a wide range of trades. Since the Government resources will be a limiting factor for setting up such massive training infrastructure, public private participation models and fiscal incentives proposed earlier should be given for setting up of trainers training institutions.

Cross – sectoral:

Skill development across sectors, which are key-drivers of growth and employment generation, would require removing market mismatch through appropriate labour market information system and occupational surveys. The existing employment exchanges need to be restructured to provide skill mapping and counseling services.

1. Food processing

- With globalization, there is a likely-hood of emergence of food borne diseases, which calls for a proactive approach by setting up a mechanism for risk assessment, risk analysis, communication and control. Provide education and impart skills on these areas.
- There is a need to develop a curriculum catering to food safety & regulations in light of national and international needs of the future
- Codex effort needs to be expanded with more support, to ensure stakeholders both within and outside the government can participate in its deliberations/processes
- Under the new Food law regime, massive capacity building is needed for its effective implementation; efforts are required in this direction at both the government and industry level. Currently we have only 5000 Food officers as against the requirement of 22,500 Food officers to implement the new Food Act.
- Enhance the capacity of ethnic and traditional business for brand building and reaching new markets

Developing efficient and Fair Labour Markets for all Categories of Workers

- Labour which is contractual especially at lower end, there remains little incentive on the part of the company to invest in their capacity/skill up gradation. Suitable reforms in the labour law needs to be considered.

Sustainable livelihoods for Alleviation of poverty

- Link small and medium farmers and MSMEs with large business entities, through enabling Small Producers Groups.
- Support the models at micro level to sustain small value addition activities in secondary agriculture;
- To ensure this training and supporting infrastructure needs to be established

2. Retail

a) Massive effort at expanding education and skills to reap the demographic dividend:

Government should focus public expenditure related to education and training in the sector in the following areas:

- Support for innovative provision where proposed by industry, for example, accreditation of enterprise training programmes.
- Provisioning for capacity building programs in retail sector – This would ensure sharing of retail best practices, retail specific trainings in areas like product profiling and display, awareness and education programs to keep the retailers and all the stakeholders involved, regularly updated with industry norms and regulations concerning various industries affecting retail viz. food safety regulations, packaging rules, legal metrology act etc.

b) Developing efficient and fair labour markets for all categories of workers:

Recognition of Prior Learning (RPL) presents a key opportunity to develop learning in the retail sector especially at an unorganized level. Government can propose a mechanism through which the skills of the unorganized players can be accredited with a formal certificate which would create a level playing field in order for them to gain opportunities for further learning and to improve career prospects.

3. Real Estate & Construction

- There is a shortage of world class urban planners in the country. To meet the requirement of urban planners new planning institutes be set up in the country and academic programmes aimed at urban development should be strengthened.
- Training and skill development of public officials should be taken up to make such officials aware of the issues involved in urban planning. The officials from departments including municipalities, transport, metropolitan development authorities, traffic police, environmental authorities, PWD, etc should be trained in such programmes.
- Capacity building of staff working at the local government level also needs to be enhanced. Computerization of offices of the local government be undertaken and the staff be trained in Information Technology for enabling them to discharge their duties efficiently.
- There exist various routes to build talent pool. One of these is developing a municipal cadre by developing a group of experienced people who are capable of providing leadership and skill to officials to expand managerial capacity.

4. Environment

- ***Massive Effort at Expanding Education and Skills to Reap the Demographic Dividend***

Capacity building and skill development in countering the environmental challenges is also a requirement for the small and medium scale industries.

There is a need to create awareness about use and benefits of renewable energy and the ways by which locally available renewable sources can be utilized domestically and at farms and husbandries. For example, solar water pumps, solar cookers and driers, wind and hydro mills etc. The government should launch awareness campaigns across the country on the need and benefits of Renewable Energy.

The Renewable Energy module should be included in the central and state government officers training module to provide knowledge of renewable energy.

- ***Developing Efficient and Fair Labour Markets for all Categories of Workers***

Creating a skilled manpower base for Renewable Energy

The augmentation of Jawaharlal Nehru National Solar Mission (JNNSM) and Renewable Purchase Obligation (RPO) has led to a demand for skilled manpower.

This has led to creation of employment opportunities for skilled manpower in different functional areas such as manufacturing, marketing and sales, planning and designing, installation, operation and maintenance, and research and development. There is a need to pro-actively initiate industry specific courses in different disciplines to meet this challenge. At present there are only a few universities which provide industry specific courses in renewable energy. To initiate the new courses and meet the rapidly growing demand, it is required to start the courses in consultation with the industry, as it will take few years to train the professionals.

5. Health

India will need 7 lakh additional doctors by the year 2025 while the net addition presently is only 17000 per year. There is a great gap between number of Doctors and Nurses per 1000 population compared to developed and even developing countries. The challenge is therefore to rapidly build a vast quality health professional workforce and corresponding health infrastructure to absorb them to salvage the situation.

- **Increase pool of Doctors:**
 - Allow relaxation of built up area for medical colleges to quickly ramp up facilities, simultaneous focus on building health infrastructure in tier-II and tier-III cities to add to the required pool of healthcare professional.
 - Provide an easy path for WELL QUALIFIED foreign doctors to come into India and practice to bridge manpower shortage
- **Streamlining Nurse/Paramedic Education:**
 - Review and standardization of Nurse Job profile and training needed to reduce attrition and enhance service quality.
 - Streamline the procedures and regulatory framework for quality training of para medical staff

- Introduce newer professionals i.e. Nurse practitioners and Physician assistants by augmenting training procedures.
- **Periodic review** and updating of medical education curriculum.
- **Address faculty shortage:** Private practicing doctors with relevant experience and expertise should be allowed to teach in medical colleges to address faculty shortage.

6. IT

Human capital is one of the most abundant resources in India. It is essential to harness this resource to its maximum potential. ICT can act as a catalyst for skill development opportunities.

- ICT can be integrated within the education curriculum. It is essential to create IT-trained labour force to augment their employability.
- Common Service Centers can be leveraged to impart web based trainings and help develop skills in rural areas.
- The lower pace of employment generation in comparison to addition to the labour force has been leading to a growth in the unemployment rate. Apart from urban areas, rural areas hold promise in helping IT- BPO companies in providing workforce and this can lead to the generation of rural employment

To encourage private players to work in these sectors Planning Commission should give special incentive and categorise them as focused trades.

Sector skills council



In the 12th Five Year Plan the aim should be to set up SSC for all sectors of industry/services and agriculture. The Sector Skills Council will serve the following purpose in the context of enabling Human Resource Development for the 20 high growth sectors-

- Set up Labour Market Information System and maintain skill inventory.
- Develop skill competency standards and qualifications for occupations.
- Standardization, affiliation and accreditation process.
- Participation in affiliation and accreditation.
- Study and transfer best practices from Globe.
- Develop a sector skill development plan.
- Consultancy for HR requirement of Industry
- Plan and execute training of trainers.

C. MANAGING THE ENVIRONMENT

Industry has witnessed a spate of environmental regulations with wider and stricter enforcement in the recent past. These regulations while driving home the imperative of environmental concerns for businesses, have resulted in significant time and cost overruns and associated uncertainties with respect to fate of clearances for projects. This high level of uncertainty with respect to future investment and expansion plans of industry across sectors has a tremendous impact on development concerns.

Challenges faced by the Industry

Despite increasing environmental awareness in the country, the growth of environmental projects across sectors has been more reactive than proactive, driven more by compliance imperatives than by environmental stewardship. Though industry is increasingly looking at environmental concerns to meet the needs of compliance as well as to maintain a competitive edge in the domestic and global markets, several challenges come to the fore in addressing environmental concerns and moving towards higher standards of environmental management.

Although some measures for environment are being taken by the Government, further enabling fiscal measures to incentivize good environmental practices, incentivizing use of all pollution control equipments, setting up adequate common environmental infrastructure, enabling widespread diffusion of clean technology, and developing the requisite skills in this sector are important prerequisites to having a leapfrogging effect. There is also need for consistent approach and philosophy to apply favourable fiscal measures across the board for encouraging diffusion of clean technologies.

Inter-ministerial coordination is required to formulate policies which have a direct bearing on the environment. This will facilitate public private partnership projects and private sector participation in this sector. Inter-ministerial coordination will be also required for key decisions pertaining to environmental sustainability in infrastructure projects. Moreover, Ministry of Finance and Ministry of Environment & Forests should work together to review the incentive and fiscal benefits structure for environmental initiatives.

Land, Mining and Forest Rights

- Developmental projects for which environment and forests clearances are required, are delayed during the process, hence it is essential to fast track the clearance process. *This can be done by preparation and implementation of National/Regional Environmental and Social Impact Assessment by Government Agencies with a cost-benefit analysis and offering the sites for such development rather than the enduring process as per existing process of Environmental Impact Assessment.* The individual EIA process should only take up site specific and project specific issues.
- The allocation and use of natural resources should be dealt by two sets of independent regulators. Independent regulators for natural resources such as land, minerals and water are necessary as they are interrelated. Other set of independent regulators are required for natural resources which have arisen as a result of technological interventions such as spectrum. These regulators should be supported by the Natural Resource Management Agency. The agency's responsibility should be inventorization and mapping of resources, future availability, development needs, research needs, real-time information dissemination and providing information base to the regulators. The independent regulators may allocate the natural resources based on defined criteria such as threshold limits, quality, area, expertise, stakeholder issues etc.,
- Genetic resource should also be considered under the ambit of natural resources. For e.g. India has huge genetic diversity in human population and this is being used for development of drugs in the last phase of clinical trials. This resource should also be considered as a natural resource and proprietary rights for the drugs or products which are developed through such genetic resources from India should be leveraged or charges for usage of such genetic resources should be levied.
- The natural resources which are being allocated and utilized should be utilized sustainably. *This could be ensured by creating an environmental compliance process which is based on an incentive-disincentive based mechanism, where companies which have achieved global benchmarks and compliance with environmental standards should be incentivized and those that do not meet compliance requirements should be penalized.* Adequate infrastructure needs to be developed for monitoring compliance and a system based on self-monitoring and reporting should be encouraged. Third party engagement in environmental monitoring should also be

encouraged. The reports of the third party monitoring should form the basis for the incentive-disincentive based mechanism to be applied.

- A co-operative concept should be evolved for waste disposal in mining sites, where mined out areas of one mine is to be made available for reclamation/back filling to other operating mines in the vicinity. This is required in order to reduce the requirement of land and can make the concurrent back filling and restoration of the land a reality. The environment rules should provide scope for such proposals and encourage the same.
- An SPV should be created as has been done for Ultra Mega Power projects to facilitate all clearances from various authorities and if possible land acquisition.
- Value Addition should get weightage while allocating the Mineral resource through open competitive bidding- In order to emphasise the value addition of our own mineral resources, value addition could be a major technical criteria for allocation of mineral resources. A classic case In this regard is Indonesian Mining Policy. Earlier versions of the Policy allowed the Mining companies to export the Ores out of the country. However, the current Policy (which became effective in 2009) requires compulsory refining and smelting of the mined material within the country. This change was drawn from the bitter experience of the past, wherein considerable revenue and employment opportunities were lost by allowing unrestricted export of Ores out of the country.
- There is a need for having similar mechanisms in place in our Policy as well. Beneficiaries of Mining rights should also have corresponding obligations for carrying out the highest degree of Value Addition to the Natural Resources mined by them.
- In order to ensure the timely development of the mineral resources strict penalty clauses should be put in place in case of non adherence to the developmental plan. This ensures that serious players are given mines which in turn ensures that mines are developed in a timely manner, the financial strength to adhere to environmental norms can be met, mine closure plans are realistic, and most importantly value addition (thus creation of employment) is done.

- Evaluate the status of resources in the country and areas reserved so far for PSUs. Wherever unutilized or under-utilized, these areas need to be de-reserved for further exploration and development by private parties.
- Developers / promoters who initiate environment or climate friendly measures in exploration or exploitation of natural resources should be given priority during the process of allocation of natural resources. For e.g. developers or promoters for coal mine who install coal beneficiation plants at 'pit head' location to reduce ash content should be given priority during allocation.

Sustainable Management of Water Resources

The ground water resource is scarce and would take a long time for recharge when compared to surface water. Ground water resource is depleting all over the country and hence should be used judiciously. One of the main reasons for fall in groundwater table in Punjab was the early transplanting of rice (before mid-June), which resulted in severe withdrawal of groundwater. The Punjab Preservation of Sub Soil Water Act was promulgated as an Ordinance in 2008 with stiff regulations that prohibited sowing paddy before May 10 and transplanting paddy before June 10. This ordinance was changed into an Act in March 2009. The delay in transplanting to 15 June would maintain the balance but it cuts down the transplanting period further; thus intensifying the efforts to improve water-use efficiency and some substitution by low-water requiring crops is recommended. The savings in electricity due to the Act have also been estimated at 276 million units, which would result in energy and environmental security for the state. This act should be considered by other states for enactment and further implementation.

Similarly, traditional water intensive methods of irrigation should also be replaced by direct seeding and micro irrigation techniques. This will not only result in decrease in water consumption but also decrease in methane emissions. The water stagnated paddy fields across the world contribute to about 20% of the methane emissions. Climate change adaptation measures such as water conservation is an important area of private sector participation. Some of the measures such as efficient irrigation systems, efficient water treatment and recycling should be developed as a part of water conservation measures through private sector participation.

Mitigation Strategies for Climate Change

At the outset, it is also imperative to consider climate change adaptation strategies in this plan so as to prepare the country for threats that are posed by climate change as India is one of the countries which is most vulnerable to the impacts of climate change.

Current Status of mitigation strategy

Over the years, India has taken rapid strides in GHG mitigation activities. The Indian Government and Industry have been working in concert to demonstrate India's seriousness on climate change action. Indian Industry has always had a thrust on adopting energy efficient and environment friendly practices and has constantly moved towards modern low-carbon intensive manufacturing installations and processes, and clean sources of energy. Energy intensive sectors such as steel, cement and aluminum have become more energy efficient over the past 20 years and the newer plants are among the most energy efficient globally. Several factors have contributed to decline in energy intensity such as improved energy efficiency, increased use of renewable energy, expanded public transport, and energy pricing reforms. The industrial sector consumes about half the total commercial energy available in India, 70 % of which is in energy-intensive sectors - fertilizers, aluminum, textiles, cement, iron and steel, and paper. And remarkably, cement (7.5% p.a.), aluminum (1.8% p.a.) and steel (3.5% p.a.) sectors have shown a sharp decrease in their energy intensity between 1996 and 2006. India's energy intensity of GDP at 0.16 kgoe/\$ GDP (year 2000 PPP), compares favourably with EU-15, and is same as Germany. According to an estimate by Bureau of Energy Efficiency, Government of India, climate friendly initiatives have led to 410 Mt CO₂ mitigation during 1991-2000. According to Indian Renewable Energy Development Agency Limited (IREDA), in terms of energy efficiency and conservation, the annual savings potential of the Indian industry amounts to US \$ 1.2 billion and an investment potential of US \$ 2.4 billion.

The Clean Development Mechanism (CDM) has successfully mobilized businesses to think about the need and potential to reduce emissions across all sectors of the economy through adoption of clean technologies. The CDM has helped Indian industry to contribute significantly to the development of an adequate market support infrastructure for project development and carbon trading. Indian industry's engagement in CDM is demonstrated by the portfolio of projects undertaken by it which currently accounts for over 1800 CDM projects, with 60 sectors and over 1100 companies engaged in GHG mitigation, demonstrating the largest and most diverse portfolio of projects in terms of scale, geographical coverage and sectoral representation.

The National Action Plan for Climate Change (NAPCC) provides several opportunities for businesses to be more actively involved in climate change mitigation and adaptation efforts through the markets that are likely to emerge as part of the implementation of the different missions.

At the end of 2010, India also announced a voluntary goal to reduce its emissions intensity by 20-25% by 2020. As India moves towards being an energy efficient low carbon economy, industry and business will have a crucial role to play in making this transition happen. Market based mechanisms for mitigation and adaptation will greatly enhance the engagement of industry and business in climate change action and would enable them to provide the necessary support to Government in paving the path to a low carbon economy.

Challenges

The key challenges that businesses currently face in adopting clean technologies for enhanced energy efficiency and reduced GHG emissions in their operations is related to the limited access to technology and finance. The barriers to scaling up and upgradation also include lack of capacity, technical know-how and awareness, especially in the case of small and medium enterprises. India has a large small and medium industry sector which has a huge cumulative potential for GHG reduction owing to the lack of appropriate mitigation and adaptation strategies for their business. It is therefore important to mainstream this section of industry and provide them hand holding to enable them to integrate climate change initiatives into their overall business growth plan in the most appropriate and cost effective manner.

Recommendations

National Action Plan for Climate Change (NAPCC)

As the Government moves towards the implementation of the National Action Plan for Climate Change, businesses will have several opportunities to be actively involved in climate change mitigation and adaptation. In this light, the following recommendations may be considered in the approach to the 12th Five Year Plan:

- A clear roadmap may be proposed on the implementation timeline for all the missions of NAPCC.

- Climate change actions and initiatives may be extended beyond the Central Government level to reach out to the state level where the actual implementation will happen. All States and Union Territories may be encouraged to formulate their own state action plans on climate change as a part of the State's and Union Territories' five year plans. This would also help further engagement of Indian businesses located in different states in climate change mitigation efforts.
- In spite of having huge untapped potential for GHG mitigation, several small and medium enterprises (SMEs) spread across the length and breadth of the country are yet to build in climate change mitigation as part of their business strategy. The limited engagement of SMEs stems from the lack of awareness, technical know how and capacity. It would be useful if the next five year plan has a programme to take the implementation of the NAPCC more directly to the SMEs.
- Implementation of NAPCC by industry requires huge investment. In many cases the payback period is beyond the normal business case. Government may therefore consider extending accelerated depreciation benefits to projects implemented as part of the Perform, Achieve, Trade (PAT) and Renewable Energy Certificates (REC) mechanisms under National Mission on Enhanced Energy Efficiency as well as for projects under the Jawaharlal Nehru National Solar Mission. This would be an incentive for industry to undertake energy efficient and climate friendly operations which in the long run may also help them see green business as a profitable proposition.

India's voluntary goal to reduce emissions intensity by 20-25% over the next ten years

India has announced a voluntary goal to reduce its emissions intensity by 20-25% by 2020. It is evident that business will have to be key delivery agents to support the Government in meeting this goal. Businesses stand ready to support the Government in ensuring that this goal is met, however it would be useful if the twelfth five year plan focused on the following issues to help fulfill this target:

Transition plan to help business on the path to a low-carbon economy

Most policy statements and initiatives outline the end-result that is intended (i.e., achieving a low carbon economy), without adequately addressing how businesses will be assisted in the transformation.

There are several areas where business needs support to make this transition. Some of the key recommendations are outlined below:

Policy and fiscal incentives for Climate Change Mitigation and Adaptation

- Policies on mitigation and adaptation must favour market based instruments as much as possible to engage industry further.
- A deeper domestic financial market around carbon traded internationally must be supported and allowed to emerge. Currently carbon is traded as a commodity in two of India's largest commodity exchanges but trading volumes remain limited. It would be useful if the next five year plan looked at new financial instruments to support financial transactions around carbon.

Expanding the coverage of climate change mitigation and adaptation to Agriculture

A major challenge lies in the implementation of mitigation strategies for climate change in agriculture through NAPCC. Mitigation strategies in agriculture include practicing zero tillage, reducing burning of hay and straw and conservation agriculture methods. Lessons can be learnt from adoption practices on zero tillage in Argentina. Zero tillage in Argentina was almost a failure due to excessive weed growth during initial years of practicing zero tillage. With introduction of genetically modified round-up soyabean, the issue of weed growth was resolved and now 24 million hectares of land is under zero tillage in Argentina.

In this context, it is pertinent to look into implementation issues related to mitigation strategies for climate change and fine tune policies for smoother and effective implementation. Some of the strategies could be:

- Since food security is a major concern for the country in the future especially with respect to climate change threat, it is important to develop and use genetically modified crops which would withstand climatic stress. Hence, it is necessary to adopt a scientifically robust, transparent and accountable regulatory mechanism for living genetically modified organisms including those intended for agriculture and food.
- The private sector should be leveraged to implement mitigation strategies in contract farming programmes that they undertake with farmers. A policy direction on organized

farming involving corporate sector, which would increase agricultural productivity, is long overdue and should be a area of priority.

Waste management and Pollution Abatement

Waste management in the country is one of perennial issues which have not been effectively addressed for decades. Both urban and industrial waste management have challenges in implementation despite regulations being in place. Following are the recommendations of Industry for effective management of waste.

Common Environmental Infrastructure Projects

The development of common environmental infrastructure like Municipal Solid Waste Treatment Plants, Sewage Treatment Plants, Common Effluents Treatment Plants, Hazardous Waste Treatment, Storage and Disposal Facilities (TSDFs) have not been given priority like other infrastructure development activities such as roads, airports etc. Although large industries have been adopting state-of-the-art technology and global benchmarks for environment protection, small and medium enterprises depend upon common infrastructure for meeting their environmental standards. To ensure that the environmental standards are met across industry, there is a need to develop environmental infrastructure facilities in each state depending upon the density of population and density of industrial establishments as well as upgrade or modernize existing facilities. This will not only enable environmental standards being met across the board, but will also send a clear indication from the Government to the society about environmental sustainability agenda for the nation and lead to better compliance.

Government should encourage private sector participation through public private partnership for the development of common environmental infrastructure facilities and address the bottlenecks faced by private sector in such projects. Some of the measures which shall be considered for enhancing common environmental infrastructure facilities in India include the following.

- Address the inadequacies in the current policy framework and fiscal incentive structure for common environmental infrastructure in India. Innovative policy measures should be introduced to enhance the environmental infrastructure capacity rapidly across the country.

- The private sector participation in the sector including bottlenecks and constrains for private sector should be addressed. Overall PPP framework for such projects, modes to enhance private sector participation and facilitate PPP projects in this sector should be considered.
- The business models which are being followed for such projects covering all types of wastes should be documented. Innovative models/ best practicable model which would be adopted across projects shall also be deliberated and projected.
- The issues of implementation of the common environmental infrastructure projects should be addressed.
- Modernization and upgradation of the existing environmental infrastructure to enable effective operation and optimal utilization should be taken up.

Municipal Solid Waste Management

An area of grave concern for the country as a whole is municipal solid waste, which is compounded by lack of effective implementation, by the antiquity of the Rules and lack of structured process and guidelines for public private partnership models. The Municipal Solid Waste Management (MSWM) Rules, 2000 which were to be implemented by 2003, have resulted in only a handful of urban local bodies being compliant with the Rules. The government should set in motion the process for amendment of the Municipal Solid Waste Management and Handling Rules 2000 that have long surpassed their relevance and timelines.

The Public Private Partnership Projects (PPP) for municipal solid waste management face bottlenecks with reference to viability and issues in implementation. PPP projects in Municipal Solid Waste Management (MSWM) should be given special thrust by putting in place measures to ensure project viability and effective implementation through the following:

- Introduction and institutionalization of tipping fee and/or Operation & Maintenance Fee concept in the whole value chain of MSWM sector across India.
- Prioritizing utilization of JNNURM funds for all the components of MSWM in the desired sequence to ensure total solution approach.

- Prioritizing provision of land for all components of MSWM cycle.
- Formation of buffer zone around MSW treatment and disposal facility.
- Setting up a bill discounting facility for the private sector operators through JNNURM
- Setting up an ESCROW account to avoid payment defaults
- Exclusion of taxes in the tipping fee and / or O&M fee
- Provision for escalation in tipping fee and / or O&M fee to adjust revision in price of administered commodities & utility services
- Procurement of equipments for MSWM operations with in-built O&M contract

Municipal Solid Waste Management - Enhancing Quality and Quantity of PPP projects

- ▣ Various standards and guidelines should be developed for MSWM sector for proper implementation of the MSW Rules, 2000 as well as to ensure accountability of PPP partners. The following are recommended:
- o Developing Municipal Solid Waste Management benchmarks for different cities depending upon the size and population.
 - o Specification of range of costs for different components of MSWM cycle to help in the bidding process.
 - o Setting Standards for MSWM equipment and machinery with expected lifetime.
 - o Developing appropriate tendering models which would serve as guidelines for the MSWM sector.
 - o Realistic and equitable standard for quality of compost and coverage under FCO.
 - o Study on quality based cost approach for different components of MSWM cycle.
 - o Sanctity and durability of PPP agreements independent of Bureaucratic / Political changes
 - o Prequalification criteria for consultants and private operators

- o Policy on the usage of MSW derived compost with chemical fertilizers to create demand for compost thereby enabling economies of scale for compost generation
- o Monitoring of MSWM Projects to ensure accountability and transparency
- o Cluster approaches to improve feasibility of MSWM projects and achieve economies of scale for smaller municipalities put together.
- o Proper utilization and disposal of construction and demolition waste under PPP mode
- o Penalization of both public and private sector for non-compliance to tender agreement with objectively defined criteria.
- o Incentivizing decentralized waste management projects for large scale housing projects and commercial buildings.

Industrial Waste Management

- Government should encourage and incentivize the use of wastes of one industry as a raw material or energy source for another industry.
- The Government should also consider the relaxation of norms for discharge of effluents generated from common infrastructure facilities through a diffuser system. Separate norms have to be devised for the discharge into sea in order to preserve our freshwater resources. A study on the carrying capacity and appropriate discharge standards into sea/oceans need to be carried out.
- To enable waste recycling, transboundary movement of hazardous waste should be facilitated by adopting a regime of integrated regulation for all industrial wastes. For e.g. slag, fly ash and some hazardous waste can be used in cement kilns for incineration but face problems with respect to inter-state movement. The Government should also promote recycling of non-toxic hazardous waste.

Promotion of Manufacturing Base for Pollution Control and Environmental Friendly Equipments

There is a huge potential for pollution control and environment and climate friendly technologies and equipments in the country, because of policy mechanisms such as NAPCC. However, India still depends on imports of such technologies and this area should be given immediate priority. India can also be a manufacturing hub for such technologies, which will not only benefit in reducing imports but also help in

environmental sustainability of the nation. For this, Technology Development Fund for manufacturing the following could be setup and action plan for the same should be drawn up:

- Equipment and/or technologies used to produce energy through solar, wind, geothermal, biomass, biofuels, waste, tidal and other renewable resources.
- Fuel cells, microturbines or energy-storage systems for use with electric or hybrid-electric motor vehicles.
- Equipment used to refine or blend renewable fuels.
- Equipment and/or technologies to produce energy-conservation technologies (including energy-conserving lighting technologies and smart grid technologies) etc.,
- Other environment friendly and/or pollution control equipment.

Environment - Lack of Integrated and Coordinated Effort

Environment related policies and regulations are a classic example of a disintegrated regulatory framework. This is primarily because environment related policies are being dealt by different agencies and regulatory authorities without being streamlined into a single process. For e.g. the municipal solid waste management regulations are framed by the Ministry of Environment & Forests whereas the implementation of the Rules is with the Urban Local Bodies which come under State Governments and Ministry of Urban Development, Government of India. Another example is renewable energy, where climate change obligations and sustainable development agenda for the country is devised by the MoEF, whereas Ministry of New and Renewable Energy and other Ministries are responsible for implementation of the strategy and low-carbon growth.

Therefore an inter-ministerial taskforce headed by the cabinet secretary should be setup to address the above issues. The integration at the Government level will then streamline processes and provide ease of coordination for industry as well.

Forestry and Wildlife

Forest Management

Geospatial technology is one of the widely used technologies worldwide for conservation of forest resources. Geospatial technology helps in development of working plans by state forest departments. It also helps in preparing joint forest management projects which involve villagers in forest protection. Geospatial is also a powerful tool for monitoring the state of the forest by way of change detection and impact of intervention by way of various initiatives like afforestation drive etc. Geospatial also helps in development and protection of wildlife reserves and monitoring the corridors used by species in their movement. Some of the specific applications of geospatial technologies are as follows:

- **Site selection:** Geospatial can help the government in site selection for industrialization based on spatial parameters.
- **Biodiversity Management:** It can be a technology platform for creating a biodiversity inventory and an action plan to manage and conserve it.

Forest Clearances & Benefits to Forest Dwellers

- The forest clearance process has been a very lengthy process for industry. Although guidelines for Forest Conservation Act (FCA), 1980 have been provided by the state governments, the entire process is complicated with limited transparency. Hence it would be worthwhile to revise the Forest Conservation Act, 1980 and make the procedures for implementation in the revised Act more practical and less time-consuming.
- Some provisions under the guidelines of the FCA, 1980 for wind energy have not been revised for a long time though the wind sector has developed to address some of the challenges. Hence a special provision or relaxation should be provided to renewable energy projects, especially wind energy projects, as electrification in the areas near forests would only be provided through decentralized renewable energy systems and this is very important as it is highly interrelated to energy security and rural electrification.
- Policies should be evolved for encouraging tourism in protected areas with involvement from all stakeholders including forest dwellers as this will incentivize the forest dwellers in the conservation of forests. The basic services for development of infrastructure for tourism can be done through private sector participation.

D. MARKETS FOR EFFICIENCY AND INCLUSION

Based on our interaction with team leaders from select sectors and the feedback received from them we present in this note some suggestions for improving the efficiency of the markets for agricultural products, land, labour, financial services [with particular focus on deepening financial inclusion], and select goods & services.

Market for agricultural products

Broadly, the agricultural commodities can be divided into two categories, non-perishables like cereals and perishables like fruits and vegetables.

In the case of **non-perishables**, the government procurement mechanism plays an important role. Every year, the Minimum Support Price (MSP) is announced by the government and this acts as a price signal for farmers who often base their production decisions on these prices. Once the crops is harvested, government agencies, primarily FCI, buys directly from the farmers and the stock of cereals is then released to various state governments for distribution through the PDS framework involving almost 5 lakh ration shops spread throughout the country. In case the open market prices shoot up due to any reason, government releases additional stock of food grains through various channels to rein in price pressures. Given the present state of affairs, there is ample scope for introducing greater efficiency in this entire set of operations. Let us look at these.

- ♣ First, in case of **procurement**, today there is a clear regional focus with certain states of the country contributing substantially to overall food stocks. In other words, FCI has not really diversified its procurement activity over time and as a result in some states the farmers do not get the benefit of MSP mechanism. Additionally, the opportunity for procuring at the local level for meeting the PDS requirement is also lost.

It is therefore suggested that government should look at a decentralized procurement framework and try to meet the PDS requirement in each state wherever possible. Further, to avoid putting additional pressure on FCI, which is already stretched, the government can consider licensing private sector entities to procure food grains.

- ♣ Second, in case of **stock management**, the government agencies are seen to have a passive approach – buying everything that is offered to them and then maintaining these stocks irrespective of the economic costs entailed. While we need to be amply cautious about the level of our foodgrain stocks, we must also pay some heed to the costs involved. Government may therefore consider capping the level of food stocks held with FCI with this level being even 50 percent higher than the required buffer norms. Anything above this should be considered for trading and release in the international and local markets.

Further, when it comes to releasing foodgrains in the market, FCI is generally seen to offer large sized tenders. This must change. Offering food stocks in smaller lots spread over multiple locations leveraging tools such as e-auctions is a better way of quelling price pressures.

- ♣ Third, in case of **distribution** of food grains to the BPL families, there is over reliance on the PDS. This system unfortunately is plagued by various ills – identifications errors, ghost cards, problem of quality, leakages etc. In the Union Budget for 2011-12, the Finance Minister had indicated that work has been initiated on the process of direct transfer of subsidies to the targeted group. This is welcome and if under this process we can launch the Food Stamp program – allowing people to buy foodgrains at multiple outlets – then we can address many weaknesses of the PDS system. This would also further the cause of inclusion. Additionally, by making benefit percolation under the ‘Food Stamps’ program contingent upon beneficiaries’ actions in terms of participation in other social welfare programs, government can improve the success rate of these other programs too. Such ‘Conditional Cash Transfer Programs’ have worked well in many countries such as Mexico.

- ♣ However, with the National Food Security Act now in its last stage and given its provision to offer foodgrains at a concessional price to people, government will have to evolve a strategy on how to address the challenge of ‘duality of markets’ which lies at the heart of any subsidy program and weakens it considerably.

Coming now to **perishables**, here we see that there is no MSP mechanism in place and farmers by law are required to sell their produce in the APMC ‘mandis’. At the state level there is also restriction placed on areas where farmers from a region can sell their horticulture produce. Now, APMC ‘mandis’ with a limited number of buyers encourages collusion amongst buyers and this forces a farmer to sell produce at a low price. The regional restrictions further amplify this pressure. It is therefore suggested that state

governments should be incentivized to de-list horticulture products from Schedule 1 of APMC Act and thereby allow farmers to sell their produce to anyone and at any location of their choice. Private sector players can buy directly from the farmers and by collapsing the long supply chain offer remunerative prices. A part of the efficiency gains can also be shared with consumers in the form of lower prices for horticulture products. Further, by developing the required infrastructure – cold chain, warehouses etc. – private sector can also help in reducing the post harvest losses.

Two additional points that we would like to mention in context of agriculture markets are –

Inter-state movement of agriculture products. Presently there are several taxes including octroi which are imposed on inter-state movement of farm products. These need to be done away with to straighten the kinks in agri supply chains. Further, major consumption centres need to be linked with major production centres through fast and efficient transportation nodes. There is a suggestion that alongside the dedicated freight and industrial corridor [Delhi-Mumbai], the government is likely to develop a dedicated food corridor which would have high speed trains for transporting agri commodities from Maharashtra to Delhi and other northern states. This is encouraging and government should consider developing more such nodes across other parts of the country.

Warehouse receipts. With the formation of Warehousing Development Regulatory Authority, the process of issuance of warehouse receipts has gathered steam. This system will give the option to farmers to hold on to their produce if they find current prices unfavourable. They can store their produce in the warehouses and can discount the receipts for raising money for the next crop cycle. As this would prevent distress sales, this system should be implemented in its entirety beginning next Kharif season.

Market for land

The market for land is very complex in India. One has to appreciate that whoever is the current owner of land, his or her natural tendency is to hold on to it in perpetual manner. This tendency has considerably reduced the amount of land that is available for active sale or purchase in the market. As a result one finds that in larger towns and cities there are only small pockets of land, which too are scattered all over, that are available for transactions. This in turn results in huge build up in prices and effectively drives out a large proportion of people who otherwise may be interested to participate in the land market as buyers.

As one moves outside of the city limits, one faces a different sort of an issue. While large tracts of land are available, these are largely agricultural in nature. Given the sacred link between the tiller and his land, any attempt to buy out such land is met with stiff resistance. Even when farmers have voluntarily sold their land, the buyers have had to face resistance later with doubts being raised by the sellers on the process of price discovery. In cases where the government has gone ahead and acquired land for public and / or private projects, the issue of relief and rehabilitation of those displaced assumes great significance and the nation is still debating on the best way to deal with this problem.

Given this very restricted nature of the land market, what can be done to improve its functioning? In our view, an approach that looks at intervention from the supply side can ease some pressure in this market. Even without getting more land released from individual ownership, there is scope for the government to increase supply and some suggestions in this regard are given below –

- ♣ There are sick industries both in the public and private sector, which are sitting on huge tracts of land. The government can expedite the bankruptcy and closure procedures in such cases and offer the land on a competitive bidding basis to other players. The sale of land belonging to the closed National Textile Corporation Mills in Mumbai by the Maharashtra government is a good example to consider here.
- ♣ In notified industrial areas, often cases are reported of allottees not starting the construction / manufacturing activity even after months of allocation of land. To avoid this government can take back land from such players and then offer it to those who are willing to start construction / manufacturing in a time bound manner. In fact, there should be rules to monitor use of land once it has been allotted for a specific purpose.
- ♣ Another way to increase supply of land is to create land banks – perhaps by aggregating large tracts of waste land owned by government – and make these available to industry. The state government of Karnataka has announced that it would create land banks in each district and offer it for industrial development. To facilitate inclusion of MSMEs, some land may be reserved for these units in each industrial area proposed to be developed or under development. The state of Karnataka is following this principle.

- ♣ Often there are sites which are disputed and hence remain outside the ambit of the market. Such cases arise because of lack of transparency and clarity in allotment of land titles. This process needs to be benchmarked and a national level MIS program should be launched to clearly map land ownership patterns. Once land titles become clear, more land for sale and purchase would be available.
- ♣ Finally, there are huge tracts of land that are available with the Ministry of Railways, Ministry of Defence and Ministry of Civil Aviation. Government should consider how such land can be brought into the market and be used for productive purposes.

In addition to the above, there is an urgent need to pass the Land Acquisition Bill which is pending in the Parliament. Further, the Haryana Model for giving compensation to those displaced is now gaining currency in various quarters. It is perhaps the best model for compensating those who give up their land voluntarily. Therefore the relief and rehabilitation package should be designed taking elements from the Haryana Model. This is likely to reduce some rigidity in the functioning of the land market.

Market for labour

The labour market in India has two broad segments. On one hand we have the organized sector, which today employs just about 8 percent of the total workforce in the country and on the other hand we have the unorganized sector which employs the bulk [almost 92 percent] of the workforce in the country. All rules and regulations of the government's labour department are binding on the organized sector. With the unorganized sector being out of the purview of government regulations, the working conditions, the wage structures and the benefits given to employees here leave a lot to be desired.

Therefore the first question that one needs to ask with regard to improving efficiency and inclusion in this dual labour market is how to increase the share of the organized labour market. In other words, what can be done to expand the size of the formal labour market? Our discussions with members of industry across states show that the current set of labour laws – both central and state regulations – are to be blamed for restricting the size of the organized sector. Today, there is little incentive for firms to hire workers in large numbers. In fact at the level of small enterprises, there is a genuine effort made to restrict worker strength to benchmarks beyond which labour laws come into force.

Thus, the first recommendation for improving the efficiency of the labour market is for the government to relook at the existing labour regulations making them less onerous and impart flexibility to enterprises to scale up and scale down worker strength as per their business requirements. This will incentivize organized sector enterprises to employ more people and hence widen the ambit of organized sector employment.

Coming to organized sector, a concern that is raised time and again by industry is the mismatch between skills that are imparted to workers in educational and vocational institutions and the skills that are demanded by the industry. Due to this misalignment of skills, even people who otherwise are trained cannot get the right jobs they want. Often industry has to re-train people and then put them on the shop floor. This increases their overall cost of production.

To deal with this problem, the government should strengthen its plans for equipping the young people coming out of colleges, universities and vocational education institutions with the skills demanded by industry. We are in the midst of a massive expansion program in the higher education domain. We are also undertaking steps to turnaround the industrial training institutions of the country with involvement of the local industry. A National Skill Development Mission has also been launched. All these efforts should continue to get strong support in the 12th Plan.

Finally, on the issue of promoting inclusion in the labour market, the government has engaged industry asking it to outline its plans for affirmative action. The issue of extending job reservation for economically and socially weaker sections of society to the private sector has also been raised in the recent past. From FICCI, we would like to reiterate that reservation of jobs in the private sector is not a real solution for empowering the youth from the socially weaker sections of society. What we need instead is a comprehensive package of measures that would address this issue in a holistic manner. And in our view this package should have three elements –

- (1) Promote skill development right from the school level. Studies show that the drop out ratio amongst students belonging to the SC and ST category rises as one moves up the education ladder. This trend needs to be addressed and reversed.

- (2) **Promote entrepreneurship.** This can be a very effective means to generate more and more jobs for gainfully employing the youth of the country. Perhaps, the government can look at an affirmative action policy for banks where they must meet targets for lending to enterprises being floated by economically and socially weaker sections of society.
- (3) **Promote industrialization in districts with significant SC / ST population.** Today, there is no incentive program in the country or any policy that encourages employment generation. We feel that by promoting industrialization in districts with large SC / ST population a significant numbers of jobs can be created. Therefore, as a policy option government should consider offering fiscal incentives to firms that set up operations and generate employment in the marginalized districts of the country.

Market for financial services

Several studies have shown that the Indian market is largely under banked and that the extent of financial exclusion in case of certain segments of society and certain geographies is extremely large. One of the key public policy objectives of the government is to spread and extend the reach of financial institutions across the length and breadth of the country. In case of rural areas, where the problem of financial exclusion is particularly acute, banks and micro finance institutions can play an important role in meeting the government's objective of promoting financial inclusion. Although both banks and micro finance institutions are on an expansion mode in rural areas, there are certain steps that can be taken by the government to facilitate and encourage this process. These steps are listed below –

For encouraging the spread of banking services government can...

- 1) **Promote setting up of shared infrastructure** such as common facilities to host low value accounts in rural areas.
- 2) **Ensure interoperability of business correspondent networks.** This would enhance the viability of distribution channels in remote areas.

- 3) Start making payments under various public welfare programs through the banking channel. This would generate some revenue for the banks and support them in initial years. Already under NREGA all wage payments are made through bank accounts.
- 4) Expedite the process of computerization of land records as land can be a valuable asset for drawing loans.

For encouraging the spread of micro finance institutions government can...

- 1) Ensure that there are no barriers to entry of new players and new models for providing financial services to the poor.
- 2) Consider working with RBI and bringing loans extended by banks to MFIs under the priority sector credit definition.
- 3) Ensure that MFIs are not subject to multiple regulations. Already, NBFC-MFIs are regulated by the RBI. If state governments bring in additional legislation (as seen in case of Andhra Pradesh), there could be scope for regulatory arbitrage and this can result in dilution of supervision.

Market for other goods and services

- ♣ **Fertiliser** – The fertilizer industry in India has for a long time seen no large scale investments. This was largely the result of the subsidy policy that was followed by the government where companies were compensated for under-recoveries resulting from selling fertilizers to the farmers at prices regulated by the government. Last year, however, the government took a positive step and introduced a nutrient based subsidy mechanism for all fertilizers except urea. This is a welcome step and the industry now looks forward to extending the NBS mechanism to urea as well. Once this happens, the market forces would determine the price line and there will be greater incentive for fertilizer companies to invest in the sector.
- ♣ **Petroleum products** – As in the case of fertilizers, the government has taken a progressive step in the market for petroleum products by deregulating the price of petrol. As the next step, the price of diesel

too should be decontrolled. This should be followed by phased decontrol of prices of both LPG and kerosene. This would result in multiple benefits enhancing efficiency and removing the present market distortions. First, it will shore up the finances of oil marketing companies and enable them to take forward their investment plans. Second, it will instantly kill the market for adulteration of petrol / diesel with kerosene. Third, it will put a stop on the diversion of LPG cylinders for industrial use. The subsidy to be given to the intended beneficiaries [extremely poor and vulnerable] can be provided using IT enabled smart cards as envisaged under the UID scheme.

- ♣ **Farm machinery** – Today, in case of several farm equipments and machinery, farmers have restricted access due to their high prices and limited usage during the harvest / sowing season. Farmers cannot be expected to invest a few thousand Rupees on equipment which will be used for a few days in the year. One way to overcome this problem is to promote setting up of farm machinery centres in different districts which can lease and take back equipment after use from farmers. Government should encourage through appropriate allocations agri-entrepreneurs to set up such farm machinery centres. This would improve access of farmers to modern technology and help in improving crop yields.

- ♣ **Power** – Over time the policy framework governing the power sector has been modified to encourage participation of private sector in generation and distribution of power. As things stand today, while there is no barrier to the entry of private sector in the power sector, there are certain bottlenecks that exist at the state level and which makes investments in this sector a risky proposition. Coming to the specifics, while policy allows private players to generate power and sell it directly to consumers, limited open access, high wheeling charges, and occasional restrictions imposed by state governments to carry power outside of the state have prevented active participation of the private players in the electricity sector. The Planning Commission may like to look into these specific points as also design a framework for rapid buildup of transmission networks that can be leveraged by the independent power producers from the private sector.

E. CENTRALISATION, EMPOWERMENT AND INFORMATION

1. Vibrant Grassroots Democracy

Panchayati Raj Institutions (PRIs) are looked upon as mere implementing agency of the Central and State government schemes. Barring the Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) and Backward Regions Grant Fund (BRGF) all other centrally sponsored schemes are managed by the line departments which leaves little scope for PRIs and citizens to engage. The implementation of various centrally sponsored programmes by the line departments have resulted in complete management, allocation of funds, and implementation of schemes by the respective departments. Once the community sees no role in the implementation of a scheme, their ownership on maintaining the assets cannot be established and thus most of our welfare schemes suffer due to inadequate operation and maintenance.

The gram sabha or the lowest most tier of governance in our villages is not functioning properly. This has resulted in alienating the voices and concerns of the villagers into the planning process. Despite guidelines on village level planning for programmes like MGNREGA, National Rural Drinking Water Supply Programme, the gram sabha's have not been able to engage with the communities in developing village level plans.

The strength of decentralized planning would need a range of measures and efforts beginning from recognizing the important role that a vibrant and functioning panchayat can play to empowering them with resources and information to be able to take up the role as mandated under the 73rd Constitutional Amendment Act. Some of these include:

- Government to endorse the recommendations of the Administrative Reforms Commission with complete political will. PRIs need to be given full powers of local self government with transfer of administrative and financial power and institutional machinery.
- The gram sabhas have to be made functional for discussing development programmes and taking the concerns of all social groups within the village. Develop mechanisms for sample checking of gram sabha meetings (whether public is informed, quorum is followed, decisions are endorsed).

- Every state government be asked to prepare a roadmap for devolution of powers and functions to the PRIs. The role clarity of every functionary should be well articulated and an organizational structure be developed with staff and salaries.
- The PRIs should be given the power to generate revenue by levying taxes and other mechanisms of financial resource mobilization. This will provide the financial stability to these institutions.

2. Capacity Building

Inadequate attention has been provided in developing capacities of PRIs which stems from the fact that their role has not been fully recognized as government and they are mere look upon as agencies. Most of the capacity building programmes are one time and do not realize the needs and demands of the local context and situation. A well developed capacity building plan for the PRIs needs consider the following:

- Capacity building to go beyond the elected representatives and include functionaries of the gram sabha with a strong emphasis on skill development on local governance. Greater engagement with women representatives and those belonging to the SC and ST groups to empower them in understanding their roles and discharging their duties more efficiently.
- Provide training to village level committees like Village Water, Sanitation and Health Committees set up under National Rural Health Mission, National Rural Drinking Water Programme and Total Sanitation to ensure that the roles assigned to these committees are undertaken effectively through the support of the state governments.
- Engage with civil society organizations, educational institutions and interested corporate houses that have prior experience in rural development for capacity building activities for the 2.5 lakh panchayats in India. The current one time support of training activities should be supplemented as a more continuous activity.
- Develop content of the capacity building programmes in sync with the local context, understanding of the target groups and using different medium of dissemination.
- Capacity building programmes to be evaluated by third party organizations for their effectiveness in creating awareness and making the desired information reach out to the target groups.

3. Social Justice for all

The special provisions for development of socially and economically excluded and vulnerable communities have been on since the Fifth Five Year Plan, but the level of service delivery has remained a big question. Not only in respect of access to entitlements like housing, electricity, water and sanitation are groups like dalits, tribals and minorities lagging behind, they lag behind when it comes to provision of these services by the government.

A major challenge has been the inability of various departments to allocate funds for the welfare of the marginalized groups. The Special Component Plan (SCP) and Tribal Sub Plan (TSP) strategies being implemented since the last two and half decades for the welfare and development of SCs and STs indicate broadly four major issues: (i) Inadequate allocation of funds as per the SC and ST population in the States, (ii) Non-utilisation of even the allocated funds, (iii) Diversion of SCP and TSP funds to other sectors at the end of the annual plan, (iv) Implementation and administrative bottlenecks and (iv) Improper delivery mechanism at the field level. This has resulted in the exclusion of basic services alongside retarding the economic development.

In addition to financial support under the various government programmes, the welfare of the excluded communities would require measures for skill development, economic empowerment alongside social inclusion. Industry associations have taken measures for imparting skill based education to the youth belonging to the excluded communities. States should be encouraged to engage with industries and corporate sector for joint ventures on skill development. The following measures would have to be strengthened for development of the excluded groups:

- The Union Government to ensure that at least 16 percent and 8 percent of the total plan budget of all ministries and departments is earmarked Scheduled Caste (under Special Component Plan) and Scheduled Tribes (under Tribal Sub Plan) respectively. Going a step ahead it also needs to ensure that these funds are exclusively spent on welfare programmes for these groups.
- In respect of the minorities, the government should have a Minority Component Plan which should be mandatory for all ministries on the line of the Schedule Cost Component Plan and Tribal Sub Plan. The progress of the Prime Ministers 15-point programme for minorities needs to be made available periodically in the public domain.
- The Ministry of Social Justice and Empowerment, Ministry of Tribal Affairs and Ministry of Minority Affairs should be authorized to regularly scrutinize the implementation of welfare programme for various departments for these groups.

- A proper plan for employment of SC, STs and women needs to be developed at Panchayat level with preference given to economically downtrodden families in employment. The plan for NREGA should be looked as a livelihood option for the economically weaker sections of the society.
- Set up the National Task force on Violence against Women in Conflict Zones as was planned in the XI Plan to ensure justice to women living in these regions.
- Increase interface of socially excluded groups with the government officials through public hearings, interaction camps to highlight concerns of these groups directly to the service provider.
- The National Policy for Old Persons to be adopted by every state government and necessary programmes to be formulated with support from the Ministry of Social Justice and Empowerment.

4. Democratising information to improve the quality of public service

The current implementation of government programmes suffers due to the inadequate information available to the masses. For a department implementing a programme, the focus is largely on meeting the targets and expenditure of the money allocated. People are unaware of the provisions of various programmes and their role in engaging in the development activities in their area.

Well informed citizens can be active agents in planning, execution and monitoring of various schemes and provide user feedback for improvement and checking malpractices. The nature or the quality of the information reaching out to the target audience is an important criterion for a thriving democracy at all levels. The current mode of reaching out to the masses is largely based on advertisements and awareness materials through the print and electronic media. The real power of using information by the people would entail engaging with civil society groups, corporate houses and leveraging their outreach. E-learning, facilitation services developed under the CSR work of various corporate houses can be models for connecting with the rural population.

The Right to information Act which is hailed as a landmark instrument in providing information to the citizens of the country has not been successful in penetrating to the masses. Various studies have highlighted that awareness amongst the citizens on RTI ranges from 12- 33 per cent. There lies a scope

to increase the awareness level of the ordinary citizens on the provisions of RTI to realize the full potential of this powerful instrument of seeking information.

- Websites of government departments needs to be regularly updated with details of circulars, notifications, statues, performance of schemes, fund allocation and utilization.
- A National Data Bank should be created by collecting, preserving, disseminating and sharing vital information (particularly relating to the prevailing best practices in the field of planning and developmental initiatives) from the local communities and local governments for democratizing information and widespread dissemination.
- All ministries to undertake frequent press briefings to share success stories of the various programmes and role of communities in ensuring success.
- Mobile revolution has swept the country spanning across rural and urban areas. The power of mobile telephony can be used for speedy delivery of information to the citizens. With over 700 million mobile subscribers in India, the scope of using mobile for information dissemination is huge.
- Steps must be taken for implementation of the RTI Act in letter and spirit, especially the public disclosure clause. The penalty provision for not providing the desired information within the stipulated time frame should be enhanced.
- Various government departments attribute the shortage of staff and multiple functional responsibilities for the delay in providing information under RTI. The speedy delivery system for RTI would need a staffing mechanism under a PIO or APIO.
- Social Audit must be carried out at every tier of government, even at the highest levels to promote transparency in governance and give the people an opportunity to evaluate the working of the government schemes and development initiatives.
- A performance management framework to be developed for assessment of various programmes against the set standards. The monitoring systems should have scope for feedback mechanisms from all stakeholders.
- All government programmes to monitor outcomes and analyze bottlenecks in implementation and delivery of services. The current mechanism of reporting on targets does not provide the opportunity to gather qualitative information on the delivery of public services under various

schemes. The real impact of a programme should be judged on the basis of a positive change in the lives of the target group.

F. TECHNOLOGY AND INNOVATION

CURRENT STATUS OF THE SECTOR

- India's S & T sector has been growing progressively over past few decades. Presently, the Indian R&D Gross Budgetary Support is Rs. 75,304 crores from the total Rs. 16,079,97 crore which is 4.7% for the Eleventh Five Year Plan. Further, the GERD (Global Expenditure on R&D) figure of India is nearly 0.8%. The Indian R&D funding is majorly carried out by Government (Central & State) – 74%, followed by industries with 20% and academia at 6%.

India as R&D Hub –India is graduating as a R&D destination for many MNCs who have setup their R&D labs in India. The FDI that these MNC R&D centres bring in has been growing steadily 2005-06 – USD 18.97 billion ;2006-07 – USD 50.63 billion; 2007-08 – USD 22.49 billion; and 2008-09 – USD 22.57 billion.

With the President, during her maiden speech to both the houses of Parliament, declaring the next decade as “**Decade of Innovation**” more of such FDI inflows can be attracted by developing suitable infrastructure for R&D, human resource and attractive policies with incentives for research work. There by increasing the share of industry contribution towards R&D considerably.

DEMAND / NEED

- The focus on innovation has become like a bandwagon effect with most of the countries relying on innovation as the tool for their growth from sluggish and knowledge driven economy. Investments into the sector are nearly 0.8% of GDP, however, developed and many developing countries have a GERD of more than 1.5%. Moving ahead, it is pertinent that the investment into this sector is enhanced to 2% of GDP by the end of twelfth five year plan period. Nevertheless it is still ambitious, for the sector, to reach a figure of 2%. United States, for example, plans to invest 3% of their GDP on R&D. Similarly, China has strategized to reach a target of 3% of GERD spend by 2020.

CHALLENGES

For this investment and enhancement of the S&T/Innovation competency of the country the challenges faced by the sector are:

- There is a gap between public sector R&D and the market. Therefore a review of their technology delivery systems is required
- suitable policy intervention is needed to connect public sector R&D with the industry and drive the industry to Invest in R&D
- Mapping of IP/Knowledge available in public sector R&D laboratory need to be carefully undertaken and emphasis should be laid on acquisition of early stage technology. There is also a need for incentivisation of industry to create products through novel PPP schemes.
- We need to look at the real needs of the India and concerted efforts are needed from all to address them. Therefore, each department should identify 3-4 major mission mode R&D programmes, which have direct relevance to societal needs and the benefits of which can reach the society in the shortest possible time. In this context, a cost-benefit analysis of the existing programmes may be useful.

INFRASTRUCTURE REQUIREMENTS

a) FDI

FDI in the sector has to be enhanced by developing a mechanism for attracting Indian Diaspora. The **system** should take advantage of the Indian Diaspora and create International linkages between universities and the Diaspora for knowledge transfer, project funding, technology research, collaboration etc.

b) Infrastructure

The country should embark upon upgrading relevant technologies to fill in the technological gaps that have been hindering the growth of the nation as a major S&T /innovation nation. The planned National Knowledge Network and other such infrastructure should be paced up.

c) Skill Development

India's top educational and research Institutes doesn't feature in the world's top list. With the launch of new IITs, IIMs, IIITs, IIST (a Dept. of Space institute) during the XI plan period, it will be crucial to assess the performance and growth of these institutes during the XII plan period. One of the major focus during the 12th Five Year Plan should be **"To create a world class Research Institution in India?"**

RECOMMENDATIONS

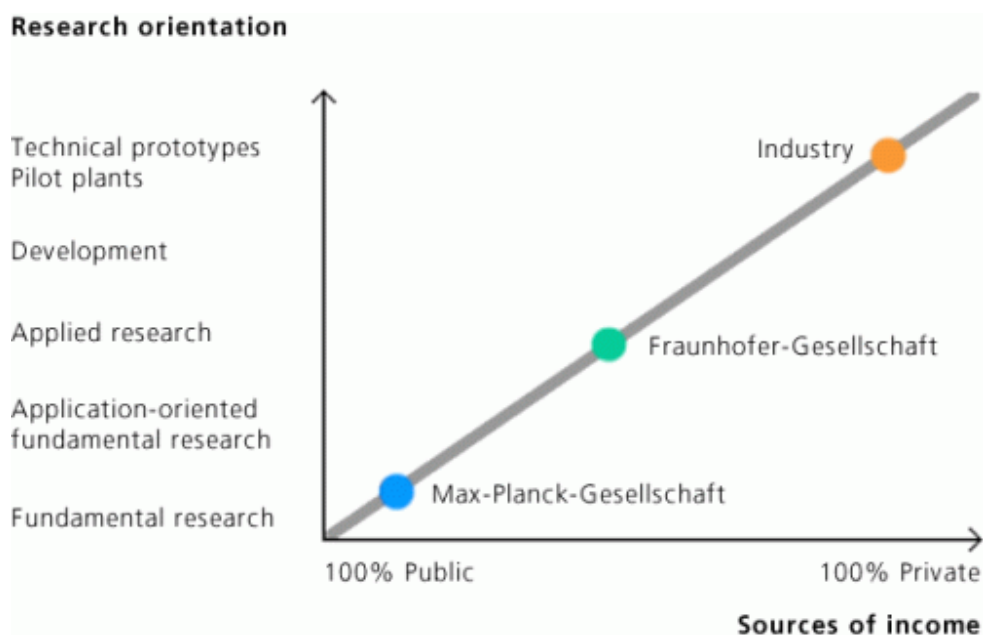
A. INCENTIVISING R&D IN PUBLIC AND PRIVATE SECTOR

- A strong **institutional mechanism** should be put in place to **rapidly commercialize new technologies** being developed in India to gain a competitive advantage in the dynamically changing world. An ecosystem should be created for efficient transfer of research, knowledge, and technology knowhow from idea stage to the marketplace.
- The **Technology Licensing officials** at the public funded R&D labs should be trained for capacity building. At present, the scientists managing the technology licensing office at government run R&D labs are not trained for carrying out successful technology commercialization. Alternatively, the Technology Licensing Office should be managed by professional organizations, which have the relevant know-how and experience of the technology transfer process. This will enable technopreneurs to receive the right value for their R&D efforts.
- Training should be provided to scientists from leading public funded R&D laboratories such as CSIR, ISRO, DRDO to make them aware of the best practices being followed across the globe on technology innovation and commercialization.
- Joint programme should be launched by the Government and Industries to provide an interactive platform for the technology companies and support them with regard to funding, development and commercialization. Example: **FICCI initiated the Lockheed Martin India Innovation Growth Programme (IIGP)**, spearheaded by a US conglomerate – Lockheed Martin Corporation for technology commercialization, which got a qualitative boost when the Department of Science and Technology came on board. Similarly, the need of the hour is for Indian corporates and government to jointly play a proactive role under the PPP mode and undertake initiatives to promote innovation, setting up incubation centers and commercialize the technologies.

- Public Private Partnerships should be enhanced to promote technology led business growth. Higher synergies between the industry and R&D institutions should be created. The R&D labs should work on a need and demand based **model from the industry for better utilization of R&D know how.**

For this, during the Twelfth Plan, to increase the R&D efforts of the public institutes the following points need to be considered:

- clarity of objectives will help national laboratories obtain better results
 - Mobility of scientists between institutions and industry enhances innovation output
 - Develop application-oriented innovations
- **CONTRACT RESEARCH:** A model that is worth considering is that of the Fraunhofer-Gesellschaft research work in Germany. They undertake Basic as well as applied research of direct utility to private and public enterprises and of wide benefit to the society. Pure basic research is funded 100% by public grants. Industrial R&D, up to prototype level, is largely financed by private enterprise. They receive funding both from the public sector (approximately 40%) and through contract research earnings (roughly 60%). As a consequence, it operates in a dynamic equilibrium between application-oriented fundamental research and innovative development projects.



KNOWLEDGE PARKS & INCUBATORS

- India is now focusing more on public-private **partnerships models** such as Knowledge Parks and incubator programmes to promote the commercialization, transfer and diffusion of technology.
- These business incubators provide the necessary environment for nurturing entrepreneurial activity and assist in the start-up phase of an enterprise in terms of mentoring, specialized support services and networking.
- With the globalization and boundaries blurring, India should embark upon a focused approach in developing indigenous technologies. India's capability in R&D is predominantly in the pharmaceuticals and space & Strategic sector. Other sectors are yet to take a competitive position. The policy for the Twelfth Plan needs to address this shortfall and promotion of other sectors.
- Some of the areas that need immediate R&D can play a critical role during the 12th Plan period are:
 - **Power Generation:** Investment in developing technologies for the Ultra Super Critical and Super critical technologies for coal-based generation are desired. Collaborations

with international companies for joint development of such technologies need to be undertaken.

- Technologies for minimizing consumptive water requirement by adopting Air Cooled Condensers and Hybrid Systems for cooling at Thermal Power Stations need to be developed and adopted
- Technology cooperation in the area of underground coal gasification and other clean coal technologies needs to be accelerated
- **CLIMATE CHANGE - INCENTIVISING R&D TO MITIGATE CLIMATE CHANGE**

Climate Change shall play crucial role during the next decade. It is important for a developing nation like us to have a focused vision during the 12th Five Year Plan Period. It is hence binding for us to incentivise technologies relating to Climate change to mitigate the threat.

- **Carbon Capture and Storage.** One of the areas in climate change mitigation which has gained prominence all over the world, is Carbon Capture and Storage (CCS) Technologies. However, Indian Government has not considered CCS technologies. CCS was adopted at COP-16 negotiations for consideration under Clean Development Mechanism Executive Board of United Nations Framework Convention for Climate Change for implementation as one of the project activities. Hence, it is important to give due attention to CCS technologies through incentivizing R&D and giving top priority for funding R&D projects in institutes across India.
- **Setting up a Centre of Excellence for Renewable Energy**
To focus on information availability, education and outreach, a knowledge network for renewable power should be established / formed. This can be done through setting up of a centre of excellence focusing on information sharing and imparting education of renewable energy.
- **Public Transportation:** It is important to evaluate alternate public transport technologies in the context of city characteristics. Public transport systems vary from low cost buses to high cost metro rails. Moreover the shape of the city is very important

for selecting appropriate mode of transportation. Many cities have prepared comprehensive mobility plans to introduce modern bus services, Bus Rapid Transport (BRT), metro rail. The approach towards modern transport has to be comprehensive and eco – friendly, which will serve the range of human needs.

B. IMPROVING GOVERNANCE IN S&T INSTITUTIONS

- The changing contours of governances and charters of the S&T/R&D institutes in India could learn more from Chinese experiences and embark upon building up institutional strengths for appropriate structures of governance.
- **China, to learn from comparative policies, has undertaken over the last decade major overhauling of the governance structures of most of its R&D/S&T institutes including shaping up simultaneously different S&T administrative rules and new principles of S&T audit {especially under New Public Management (NPM) of public sector undertakings}. Further, in its overhauling of governances structures, China has embarked upon:**
 - ❖ **Specialization of S&T/R&D institutes;**
 - ❖ **Deepened and enhanced networking between such institutes at all levels right from local, regional, provincial to global;**
 - ❖ **Hierarchisation of S&T/R&D institutes, such that bridging institutes for S&T/innovation deliveries or bridging institutes for developmental work (such as rapid prototyping, designs, etc.) stand separated from institutes of advanced R&D.**
- India has a huge S&T infrastructure in which there is wide variance in the governance structure. A separation between the functions of generation of knowledge and the bundling/adapting of such knowledge's at multiple tiers (including at local governments) would transform significantly the current scenario.
- Leaving aside a few exceptions, the existing linkages between our S&T institutes under the Ministry of Science and Technology and other S&T institutes under the socio-economic Ministries and such others that does not appear to be strong and clearly differentiated. These linkages are required to be strengthened. Similarly coordination and linkages between Central and State S&T institutes also requires an overhaul.

C. UNIVERSITY, INDUSTRY AND SCIENTIFIC ESTABLISHMENT COLLABORATION

- There is a need to develop an interface between Industry – Academia – Research Institute so that there is a translation of requirements from the industry to research institutions and academia.
- In India there are instances of industry-academia research linkage. These however take place in discrete pockets and are not widely prevalent. However, during the past few years or so, there have been growing instances of research collaboration between industry and scientific, engineering & research institutions in India. Eg; Tech Mahindra and four institutes under Symbiosis Society namely, Symbiosis Institute of Business Management, Symbiosis Institute of Design, Symbiosis Institute of Telecom Management & Symbiosis Center for Information Technology have signed an MOU in 2006 to work on joint initiatives like setting up research labs, sponsoring student initiatives, offering projects, mentoring students, instituting scholarships and awards for academic excellence.
- **One – to – one model** - Institutes such as the Indian Institute of Science, Bangalore, IIT Chennai, IIT Mumbai, IIT Kharagpur, and other prominent institutes have all deployed collaboration model in areas of interest to the semiconductor industry, and have ongoing research engagements with companies in various industries on a **one-one basis**.
- **Consortium model** – IIT Kharagpur and the TeNet (Telecommunications and Computer Networks) group of IIT Madras are the earliest to have deployed the **consortium model**. The AVLSI Consortium at IIT Kharagpur is focused on advanced VLSI research.
- PhD / Research students should be involved in the PPP models and made carriers of R&D in academic institutes and industry. The exposure will not only train them in understanding commercialization, management of Intellectual Property but will also induce them to think research in terms of industry needs and not in terms of journal that they can publish.
- A separate body under PPP mode could be constituted so that emphasis is on the collaboration between industry and researchers to maximize the benefits of research through an enhanced process of utilization, commercialization and technology transfer. The main objective of this body should be to foster strategic agreements between academia and business so that research

can happen in new areas. Such entity exists in Australia as **CRC (The Cooperative Research Centres)**.

- **CRC (The Cooperative Research Centres) programme in Australia**

- ❖ The Program is an Australian Government funded initiative. The Program emphasizes the importance of collaboration between business and researchers to maximize the benefits of research through an enhanced process of utilization, commercialization and technology transfer. It also has a strong education component with a focus on producing graduates with skills relevant to industry needs.

- ❖ The CRC Programme is a collaborative model for undertaking high quality research and development that is importantly focused on the needs of industry. It focuses on producing outcomes that contribute to Australia's industrial, economic and commercial growth. Currently, there are 58 CRC's operating in Australia. These CRC's are a company formed through a collaboration of businesses and researchers. Participants include private sector organizations, Large or small, industry associations, universities, government research agencies and other end users.

- **Industry Participation** – India needs to expand private sector R&D investment and build a national S&T infrastructure that enables innovation and industrial competitiveness. Industry can provide the invaluable support of resources that are either lacking or deficient, to steer the research in the correct course. **Mentorship of research** projects by industry representatives could by far be industry's most significant contribution to the partnership, as it can go as far as to augment an institute's research capability.

- The **Consortium Model of PPP** could be a good model for India to follow, like **the FP (Frame Work Programme) model of EU**, as it not only helps to work in a consortium but also leads to lots of exchanges of information within the country and also from abroad & pooling of resources.

- **Triple Helix Model**

- ❖ Another model that India could look is **Triple Helix Model**. Under this model, there is an intertwining of these three types of institutions, the wealth generating institutions (industry), the novelty producing institutions like academia / research institutes, and third,

the public regulation and control institutions. *The triple helix denotes the university-industry-government relationship* as one of relatively equal, yet interdependent, institutional spheres which overlap and take the role of the other. There has been a movement from separate institutional spheres.

D. PLATFORM FOR BEST PRACTICES

- **In the Twelfth Five Year Plan, a two pronged approach is required.** First is a **Direct approach** of nurturing Innovation. Second is the **In-direct approach** by providing more R&D fund to defence research.
- **First Approach** – The Direct Approach to develop a - “**CULTURE FOR INNOVATION**”
 - ❖ The direct approach for nurturing Innovation is by creating a **major flagship programme on INNOVATION. The present model of innovation needs to be evaluated and a new model of National Innovation system** should be developed. Foundation has been laid with the launch of INSPIRE, PURSE, AcSIR, CURIE, SBIRI and supported by various fellowships. Moving ahead, the scientific fraternity of India needs an overhaul.
 - ❖ Culture for Innovation can only be created by government investments. **The Government should allocate funds for Research under Ministry of Science and Technology and direct various Socio-Economic Ministries to allocate funds for research work.** Each Socio-Economic Ministry should be made mandatory to allocate **1% for R&D** in their sector and another 1% for Extra-Mural R&D project based funding. These funds should be accessible to Universities, Spin-off units and SMEs and a portion to large organizations and MNCs.
 - ❖ The **system** should take advantage of the Indian Diaspora and create International linkages between universities and the Diaspora for **knowledge transfer, project funding, technology research, collaboration** etc. India’s Diasporas offers another opportunity for the absorption of global knowledge. The Diaspora is crucial in helping India to build its base for acquiring global knowledge **through remittances, networks, access to knowledge and markets and other resources.** The Indian Diaspora needs to be provided with valuable incentives like

- Attractive Tax incentive for start-ups as well as investment
- Options to be mentors for start-ups, academia, etc
- Can be knowledgeable venture capitalist or play a critical role in Indian venture capitalist in identifying technology
- Attractive options to be lecturer in leading Academia

- **Second Approach – THE INDIRECT FUNDING**

- ❖ The Government should allocate additional fund to the **Extramural component of Defence Research** and this fund should be used to stimulate research work in universities and in private labs, especially research based SMEs. The defence research fund should focus on strategic defence requirements that have societal needs too and develop those technologies in either Universities or fund small enterprises capable of developing those technologies.
- ❖ The **dual use technology**, once fulfilling the requirements of the Indian Government, should be made available to the civilian use thereby creating a “**Spillover Effect**”. The University or the SME that has developed the technology should be allowed to populate the technology to civil applications. This will further create the demand for PhD and to cater to the requirements for researchers, universities will create more research oriented programmes. Once the demand for researcher is established and there are enough job opportunities, more and more students will be attracted towards pursuing PhDs. **Example from US spillover of technology in the telecom industry**, Internet, development of computers, Telephone, etc. are noteworthy.

- **INCENTIVES TO INNOVATE**

Public Funded Intellectual Property (IP) Bill, which has been piloted by Ministry of Science & Technology, is yet to be cleared. The Bill also nicknamed as the “Indian Bayh–Dole Act”. The Bill shall provide incentives for creating and commercializing intellectual property from public funded research. The bill is a better mechanism for technology transfer and also encourages Universities to take their research to logical end – the industry. If cleared, this bill will provide major boost to innovation and research in academia and technology transfer.

E. HARMONIZATION OF STANDARDS (Specifically from Health care perspective)

The health system in India consists of healthcare providers operating within an unregulated environment, with no controls on what services can be provided by whom, in what manner, and at what cost, and with no standardized protocols to help measure the quality of care. The case for standards and protocols in the health sector is extremely myriad in the absence of a **Health regulator** and the nascent stage of development of standards in the sector at large. The issues have to be looked into on a case to case basis.

Major issues to be addressed:

- **Electronic Health Record:**

This is the single most standard tool which will help in data warehousing, monitoring and portability which would greatly reduce diagnostic time and help in creating a national health database which has detailed demographic data helping in periodic review of disease-wise, city-wise and region-wise information.

Recommendations:

- Government should look to fund and develop open source software which could be provided to public and private hospitals to kick start acceptance of Health Information System.
- To encourage move towards EHR, financial incentives/grants should be provided to willing institutions on the lines of developed countries like USA.

- **Standard Treatment Guidelines**

The STGs will help compliance with minimum standards of treatment provided at levels and at all times. Ministry of Health has initiated the process of development of 20 STGs with pan India representation of clinical experts from both public and private sector hospitals.

- **Standardization issues in the health insurance domain**

For ensuring rapid penetration of health Insurance in the country, development of standards is imperative at multiple levels- treatment guidelines, terms of engagement of health providers with insurers/TPAs and processes like discharge summary format and billing procedures.

Standardization of - critical illness definitions, excluded items in the indemnity policy, billing & discharge summary format, TPA-Insurer and TPA-Hospital contracts are some of the measures that need to be integrated through stakeholder validation and official acceptance by the Government.

- **Balanced enforcement of Consumer protection laws:** Effective and balanced enforcement of malpractice laws against doctors and medical institutions where not only is the consumer protected but also fair assessment of the medical professional is ensured.

FICCI is coordinating the development of Standard Treatment Guidelines and EHR on behalf of the Ministry of Health & Family Welfare, Government of India.

A multi stakeholder group created by FICCI supported by IRDA with representatives from World Bank, NABH, RSBY, healthcare providers and health insurance companies

- Has standardised the submitted the critical illness definitions and excluded items in the indemnity policy. IRDA is in process of notifying it.
- Has developed a “Standard Billing Format” & “Standard Discharge Summary Format”. These formats would be put for pilot study after consultations in select 5-6 hospitals pan India from March 2011 onwards before submission to the IRDA.

F. USE OF GIS FOR DEVELOPMENT

- Planning Commission, during the 11th Five Year Plan Period, has been spearheading the Inclusive Growth agenda with the help of major policy interventions guided by technology oriented schemes/ projects. The emphasis of the Commission is on maximising the output by using our limited resources optimally. Among the major policy issues, Decentralisation of

Planning is seen as the key factor in inclusive growth. The Eleventh Plan document recognizes Panchayati Raj Institutions (PRIs) as the primary means of delivery of essential services that are critical to inclusive growth.

- The Planning Commission has issued a guideline mandating that all plans starting from 11th Plan period onwards should be prepared bottom up, in a decentralized manner. Panchayati Raj Ministry shoulders the larger responsibility of execution and implementation of these programmes. There are various other projects on priority viz. Urban Development under JNNURM, MGNREGA, Bharat Nirman programmes, PMGSY, etc. which aim at grass root development.
- The need of digital spatial data is well recognized and more so for decentralized planning. There has been an equal thrust in the Planning Commission towards Geospatial technology with schemes/ projects like NNRMS, High Resolution Mapping of 6 cities, Setting up of All India National GIS framework at 1: 50,000 scale etc. are some of the initiatives in the direction of harmonization of various data-sets from different agencies for utilization in the development of the Nation. Their implementation in the country, however, is still far from an operational scenario.
- Some noble initiatives by the government in last few years, beginning with setting up of 'National Spatial Data Infrastructure' (NSDI) in 2000 and introduction of 'National Map Policy (2005)' are paving ways for bringing geospatial data and applications in the mainstream national development agenda. While NSDI is working towards building a comprehensive national spatial data repository and developing a seamless spatial data exchange framework for the country, the recently introduced 'National Map Policy' is helping to liberalise access of spatial data for business and civil society user groups while safeguarding national security.
- In addition, use of geospatial applications in some of the major national programs, such as, R-APDRP, AgRIS, JnNURM, NLRMP etc. has provided the much-needed fillip to the domestic industry and boosted local demand driven growth for this industry.
- It has been recognized that world class infrastructure is the fundamental requirement for sustainable economic development. Keeping this in mind, the Planning Commission intends to allocate US\$ 1 Trillion towards infrastructure development in the 12th Five Year Plan. Some of the sectors which will benefit from this budgetary support include transportation, urban

development, utilities, among others. Geospatial technology will be at the core of most of the infrastructure projects and will be the enabling technology at all stages of infrastructure development and maintenance. The technology will play a pivotal role in strengthening governance processes, enhancing transparency and improving government citizen interface.

Some of the sectors that can benefit from geospatial include:

- **Transportation:**
 - **Roads:** GIS can help in planning and development of the road network based on the projected traffic volume. It can also help in building an asset data base with location as one of the key parameters.
 - **Railways:** Indian Railways can deploy GIS to map the real estate available with them and plan optimal utilisation and commercial exploitation. GIS will also play an important role in capacity utilization and expansion planning. In the event of disaster like a railway accident, GIS can support the mitigation activity by identifying the accident location and availability of medical facilities in the region as well as logistics planning and management for providing relief.
 - **Sea Ports:** GIS helps in planning and management of all the assets and other facilities at the ports. It also helps in disaster management.
 - **Airports:** GIS helps in mapping the flight path of approaching and departing flights. It assists administrators in analyzing permissible heights for buildings in the vicinity of the airports. GIS also plays an enabling role in planning and management of various utilities and other facilities at the airports. GIS also supports airport managers in planning and managing security arrangements.

- **Agriculture:**
 - With increase in population the agriculture sector is under pressure to increase agricultural production of the country and minimize losses by way of pilferage and damage in storage. Geospatial technology finds applications in both increasing cultivation capacity as well as increasing yield per hectare.

- **Increasing cultivation capacity:** GIS helps in identification of wastelands and preparation of recovery plans based on soil characteristics and level of degradation.
 - **Enhancement of agricultural yield:** GIS can facilitate crop planning, application of fertilizers etc. based on soil conditions, water resource availability and agro-climatic conditions. It also helps in crop acreage estimation, storage and logistics planning etc. It can also help in strengthening of the publication distribution system.
- **Rural Development:**
 - One of the major challenges for India has been the bridging of the digital divide and ensuring that the benefits of technology reach the rural masses. Further, inclusive growth is the mantra for sustainable development and Govt. of India has launched several innovative programs for the same. Geospatial Technology can be a powerful tool for planning, monitoring and keeping track of implementation of these projects. . Some of the sectors that can benefit from geospatial technology are:
 - **Watershed Development:** For agriculture based economy like India conservation and management of water resources is vital for economic development. Geospatial can help in watershed modelling as well as building a spatial inventory of the water resources. It can also help in evaluation of projects and subsequently to monitor the implementation of approved projects.
 - **Project Monitoring:** It is said that only a fraction of the funds released for rural development reaches the target beneficiaries. Geospatial can assist the government in spatially identifying the regions that require the support and releasing funds based on that. Further, geospatial can also help in monitoring of the approved projects, like NREGA, and plugging the leaks.
 - **Rural Roads:** Geospatial can also help in planning and development of roads connecting the rural parts of the country. It can also support the bureaucrats in monitoring the implementation of the approved projects.
 - **Land Information Systems:**

- Cadastral maps should form the basis for developmental planning. Overlaying of census data on top of cadastral maps will help in identifying communities that require intervention and support.
- **Urban Development:**
 - Increasing migration from rural regions to the cities in search of opportunities is putting enormous pressure on the urban infrastructure like housing, drinking water, sewerage, traffic among others. It also often results in social conflicts. Geospatial technology can help the urban planners and administrators in dealing with these problems and planning the infrastructure to cope with the population explosion. Some of the application areas could be:
 - **Traffic management:** Geospatial can support the department in analyzing the traffic pattern and building appropriate mitigation strategies like one way streets, flyovers etc. It is also a powerful tool for simulation of crisis situations and their analysis. Geodesign tools are very useful in spatially analyzing the scenario before approving construction projects.
 - **Public Utilities:** Geospatial technology helps planners in network planning and operations, outage management and other aspects of utilities management. In power utilities, geospatial plays an enabling role in reducing aggregate technical and commercial losses. In telecom utilities, it helps in identifying location of cell towers keeping in mind the terrain and other spatial parameters. Public utilities like fire services can benefit from geospatial in identifying the site location for fire stations keeping in mind the location of the communities to be served. It also helps them in logistics and routing in the event of an emergency.
 - **Law Enforcement:** Geospatial technology helps law enforcement agencies in analyzing the crime pattern and tracking of criminals. It also supports them in capacity and human resource planning based on the demographic profile of the region.
 - **Property tax:** Municipal corporations can deploy geospatial technology to map all the properties spatially; segregate them on the basis of usage like commercial/residential and apply this information to compute property tax

applicable. It can thus help them in increasing their revenue substantially thereby creating additional funds which can be utilized to improve the infrastructure.

Some of the key initiatives that Planning Commission may consider for implementation during the 12th Five Year Plan could be:

- **National GIS:** Considering the strategic importance of geospatial technology in various national and state projects, it would be important to set up a National GIS which would form a part of the Public Information Infrastructure. National GIS will enable the central and state government to take a more integrated view of the issues and challenges and build comprehensive plans to deal with them. It will enable the government to deploy this technology to form the basis of all future planning and monitoring activities. National GIS will be the foundation of the spatial content and will be the platform for integration of various projects and facilitate a more holistic view of the developmental projects.
- **Budgetary Support for geospatial deployment:** Planning Commission must advise the central government ministries and state government to allocate sufficient budget for geospatial technology in their IT budgets and encourage them to make use of this technology in various projects.
- **Incorporate Geospatial in NeGP:** National e-Governance Plan (NeGP) is a comprehensive project for deployment of IT in various government projects with the objective of strengthening governance, enhancing transparency and significantly improving citizen services. Under NeGP, 27 Mission Mode Projects (MMPs) are being implemented by central and state governments. **Geospatial technology can find its applications in several NeGP projects like eDistrict, Urban & Municipal, Land Records, etc. Planning Commission may advise Department of Information Technology, Government of India, which is the nodal agency for implementation of NeGP, to include geospatial technology as an integral part of relevant NeGP projects.** The scope of the content served by State Data Centres (SDCs) may be appropriately enhanced to include geospatial content also.
- **Creation of detailed detailed digital maps and geodata for entire country.**
- **Mandatory use of GIS compatible data sets for all national, regional and local planning activities & reporting.**

- **Human Resource Development:** One of the biggest challenges is availability of GIS professionals. It is recommended that Planning Commission takes the initiative to create capacity for education and training on this technology. Besides encouraging universities and colleges to introduce this technology in various courses offered by them, Planning Commission may also ask ministries and departments to include geospatial training in various professional training institutes in their ministry. UGC, AICTE and Ministry for Human Resources Development can take the required initiative in this regard. The educational institutes may also be advised to engage with the industry in devising course curriculum for this technology.

 - **Spatial Content Policy:** One of the fundamental requirements for successful deployment of geospatial technology is the unrestricted availability of geospatial content to the user community. The Planning Commission may advise the Government of India to review the current policy on geospatial content and consider revision as appropriate.
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G. SECURING THE ENERGY FUTURE FOR INDIA

With the energy needs of the country growing at a rapid rate of 4-5 per cent annually and dependence on oil imports alone expected to shoot up to over 90 per cent from the current levels of 73 per cent, energy security has become a critical priority for India. We need to adopt a coherent approach encompassing strategies focusing on domestic sector as well as collaboration with other countries. Broadly, the way forward for the nation in securing its energy supplies can be enumerated as:

1. Efficient & Optimal utilization of fuel (conventional as well as non-conventional) resources
2. Accelerated growth in domestic energy generation/ production and its widespread distribution ensuring access to all
3. Strengthen energy diplomacy with better-endowed nations
4. Investments for R&D of efficient and innovative technologies

India needs to maintain an annual economic growth rate of 8-10 per cent over the next 25 years to eradicate poverty and meet its human development goals. Energy sector needs to play a pivotal role in supporting this economic growth. Electricity is the most important component in India's energy portfolio. In fact, to support 9 per cent annual economic growth during the 12th plan period, the power sector alone needs to grow annually at 7.2 per cent (assuming electricity elasticity with respect to GDP at 0.8). In view of the over 1 lakh MW of capacity addition target in the power sector for the 12th plan, we need an investment of Rs. 11.35 trillion (CEA estimates). Similar growth is needed in the hydrocarbons sector. The 12th plan is expected to see the oil and gas requirements to reach 201 mtoe & 75 mtoe respectively. In addition, there are targets for expanding domestic and international infrastructure, be it in terms of refining capacity (302 mtpa by 2017), pipelines (targeted 15,500 km) and city gas distribution network (over 200 cities to be covered). Overall, India would need to invest Rs. 2.8 trillion in the oil and gas sector during the 12th plan period.

Per capita energy consumption is one of the key developmental indicators. India's per capita energy consumption fares really low compared to other nations (Table I). There are no two views about the fact that India is short on energy supply and needs to improve production efficiencies and cut down its transmission and distribution losses.

TABLE 1: PER CAPITA ENERGY CONSUMPTION (2007 Figures)

S. No.	Country	Per Capita Energy Consumption (kgoe)
1.	Brazil	1239
2.	Russian Federation	4230
3.	India	529
4.	China	1484
5.	Japan	4019
6.	United States	7766
7.	Pakistan	512
8.	Sri Lanka	464
9.	Bangladesh	263
10.	Nepal	338
11.	United Kingdom	3464
12.	Singapore	5831

Source: World Development Indicators, The World Bank

The targets for energy sector are huge and so are the associated challenges. Some of these challenges and measures suggested thereof are discussed in next sections covering issues for power and oil & Gas sectors.

POWER SECTOR

DEEPEN MARKETS IN POWER GENERATION AND DISTRIBUTION

- Power tariffs should be adjusted or revised annually under the multi-year tariffs (MYTs) framework with minimal regulatory intervention. It could be formula driven annual tariff adjustment (during the MYT period) reflecting pass through of uncontrollable costs. Further, the targets set forth by the State Electricity Regulatory Commission (SERCs) for the controllable parameters should be realistic with target setting based on proposed investment plan and execution capability of the utilities.

- SERCs should come out with the road map for reduction of open access charges over the period of next three years. A framework or index – “Open Access Reforms Index” could be prepared, which would regularly monitor, and accordingly grade the various states in terms of the progress achieved in implementation of the open access, including ensuring reduction of charges.
- The discretionary quota allocation of CPSU generating capacity to the states can be linked to the progress on Open Access Reforms Index. A certain quantum of the new CPSUs generating capacity (unallocated) should be made available to the reforming state as per the progress on the Index. However, this capacity should be exclusively reserved for the open access consumers on tariff-based competitive bidding basis.
- The power distribution sector needs an overhaul to improve its technical efficiency and commercial viability. As per estimates, the losses of distribution companies are to the tune of Rs. 600 billion in 2010-11 while the 13th Finance Commission has projected the same to go up to Rs. 1,160 billion in 2014-15. With the peak shortages gone up to 13.3 per cent, the power is being traded at a rate of Rs. 4-6 per unit taking retail tariffs to Rs. 6-9 per unit, which are highly unreasonable. Reforms in distribution segment are necessary to boost the investments in generation segment. The successful models of distribution franchising in circles like Maharashtra and Assam are worth discussing and learning from.

In a recent interaction organized by the Planning Commission, a new Model has been suggested for furthering distribution reforms – PPP in Distribution. FICCI welcomes this suggestion and looks forward to working with Planning Commission towards creating awareness of the model and its benefits among state distribution companies.

INCENTIVISE PRIVATE INVESTMENT IN POWER PROJECTS

The sanctity of contracts under the Case I (where the location, technology, or fuel is not specified by the power procurer) and Case II (for hydro-power projects, load center projects or other location specific projects with specific fuel allocation such as captive mines available, which the procurer intends to set up under tariff based bidding process), bidding should be maintained by all parties.

The procurement of power through Case I and Case II bidding by utilities should be tied up to a time-bound program to remove power shortage in the respective geographies of the utilities.

State governments, on the lines of Ultra Mega Power Projects (UMPPs), could instate a nodal agency acting as a single window clearing agency that can facilitate project developers in securing various clearances.

Establishing Power Hubs

Resource rich States Orissa, Jharkhand, Chhattisgarh, North-East India (for hydro projects) could identify **Power Hubs**, where the state government can acquire land and such land can be transferred to power project developers. The Power Hubs can also have shared infrastructure like railways, water storage and pipelines. The idea is to develop such hubs as SEZs attracting developers by giving the benefits of pre-developed infrastructure.

Participation in Renovation and Modernisation (R&M) Programmes

PPPs should be encouraged especially in the old power stations owned by state utilities for R&M and operation. The power plants operation can be outsourced on management contract basis. The incremental realization from enhanced generation/ availability of the power station can be shared between the private sector operator and the utility under pre-determined and agreed framework. The PIÉ (Partners in Excellence) programme, under the aegis of Central Electricity Authority could be appropriately restructured in this light.

DEVELOP ADEQUATE COAL CAPACITY FOR POWER AND INDUSTRIAL UNITS

A **comprehensive Coal Policy** outlining the way forward for opening up of the sector to healthy competition and rapid growth.

Setting up of Coal Regulator at the earliest.

Central Mine Planning and Design Institute (CMPDI) should be made independent and autonomous of Coal India Limited.

Domestic Capacity Development:

- **Strict monitoring** of progress of allotted coal blocks penalizing the defaulters
- Greater focus on **Underground mining**

- Allowing **commercial/merchant/contract mining** in a phased manner to bring in greater efficiencies engaging professional miners
- **Joint development of mines** located in closer proximity should be encouraged
- Availability of substantial **Geological data** for captive miners
- **Sharing of infrastructure** for coal block development
- Adopt **global best practices and technologies for mining**
- Develop **manufacturing base for Heavy Earth Moving Machinery** with extensive participation of global major suppliers to ensure availability of big-size machines with world-class performance standards
- Encouraging more players to enter the area of **Coal Washing and Beneficiation Capabilities**
- Power companies should be encouraged to **aggressively acquire coal blocks overseas**. Greater teeth should be available for Coal Videsh and International Coal Ventures (IVCL) for acquiring worthy equity coal abroad

SHARPER REDUCTION IN TECHNICAL AND COMMERCIAL LOSSES

State government should support utilities in the enforcement of anti-theft laws. While many states have formulated the respective laws under the Electricity Act, 2003, its implementation has not been satisfactory. In fact, utilities have time and again stressed on the lack of support from state government in this area. On the other hand, DISCOMS in Delhi have applauded the support of state government in implementing anti-theft legislations. Drawing parallel from the JNNURM scheme, the funding under R-APDRP or any other support scheme of Central government to state governments could be linked to achievement of reform milestones in the distribution segment.

State utilities should aggressively identify high loss pockets where Distribution Franchisee/ PPP in Distribution could be appointed to achieve loss reduction. Program based grants like R-APDRP to states can be linked to achievement of loss reduction/ efficiency improvement targets in such high loss areas.

Smart Grid Initiatives:

- The smart grid solutions relevant in Indian scenario need to be developed rather than adoption of internationally successful solutions, which may not be suitable to requirements of Indian grid.

- Also, the cost-benefit analysis of any given smart grid solution should be favourable enough to ensure their adoption
- The government should implement “controlled pilot projects” across the country to establish the key parameters for cost benefits provided by technologies
- The smart grid solutions should be designed to benefit both urban and rural grids
- Baseline data should be updated so that actual reductions in loss levels could be measured accurately

UNIVERSAL ACCESS TO ELECTRIC POWER

The definition of rural electrification has undergone many revisions over past decade or so. Given the current and projected economic development of the country, such exercise is very necessary to make a realistic estimate of level of electrification. In due course, the rural electrification should entail the electrification of the entire village.

The Rajiv Gandhi Grameen Viduyutikaran Yojana (RGGVY) needs to be reviewed objectively and drawing from learnings of various states, new scheme should be drawn up to ensure that the states that have so far lagged are also able to meet their rural electrification targets in a meaningful way.

A nodal agency may be appointed to monitor the effectiveness of RGGVY in the states. An independent Evaluation Office under the aegis of Planning Commission may be appointed as the nodal agency for monitoring this. On the basis of pre-determined standard performance parameters, the nodal agency will rate the states to measure their progress on rural electrification front.

INCREASING THE SHARE OF HYDRO ENERGY

Hydro power presently contributes to around 22 per cent (37,367 MW) of country’s generation capacity (170,228 MW as on January 31, 2011 according to Central Electricity Authority). The hydropower potential is assessed at 148,700 MW spread across various parts with over 50,000 MW being held by the North-east region.

- a) Expansion of transmission networks (4-5 dedicated high capacity corridors) to evacuate power from hydro-resource rich north-east India to demand centres in North and West India. This will

also help, the evacuation of power from neighboring border of Nepal, Bhutan and Bangladesh, once the cross-border interconnections are in place.

- b) Basic factors including reliable hydrology, inhabitation, presence of wildlife sanctuaries etc are not addressed before the allotment of projects and later lead to either delays in project development or non-development of projects. This needs due consideration and appropriate action.
- c) Hydropower construction requires high technological as well as project management skills. Only a few construction agencies have experience of executing hydropower projects in a timely and efficient manner. The capacity addition in terms of such executing agencies is necessary for boosting growth of hydropower generation.
- d) Key issue in dam-based hydropower projects arises during the development phase mainly out of likely submergence of land and Resettlement & Rehabilitation of project affected people, impact on flora and fauna, local ecology and communities. One of the measures suggested to deal with these issues in a better way is to engage the respective State Government making them partners in the project along with the local populace giving them an ownership in the project. While this integrated growth will give sustenance to the local population, it will also ensure their better cooperation in the project development.
- e) Part of the upfront premium paid to state governments could be diverted towards creation of local infrastructure.
- f) The state governments should set up monitoring frameworks on key development milestones and shall revoke allocations if no substantial progress is achieved in timelines as stipulated in the respective concession agreements with the project developer.

INCREASING THE SHARE OF RENEWABLE PARTICULARLY WIND & SOLAR

Clarity on Renewable Energy specific laws

With the introduction of National Action Plan on Climate Change (NAPCC), renewable energy in India has gained significant attention and accelerated capacity addition but there is lack of clarity on renewable energy specific issues in the existing laws.

Ad-hoc changes in policies, inconsistency in national and state level policies regarding renewable energy are hampering growth of renewables. Hence, there is a need to address issues related to varying state policies to bring synergies for renewable energy use across states and to facilitate grid connection of renewable power and overcome other operational issues.

Fiscal Measures for Growth of Renewable Energy (RE) Sector

- In order to boost the use of solar and bio energy, this sector should be treated as a priority sector with all the attendant benefits such as easy loans from banks at concessional rates which will greatly help in the overall development of the sector.
- To promote and reduce the cost of RE systems, the Central, State and Interstate taxes and duty (Central sales and VAT) should be waived off on the components/systems specifically used in solar, wind, hydro and bio-energy sector.
- To fuel the growth in RE sector, it is important to develop a robust domestic manufacturing base for the entire value chain, subsidies and incentives should be provided for establishing indigenous manufacturing capacity. There is also a need to reduce existing duties on import of raw materials used in production of renewable energy equipment. This will enable domestic industry to become cost competitive in domestic and international markets.
- Provide easy financing to component manufacturing units to increase investments in manufacturing units
- Under the Special Incentives Package Scheme, the threshold Net Present Value (NPV) of investment in manufacture of solar equipments is Rs. 1000 crore and above. In-order to attract small and medium enterprises to venture into manufacturing of solar cells there is a need to bring down the threshold level of investment to Rs 100 crore and above. Also, the scheme should incorporate incentive package for manufacturing of Balance of Systems (BoS) components for renewable energy to allow the systems to effectively produce power and transmit it to the grid.

Policy Interventions

Increasing role of Solar

Ensure that solar continues to be an increasing part of the energy mix. It is estimated that 3 per cent is the minimum level that achieves scale and impact. Based on further cost reduction and budget impact, the level of solar penetration should be increased. Part funding should come from coal cess or through Renewable Portfolio obligation (RPO) mandates and part should evolve from a market mechanism such as Renewable energy Certificates (RECs).

Transmission Infrastructure

Transmission infrastructure is the responsibility of state transmission utilities (STU). But many STUs are financially weak to invest in up-gradation of transmission infrastructure. Grid infrastructure needs to be developed to provide connectivity at appropriate voltage level to RE projects which may be at a distant location, close to the RE source.

DEVELOPMENT OF ALTERNATE FUELS

Ethanol-based fuels from sugarcane:

The Sugar industry is not competitive due to cyclicity in sugarcane production and hence huge fluctuations in cane and sugar prices. Ensuring a better price stability and price realization of molasses for sugar mills will improve the viability of the sugar mills, which will in turn benefit cane growers. Hence, there is a need to work on a policy for better utilization of molasses.

The task force on the sugar industry for the Tenth Five Year Plan has suggested the evolution of a national policy on alternative fuels, which would include the use of ethanol-blended gasoline. Sugar factories and distilleries should be encouraged to produce ethanol from the surplus alcohol available with them apart from meeting the country's demand for sugar and industrial ethanol. To encourage sugar companies in investing in technology suitable for ethanol conversion, the following measures need to be put in place:

- Develop a roadmap for development of ethanol-blended gasoline
- Provide loans from the sugar development fund at 6 per cent per annum on a long term basis
- Set a reasonable price for ethanol produced by sugar factories

OIL & GAS SECTOR

UNIVERSAL ACCESS TO LPG

Given the steady annual growth of 8 per cent in LPG consumption and government's plan to implement Rajiv Gandhi LPG Vitruk Yojna that envisages to cover 75 per cent of the population by 2015, increasing requirement of LPG over and above the indigenous availability would require substantial imports. According to estimates, India's imports (2804.12 trillion metric tones (TMT) during 2009-10) are projected to rise to 5055 TMT by 2014-2015. To ensure, adequate access through imports, government needs to offer investment climate facilitating development of LPG import facilities.

The recent budget announcement to evolve a mechanism for direct cash transfers for LPG/ Kerosene / Fertiliser for BPL consumers is expected to ensure directing subsidies to the intended beneficiaries and avoid waste, leakage, adulteration and inefficiency. FICCI welcomes this move and hopes that the task force set up to suggest implementation of this scheme, comes out with its recommendations in the given time frame.

However, it is imperative to device a mechanism to exclude the rich availing highly subsidized fuel. To provide access to LPG for poorer sections other than BPL, FICCI suggests the following:

- For sections other than BPL, small cylinders of 5 kgs could be allowed, to cushion the impact of high upfront cost for the connection as well as cost of refill.
- In addition some schemes may be brought out for financing the upfront cost of the new connection and recovering the same over a length of time in installments, from the non BPL consumers.
- Wider connectivity of households, small commercial and industrial establishments with the City gas distribution network

EXPANSION OF DOMESTIC OIL & GAS EXPLORATION, SHALE GAS

Formulate a policy that allows oil companies drilling for conventional oil and natural gas to investigate and produce shale gas and coal bed methane along with natural gas.

LNG TERMINALS & OIL/GAS PIPELINE INFRASTRUCTURE

At present, Petroleum Oil and Lubricants (POL) products are transported in the country through Pipelines (45.8%); Rail (42.1%); Coastal (11%); and Road (over 1%). Pipeline is the cheapest mode of transport. The average transportation rate of POL products by Pipelines is Rs.0.75 per km./mt.; Rail (Rs.1.25 per km./mt.); Road (Rs.2.00 per km./mt); and Coastal (Rs.0.88 per nautical mile/mt.). Hence, the importance of investment in pipelines.

To meet the rising demand and ensure last mile connectivity, speedy development of domestic pipeline infrastructure and LNG terminals, measures to expedite large international pipeline projects, especially Turkmenistan-Afghanistan-Pakistan-India (TAPI), including issues of political instability, security issues and transit tariff rate need to be addressed.

Some suggestions pertaining to strengthening of pipeline infrastructure, including, storage, tariffs, gas usage and access for LNG terminals are as follows:

1. **Intra-State Pipeline Network** - To ensure last mile connectivity, States need to urgently frame Intra-State pipeline network, as has been successfully implemented in Gujarat, to provide seamless gas transmission and distribution to consumers across the State.
2. **Storage System** - Adequate storage system is useful for managing short term swings in gas supply or demand and in facilitating the development of one or more hubs. In order to cater to the fluctuations in gas demand and hence prices, build strategic gas reserves and buffers to meet the rising demand, GOI should consider promoting an independent storage system or encourage private companies to do so. GOI could consider combining development of storage and hub services with a spot market at locations where buyers and sellers could make short term deals for gas supply.
3. **Gas Swapping** - Policy framework needs to be evolved to facilitate swapping of Natural Gas between customers and networks for effective management of demand & supply.

This will benefit consumers at large as unused gas from producing company can be distributed to the other. Government has already adopted this practice by allocating lean RIL gas to LPG plants of GAIL and ONGC. However, a clear and open policy is required in place of ad hoc and stop-gap arrangement to swap gas;

- Across networks
- Within and Across states
- Across time

4. **Tariff Fixation Methodology** - The present Tariff Fixation methodology of Zonal tariff is not in consumer interests due to inherent anomalies. A zonal distance based tariff system rewards customers which happen to be close to the pipeline and put others at a disadvantage. With all future indigenous sources of gas planned to be on the east coast of the country and prevalent zonal tariff system, customers in far west or north will have to deal with multiple pipelines and will have to pay the highest tariff. Also, zonal based tariff is in contradiction to the idea of an integrated national gas grid.

Recommendation: Due to the disadvantages, there is a need to deliberate relative merits of other tariff recovery methods i.e. postalised and Entry-Exit Tariff methods.

5. **Open Access For All LNG Terminals** - Currently gas consumers have to book their capacities for R-LNG through the promoters of Petronet LNG Ltd. thereby inhibiting open access for the end consumers. A policy akin to the product pipeline should be put in place which allows certain percentage of regassification capacity to be booked by the consumers directly rather than through promoters / marketers.

CITY GAS DISTRIBUTION PROJECT

For achieving the ambitious target of covering 200 cities under city gas distribution network in the next two years and putting plans into successful implementation, it is desirable that the PNGRB and Government play complimentary roles.

A. **Single Window Clearance:** After PNGRB process of granting authorization to an entity, the entity needs to apply for various NOC's to local/state authorities for permission. The total time taken in the process is around two years. (PNGRB- 9 months, State, Local NOC – min 1 year). On an average 20 types of permissions are to be taken by CGD Entity. For this an entity has to apply to all departments individually. The process is further lengthened, due to the fact; one or more NOC is a pre condition for another. Moreover, in some cases, multiple clearances/ licences are required for an individual installation. Further, depending upon the location-specific conditions, additional permissions may be required.

In order to expedite the implementation of city Gas Distribution, it is essential to have a provision of single window clearance for applying/obtaining various NOC's/permissions. This system shall result into:-

- Early start of infrastructure work implementation
- Saving of time & cost
- Early completion of the project

B. Creation Of National Natural Gas Grid: Creation of a National Natural Gas Grid connecting all sources including existing, under construction and proposed LNG terminals and the consumption centers in order to ensure that the benefits of this clean and efficient fuel source is available as widely across the country as possible.

H. ACCELERATED DEVELOPMENT OF TRANSPORT INFRASTRUCTURE

1. Airport and Aviation

Current Status

- Number of operational airports is 82 as of 2010 – up from 50 in 2000. Passenger handling capacity has increased from 66 million to 235 million in the same period
- Aircraft movements witnessed 3.4% growth during 2010
- Passengers carried by domestic airlines in 2010 were 520.2 lakhs
- 4.7 million tonnes of domestic cargo was transported by air in 2010

Projected Growth and Investment Requirements

- As per estimates, India will be the fastest growing civil aviation market in the world by 2020 with about 420 million passengers being handled by the Indian airport system as against 140 million in 2010. Recently, Boeing estimated that India will require 1,150 commercial jets at a price of up to \$130 billion over the next 20 years. Airbus also expects demand for 1,032 commercial aircraft in India in the next two decades.
- It is anticipated that by 2020 a total of \$80 billion would be required to fund the fleet requirements of the commercial airlines. Similarly, the airport system (modernization of non-metro airports and building Greenfield airports) would require an investment of \$30 billion.
- In addition up-gradation of Air Navigation Systems (ambitious GPS-aided GEO augmented Navigation –‘GAGAN’ Project) would require another Rs 600 crores. Air India would also require huge amounts of funds to turn around.

Investment Gap and Possible Sources of Funding

- Rs 66,277 crores worth investments planned for 12th Plan (compared to Rs 36,138 crores in 11th Plan)

- In view of the estimated share (70%) of private sector in 11th Plan for this sector and envisaged average share of 50% for the 12th Plan, contribution from private sector likely to range from Rs 33,139 crores to Rs 46,394 crores

Issues in Modernization of Aviation Infrastructure

- Over the past decade, India has emerged as one of the fastest growing aviation market worldwide. However, the airport infrastructure in the country has not been able to meet the ever-increasing traffic (both passenger and cargo) and has not been able to generate higher revenues like its global counterparts. Though the Government has made efforts to improve and modernize the airport infrastructure, the sector continues to witness hurdles related to land acquisition, regulatory uncertainty and sharing of the same infrastructure by different business models e.g. Navi Mumbai airport project was passed in 2004, but still the project has not even started.
- With the growing traffic, passenger carried by domestic airlines witnessed growth at the rate of 18.7% during 2010, Indian airports especially Delhi and Mumbai airports are facing heavy congestions. The navigational services and systems at most Indian airports are outdated when compared to other airports worldwide. The congestion at metro airports is leading to incremental flying which delays landing and getting parking space. As per estimates, Indian carriers wasted aviation turbine fuel (ATF) worth Rs 500 crores in 2009-10 due to incremental flying, a figure likely to cross Rs 650 crores this financial year. The wastage accounts for as much as 3% of the total ATF consumed by these airlines in 2009-10. This is expected to rise to 5% in 2010-11.
- Indian airports need to enhance their focus on developing and sustaining their non-aeronautical revenues from ground handling, maintenance, repair, overhauling, business centers, retail stores, etc. through city side development, which can serve as an insulator against fluctuations in passenger traffic and also provide a steady revenue stream for airport operators.
- Cargo facilities at India's airports are characterized by slow and inefficient handling procedures, which results in a higher dwell time. Currently, the dwell time for import and export cargo at Indian airports is around 3-5 days as compared to an average of 6 to 12 hours in other leading international airports. The present dwell time of exports and imports in the country is very high as compared to the international standards. Indian airports lack specialized and efficient cargo infrastructure,

including satellite freight cities with multimodal transport, cargo terminals, cold storage, automatic storage and retrieval systems and mechanized transportation.

- Trained technical personnel like air traffic controllers (ATCs) are currently scarce in the aviation sector. Future growth represents a challenge for the Air Traffic Management system and for airports. With only 1,000 ATCs spread across India, major airports such as Delhi and Mumbai face a shortage of up to 40-50% ATCs. As a result, existing ATCs have to deal with excessive navigation pressure and often end up managing 400-500 flights daily.
- In order to develop manpower in the industry, there is a need of setting up training academies like Civil Aviation Training College at Allahabad, Indira Gandhi Rashtriya Uran Academy (IGRUA) at Rae Bareilly, etc jointly with private institutions for imparting training in the areas of airport management, air traffic control, navigation and communication support, airport security, etc.

2. Ports

Current Status

- 13 major and 187 non major ports handling around 90% of India's total international trade in terms of volume and 70% in terms of value
- Current cargo handling capacity of Indian ports : one billion tonnes per year
- During 2009-10, major and non-major ports in India handled total cargo of 850 million tonnes
- Currently 21 projects involving construction /development berths and terminals, container freight station (CFS), mechanisation of cargo handling project, etc under implementation at an estimated investment of Rs 12648.43 crores, which are expected to add 171.45 million tonnes capacity at Major Ports
- Out of the 276 projects envisaged in the National Maritime Development Programme (NMDP), about 55 projects are completed till November 2010

- Average turnaround time at major Indian ports has increased from 3.41 days in 2004-05 to 4.38 days in 2009-10
- Average pre-berthing time rose from 6.03 hrs in 2004-05 to 11.67 hrs in 2009-10
- Recently (January 2011), India's first dedicated International Container Transshipment Terminal at Vallarpadam has been developed through a PPP with an estimated investment of Rs 1600 crores

Projected Growth and Investment Requirements

- Traffic at Indian Ports estimated to reach 2,485 MT by 2019-20 from the present level of 850 MT at a CAGR of 11.3%
- Traffic at major ports likely to rise at a CAGR of 8% from 561 MT in 2009-10 to 1,215 MT by 2019-20, while traffic at non-major ports expected to grow at a CAGR of 16% from the current level of 289 MT to 1,270 MT
- Need to increase overall capacity of Indian Ports to 3,230 MT by 2020 (more than 3 times the current level)
- Proposed investment in major and non-major ports by 2020 : approximately Rs 2,87,000 crores

Investment Gap and Possible Sources of Funding

- Rs 1,05,034 crores worth investments planned for ports in 12th Plan (compared to Rs 40,647 crores in 11th Plan)

- In view of the projected share (62%) of private sector in 11th Plan for this sector and envisaged average share of 50% for the 12th Plan, contribution from private sector likely to range from Rs 52,517 crores to Rs 65,121 crores

Issues in Upgradation of Port Infrastructure

- With the increasing private sector participation, Indian ports have been witnessing unprecedented interest both from strategic buyers (including international liners and terminal operators) and financial suitors, including banks, hedge funds and private equity (PE) investors. In the last two years, over 20 PPP projects have been awarded at a total investment of about Rs 9,077 crores.
- Indian ports suffer from higher dwell time and inefficiency in cargo handling in comparison to the international ports including those in the region, such as Colombo, Shanghai and Singapore. For example, dwell time at major Indian ports are 3.78 days whereas Singapore port has just 0.60 day; turnaround time at Singapore is 0.50 day but Indian ports take 1.77 days; and the vessel evacuation rate at major Indian ports are 40 containers per hour while that at Singapore is 100 containers per hour. If Indian trade is to expand substantially in future, substantial new investment will be required along with modernisation of existing facilities. This will need significant organisational restructuring of existing port trusts, including those traditional, restrictive, labour practices.
- Due to lack of autonomy, both financial and operational, major ports trusts have to seek guidance and approval from the Ministry on all matters which affects their operational efficiency and delay the process of port development. To accelerate the infrastructure development and attaining operational efficiency, major ports needs to be corporatized and adopt quickly customer oriented approach. Major port should be given autonomy along the same lines as that given to 'Navratna' and 'Mini-Ratna' public sector undertakings, which are made accountable for their decisions and overall performance.
- The main elements of policy reforms for the sector include:
 - Decentralization of the national port system by granting financial and operational autonomy to ports trusts
 - Separation of regulatory and management functions

- Commercialization of the management functions
- Speedier implementation of the port privatisation program with a focus on aligning concession terms with market reality and with the objective of lowering the concession cost, in turn, catalysing lower transaction cost for the end user
- Concurrent and transparent facilitation of rail/road connectivity projects and review of TAMP's role towards productivity improvements and limited tariff fixation authority e.g. in monitoring cartelization

3. Railways

Current Status

- On an average, Indian Railways move 2.59 million tonnes of freight and 21 million passengers daily on its network of 64,015 route km
- 700 kms of new line added during 2010-11 against average annual addition of 180 kms since independence
- 800 kms of guage conversion, doubling of 700 kms and electrification of 1,000 kms during 2010-11
- Record procurement of 16,500 wagons and 130 pairs of additional special trains operated in the current year
- Dedicated Freight Corridors (DFC) work has been taken up for 54 major and important bridges : work begun in Eastern and Western DFCs; targeted for commissioning in 2016-17

Projected Growth and Investment Requirements

- For expansion and modernization of the railway network, Indian Railways is planning to add 25,000 kms of New Lines; doubling/ tripling/ quadrupling (including DFCs) of existing 12,000 km lines, gauge conversion of 12,000 kms, and electrification of 14,000 kms of lines by 2020. It also plans to procure 2,89,136 wagons, 5,334 diesel locomotives, 4,281 electric locomotives, 50,880 passengers coaches; develop 50 world class stations and 2000 kms of high speed corridors by the same period.
- It is estimated that by the year 2020 around Rs 1,400,000 crores would be spent on augmentation of capacity, upgradation and modernization of Railways, high speed corridors, expansion and management of extensive network on optical fibre cables, and big projects like new lines and dedicated freight corridors.

Investment Gap and Possible Sources of Funding

- Rs 2,96,393 crores worth investments planned for this sector including Mass Rapid Transit System (MRTS) in 12th Plan (compared to Rs 2,00,802 crores in 11th Plan)
- In view of the estimated share (19%) of private sector in 11th Plan and envisaged average share of 50% for 12th Plan, contribution from private sector likely to range from Rs 56,996 crores to Rs 1,48,196 crores

Issues in Upgradation and Modernization of Existing Rail Network

- Indian Railways have been facing declining market share in comparison with other transportation modes e.g. market share of rail transport has been reduced drastically from 89% in 1950-51 to 30% in 2007-08. Even though traffic volumes have gone up over the years, rail share, particularly in freight transport, has gone down steadily over the past few decades.
- With growing traffic volumes, railways have the challenge to provide new range of services like customized wagons for carrying automobiles, refrigerated wagons for agri/perishable products in freight and high speed trains for passenger segments, augmentation of the network, provision of higher capacity/high speed rolling stock, reduction of unit cost of transportation and better quality

of service. Even though India is the second largest small car market in the world, in India just 3% of finished automobiles move by trains in contrast to global average of 26%.

- Furthermore, issues like low fare-freight ratio and cross subsidization of passenger traffic by freight, speeding implementation of mega projects like the dedicated freight corridor project and setting up of new manufacturing units with private participation are some of the major challenges for the Railways. There is need to speed up the ongoing/planned projects initiated under PPPs.
- For increasing the market share of Railways, non-bulk traffic would need to be attracted to rail through a focused strategy aimed at providing better services at competitive tariffs e.g. customized wagons for agri/food items, etc. There is also further potential for increase in the share of bulk goods by providing better services such as faster transit and efficient handling at terminals. As per estimates, compared to the European countries, rail transportation in India is almost 3.5 times more expensive. A policy to encourage and incentivize bulk customers to be committed to rail movement, e.g. by their participation in rail connectivity works, would also help.
- Frequent changes in policies relating to charges/ tariffs affect the operations of the private players. For instance, although, the Model Concession Agreement (MCA) for container train operation stipulates that the haulage rate may not be ordinarily revised more than twice a year, frequent increase of haulage rates is not conducive for growth especially during the initial formative period of the industry.
- There is need for a structure to enforce the contract for PPPs in Railways similar to MCA created by NHAI which provides a transparent framework for investment and project expectation for highways projects. Also, while preparing the contract documents for PPP, the best practices, procedures followed across the world should also be looked at to enable comprehensive and effective institutional arrangement.

Issues relating to Dedicated Freight Corridor (DFC) and Container Terminals

- The speed of freight trains in India is around 25 km/hour which is very low comparison to over 100 km/hour in China. The railways must focus on reducing the speed differentials between freight and passenger services by raising speeds of freight cars to 100 km/hr. This will help improve traffic throughput in the system.

- In order to promote intermodal transport for safe, efficient, customer friendly and faster movement of goods, there is need to improve the efficiency of Inland Container Depots (ICDs). The Railways have to increasingly focus on creation of rail hubs with sufficient warehousing facilities and accelerate the programme of containerisation not only to promote intermodal transport but also for increasing its market share and catering to high value traffic. Innovative facilities like Roll on Roll off on the Konkan Railway need to be replicated.
- While developing dedicated freight corridor in the country, there is need to take lessons from the ongoing DFCs globally. International norm for a dedicated freight corridor indicates a throughput of 100 mt per track e.g. BHP Billiton (a global mining and oil & gas company headquartered in Melbourne, Australia) on their 426 kilometres on a single line move over 100 mt of iron ore. In China, the Daqin coal line moves 340 mt of coal on a double track.
- The highest movement of container and automobile trains including double stacking is in North America where diesel traction is used for two main reasons: it reduces capital expenditure compared to that on electrical traction and it does not limit the height of containers. On the other hand, currently China is operating double stack trains on electrical traction using increased height of overhead wires which means increased expenditure on structures like bridges, road over-bridges, as well as increased tunneling costs for larger cuttings.
- In India while designing the Western corridor, the DFC project has opted for a double line and electric traction right from the start. Since this route is primarily for container movement, it does not seem consistent with international practice for the level of traffic and will enhance cost. Consequently, the freight charges will have to be structured higher.

Issues Relating to Corporatization of Railways

- Indian Railways (IR) require substantial investments in order to keep pace with the growth of the economy. Recognizing the need for substantial financial capital and techno-managerial expertise in infrastructure building and freeing up its precious resources, the Railways have started seeking and encouraging increased private sector participation in this massive exercise. Also, competition from Road and Aviation is driving the railways to improve their infrastructure.

- There is need of complete organisational restructuring and corporatization of Indian Railways. IR has to be reorganized to a corporate framework from its current departmental form of organisation. This would be essential to achieve the kind of commercial and customer orientation needed to achieve the goals outlined. Such large restructuring would be a very complex task and would have to be done over a 5-7 year period. A beginning would be made with the recasting of accounts in a corporate framework in order to enable accountability and commercialisation of IR.
- If Indian Railways is expected to function on commercial principles, its management needs to be allowed a degree of autonomy that is comparable to any other commercial organisation. Further, it would be desirable to have a separate policy setting, regulatory and operational functions, in line with developments in other infrastructure sectors. The general model is to separate policy, regulation and operation. While, Government would be responsible for policy making; an Indian Railways Regulatory Authority need to be formed that may be in charge of regulation, including tariffs; and the corporatised Indian Railways Corporation would be responsible for all commercial operations.
- A corporatised railways need to have marketing teeth, a long-term vision to trim expenditure, and a moratorium on new projects for some time. Also, there is need to have a clear roadmap – a blueprint for projects to be done in PPP format in 12th Five Year Plan; selected on the basis of their amenability to PPP and driven by value for money philosophy rather than a resource augmenting measure.

4. Roads & Highways

Current Status

- World's second largest road network of 3.3 million km
- More than 70% of freight and 85% of passenger traffic handled by roads
- Highways constitute about 2% of the total road length, carrying about 40% of road traffic, leading to a strain on capacity
- Vehicles on roads have been growing at CAGR of approximately 8% in last five years

- 30,412 km of National Highway have been constructed between 2000-01 and 2009-10
- 5,010 km (highest length of National Highways) has been constructed in 2009-10 since the inception of National Highways Development Projects (NHDP) at the rate of 13.81 km per day
- From 2005-06 to 2009-10, 3692 projects have been undertaken for development of National Highways. Of this, 2423 projects (about 65.63%) are completed, 1242 (33.64%) under progress and 297 projects (8%) at tendering stage

Projected Growth and Investment Requirements

- **Upgradation of 12,109 km** : NHDP-III involves upgradation of 12,109 km (mainly 4-laning) of high density national highways, at a cost of Rs 80,626 crores. Out of total length of 12,109 km, around 4,699 km is still to be awarded by NHAI.
- **2-laning of 20,000 km with paved shoulders** : NHDP-IV envisages upgrading of 20,000 km of highways into 2-lane highways, at an indicative cost of Rs 27,800 crores. The government has already approved strengthening of 5,000 km to 2-lane paved shoulders at a cost of Rs 6,950 crores. However, around 14,034 km is still to be awarded by NHAI.
- **6-laning of 6,500 km** : NHDP-V involves 6-laning of the existing 4-lane highways comprising the Golden Quadrilateral (GQ) and certain other high-density stretches, will be implemented at an estimated cost of Rs 41,210 crores. Implementation of initial set of projects has already commenced and the entire package is expected to be completed by 2012. Out of the total length of 6,500 km, around 4,200 km is still to be awarded by NHAI.
- **Development of 1,000 km of expressways** : Government has approved 1,000 km of expressways to be developed under NHDP Phase-VI, at an indicative cost of Rs 16,680 crores.

Investment Gap and Possible Sources of Funding

- Rs 4,90,272 crores worth investments planned for roads in 12th Plan (compared to Rs 2,78,658 crores in 11th Plan)
- In view of the estimated share of 34% of private sector in 11th Plan and envisaged average share of 50% for the 12th Plan, contribution from private sector likely to range between Rs 166,692 crores and Rs 2,45,136 crores

Issues in Roads & Highways

- Indian roads are under huge pressure and in great need of expansion and widening of existing roads in order to handle the increased requirements. The road density in India is 2.75 km per 1000 people which is much lower compared to the world average of 6.7 km per 1000 people. As per estimates, approximately a quarter of all India's highways are congested, and as a result trucks cover less than 200 kilometers per day, i.e. less than 50% of global average. Highway capacity shortages are further exacerbated by mixed traffic, encroachment, crowded and unsafe urban crossings, and frequent stops at state and municipal check posts.
- The most prominent risk observed in the infrastructure projects, particularly roads and highways is the acquisition of land. As per estimates, around 70% of the planned projects in India are delayed due to issues related to acquisition of land from relevant authorities. On an average, India takes about 21 months to get approval for land acquisition. Government can look to further streamlining the process of land acquisition and may consider adopting Haryana model as an example for land acquisition for infrastructure projects — where the compensation is linked to market prices of land and takes into account future value additions, at least partially. At the same time it can provide additional incentives to developers provided they take ownership of land acquisition process. It has been seen in several cases that the developer participation in the land acquisition process has helped expedite the process.
- Globally, concession period for highway assets is about 75- 99 years, while in India it is between 20-30 years. In order to get attractive bids from international bidders, the Indian government should increase the duration of concession period for road projects.

- There is need for a strong design review mechanism built into the system of project approvals. More effort and time should be spent on surveying, data collection and design and more funds should be allocated for these very important project preparatory activities. As per estimates, design costs are much higher in China (typically 2.5% of project cost) compared to India (typically 1%) and in China about 40-50% of the overall project period is spent in surveys and design, while in India it is less than 20% of total time [but the extra time and cost spent on design are more than recouped later through timely construction within budget].

5. Governance Reforms in Infrastructure including Public Private Partnerships (PPP)

Issues relating to bid documents (RFP, RFQ), issues of delays in land acquisition, environment clearances and award/ execution procedural issues are among the critical factors affecting the infrastructure growth in the country. There is need to bring in structural changes in the system and procedures of awarding contracts to private players.

- **Slow pre-tendering approval (Government agencies/ Ministries) process**

The multitude of approvals required across many infrastructure sector (e.g. from the External Finance Committee, Public Investment Board or by the Cabinet Committee for Economic Affairs) add almost up to one year to the pre-tendering process. Several processes, such as ministerial approvals, do not have defined timelines.

- **Poor Quality of Detailed Project Report (DPR)**

It has been widely experienced that feasibility study carried out for infrastructure projects is of poor quality leading to incorrect estimation of total project cost. This negatively impacts the project viability and bankability. DPRs prepared need to be accurate and of good quality to enable better project planning and timely completion of project with minimum deviations.

- **MCA, RFP & RFQ norms**

The frequent changes in the MCA, RFP and RFQ norms should be avoided as it makes project implementation difficult and results in bidders spending a lot of time, effort and money in

performing due diligence. Also the shelf life of RFP clauses should be at least one year before any changes are made.

- **Shifting of Utilities**

Utilities of different types e.g. electric lines, water pipelines, sewer lines, telecommunication lines are being relocated for infrastructure development with the assistance of the concerned departments (utilities owning agencies). Shifting of utilities, especially water-pipe-lines, electric lines/transformers take considerable time due to several procedures. Also, they are very specialized works and normally executed by their own departments. Moreover, relocation of utilities can only be taken up after taking possession of the acquired land.

In order to attract investments and more private participation, the first pre-requisite is an economic regulatory framework which provides clarity and certainty to investors on the commercial potential of projects. The absence of a clear set of guidelines affects the investors' confidence and growth of the sector.

6. Leveraging Greater Private Investment in Transport Infrastructure

- The success of PPP models depends on a conducive policy and regulatory framework. However, it has been noticed that several PPP projects have not succeed due to overestimation of the potential demand for services, which leads to overpricing of services by the private sector. Hence, the choice of the parameters to be used in the assessment of the value for money (the benefit–cost ratio) provided by a PPP project is key to the success of the project.
- The challenges in implementing infrastructure projects are immense. Inefficiencies in implementing infrastructure projects in India occur at all stages (at the time of awarding projects, securing financial closure and executing projects). Each segment in the physical infrastructure sector has its own specificities, be it of land acquisition, environment, regulation, financing or of designing of contracts. In case of land acquisition, the problems are well known. There is no option but to squarely address them with foresight, sensitivity, fairness and transparency for all stakeholders.

Constraints relating to PPPs/ private investments in infrastructure

- Laws, policies and regulations are not uniformly adopted across India (State specific laws) resulting in only a few success stories like Gujarat, Andhra Pradesh, etc. The enabling policy and regulatory framework in most of the infrastructure sectors continues to be a constraint. The need to bring uniformity and PPP favorability in sector policies and regulations across states is highlighted by the fact that without the active participation of the States it would not be possible to achieve desired results.
- Public institutions lack capacity in terms of technical, management and administrative expertise even to manage the PPP process. Public institutions need capacity building or capacity bridging measures in the domain of law, contracts, economics, finance, engineering, environment and public relations etc. to effectively manage the long term contracts throughout the life cycle of the infrastructure projects.
- Most of the infrastructure sectors lack independent regulatory authority. Existence of an independent regulator instills confidence among the investors about the safety of their investments, return on investment, freedom from political interference and the fairness of the process altogether resulting in increased investment coming into the sector at a lower cost due to the reduced risk perception.

I. RURAL TRANSFORMATION AND SUSTAINED GROWTH OF AGRICULTURE

Rural Transformation

The approach to the XII Five-Year Plan should stress on the greater responsibility of the public sector in developing the rural infrastructure either directly or through Public Private Partnerships. It should also support individual sectors such as agriculture, irrigation, rural development, health and education that are crucial for ensuring inclusiveness of the rural population.

1. Rural Poverty Alleviation

Rural poor are highly concentrated in select states viz. Uttar Pradesh, Uttarakhand, Bihar, Jharkhand, Madhya Pradesh, Chhattisgarh, West Bengal, Maharashtra and Orissa and together they account for nearly 76.2 per cent of the total poor in India. Most of the schemes aimed at tackling poverty elimination are just income assurance for the BPLs. MNREGA has undoubtedly brought in wage parity in rural areas. MNREGA forms a critical component for poverty eradication in rural areas. The target of wage employment programme to cover all rural households (4.5 crore) and thereby supplementing their income ranging from Rs. 8,000 to Rs. 10,000 is well planned and would go a long way in eradicating the poverty from rural areas.

Although, ample focus has been given in several schemes for job creation, the ultimate test of poverty eradication would depend on the rise or fall in the standard of living and quality of life. Income generation schemes should blend with other issues such as health, education, sanitation, access to clean drinking water etc.

- It should be made mandatory for a beneficiary family to enroll their wards in schools before enrolling for any of the rural development schemes;
- There is a need for identifying specific districts/clusters where the rural BPL concentrations are high among these nine states. Once these specific clusters are identified, it is essential to develop cluster specific interventions based on the resources/occupations/strengths of the cluster;

- Patterns of employment in rural areas have to be studied to delineate the periods/seasons of non-employment. For instance, if there is employment available during agriculture season, employment through NREGA should be discontinued for that duration of agriculture season;
- Corporates could be encouraged to employ rural BPL families as daily labour/wage labour by government cross-subsidizing 50 per cent of their wage through NREGA? This effectively means providing employment for a BPL household for 200 days in a year rather 100 days.

2. Rural Roads

The Pradhan Mantri Gram Sadak Yojna (PMGSY) is targeted at covering rural habitations with a motorable road. The XI Plan outlay for PMGSY as proposed by the planning commissions was Rs. 43,251 crore whereas the government has allocated Rs. 81,241.98 crore (includes the RE for 2007-11 and BE for 2011-12), indicating an excess allocation of 187 per cent. Some issues that need to be addressed in the programme are:

- *Involvement of the Panchayati Raj Institutions (PRIs):* during the preparation of proposals for road alignment, acquisition of land and planning, there is a greater need to involve the PRI officials and not let the Project Implementation Unit unilaterally prepare the plan. Involving the PRIs will also lead to better settlement of disputes within the village which at times arises due to unfair practices while selection of land, acquisition and related compensation.
- *Setting up Vigilance Committee:* The states should take efforts in setting up the District level Vigilance Committee mandated under the guidelines for PMGSY for effective monitoring of the projects.
- *Improving the tendering process:* The tendering process needs to be centralised such that contractors with proven ability, efficiency and adequate working capacity can be selected to work on projects at competitive prices. Local population should get preference in undertaking construction related works near their habitations.

3. Drinking Water

The National Rural Drinking Water Programme (NRDWP, earlier known as ARWSP) has missed many deadlines of attaining universal coverage. The latest target set by the Department of Drinking Water and

Sanitation (DDWS) is March 31, 2012 which coincides with the completion of the XI Five-Year Plan. Data available till February 15, 2011 indicate that of the total 16.61 lakh rural habitations, 12.19 lakh habitations (73.40%) are fully covered. There are 65,966 habitations which have no access to drinking water and the remaining 3.76 lakh habitations are partially covered. In respect of funding, the XI plan outlay for the drinking water was Rs. 39,490 crore, out of which the Central Government has allocated Rs. 38,669 crore (includes the RE for 2007-11 and BE for 2011-12). The challenges which the sector needs to address in the XII Five year Plan include:

- *Constant Slippage:* The problems of slippage are related to the depleting sources and the systemic failures to run a water supply scheme. In the context of systems sustainability, Public Private Partnerships should be encouraged to develop water entrepreneurs and set up efficient models of cost recovery through village level institutions managing their water supply schemes.
- *Performance of institutions:* There are severe gaps in the performance of the local institutions like the Village Water and Sanitation Committee (VWSC) which retard the overall management of drinking water schemes. Appropriate fund allocation should be done for capacity building, preparation of village security plans, and monitoring.
- *Poor operation and maintenance:* Drinking water supply schemes suffer for poor operation and maintenance due to inadequate cost recovery. There is merit in bringing in a pricing mechanism for water usage in rural areas. Pricing however should be not a criterion to eliminate the poor from access to water. There can be a model where the government provided the basic minimum supply water for the poor free and charges for the extra usage of water which can be used for operation and maintenance of water supply schemes.
- *Rainwater harvesting:* Solving the problems of water scarcity will necessitate reviving traditional water harvesting systems and incentives for rainwater harvesting across the country including rural areas. Traditional water sources needs to be studied for their potential to augment water supply as well as to recharge groundwater.

4. Sanitation

The Total Sanitation Campaign (TSC) launched over a decade ago has certainly increased the pace of construction of toilets but concerns on quality of construction, usage of toilets, hygiene promotion and disposal of wastes seem to emerge in every evaluation, assessment, study and discussions focussing around rural sanitation. Of the Rs. 7815.66 crore earmarked by the Planning Commission for the TSC programme the Central Government has allocated a sum of Rs. 6,464 crore (includes the RE for 2007-11 and BE for 2011-12). The XII Plan need to address the following concerns for the TSC programme to meet the aim of making India open defecation free:

- *State Sanitation Plan:* There is a need to have a state implementation plan for the TSC programme, with dedicated team of trained staff with their roles and functions clearly defined and their performance regularly monitored. The state plans should be based upon village sanitation plans that look at issues of solid and liquid waste management, hygiene promotion in addition to the construction and usage of toilets.
- *Convergence with MGNREGS:* Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) funds should be used for construction of sanitary latrines thus improving environmental sanitation and providing livelihoods to the masses. For panchayats which have been able to sustain the sanitation campaign and have not slipped back to open defecation, there should be measures for special allocation of development funds and works as an incentive.
- *Technology concerns:* Technology has emerged as a major factor in safe sanitation, which has yet to get the attention it deserves. Quality of construction of toilets is emerging as one of the critical factors in ensuring usage and sustained behaviour change. The TSC guidelines call for promoting ecological sanitation (ECOSAN). However, there are no financial measures to implement it. In water stress areas and regions prone to floods and natural calamities financial support for ECOSAN can be considered.
- *Availability of water:* Availability of water is the most critical factor in ensuring the usage of the sanitation facilities created. Lack of water results in people going back to open defecation. The Department of Drinking Water and Sanitation should prioritise villages for complete coverage of water supply which have attained or will attain nirmal gram status to ensure that there is no slip back.

5. Major and Minor Irrigation

The Accelerated Irrigation Benefit Programme (AIBP) was launched in the year 1996 in order to provide financial assistance to States to complete various ongoing projects so that envisaged irrigation potential of the project could be created and bring more areas under irrigation. As of April 1, 2010 a sum of Rs. 39,457 crore was released creating an irrigation potential of 6,535,000 ha. A mix of approaches is needed to improve the efficiency of the AIBP and realize the outcome of better irrigation to our farmers. Some of these include:

- Reducing the dependence on groundwater for irrigation should be the top most priority in the XII Five Year Plan. The decline in surface and canal irrigation over the past few decades have been due to the over-extraction of groundwater sources. Measures for augmenting water supply through agricultural rainwater harvesting should be accorded high importance. Using Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) funds for construction of water courses, channels and drainage structures in fields, revival of water harvesting structures, repair and maintenance of minor tanks and canals and de-silting should be taken up.
- There has been an inability to realise the full irrigation potential due to the absence or ineffectiveness of institutions at the village level like the Water User Associations. Problems of the WUAs even arise due to the inadequate powers assigned to them and the inability to mainstream them into the village governance system. With only 20 per cent of the total command area having WUAs there remains a scope to strengthen these across the country. In addition to giving WUAs a legitimacy within the PRI, they would need measures that give them authority, funds, functions and functionaries.
- *Technological improvements:* Improvements in the irrigation sector have resulted in an overall increase of the irrigated area in the country by four times in the period 1957-1997. However, there still remains a huge gap between irrigation potential created and utilised. The Command Area Development Authority Set up for undertaking a variety of improvement measures to improve irrigation efficiency has had its share of success and failures. With irrigation taking up bulk of the water resources, measures for on farm water conservation using technological

improvements like sprinklers, laser levellers, needs to be promoted on a large scale. These initiatives would have to be linked with supportive financial measures for adoption by farmers.

- *Decision support system for agriculture:* Planning for irrigation scheduling is to be made robust through developing decision support systems for agriculture which take into account real time weather forecasts and predictions. These will help in better management of water resources and reduce incidences of crop failure owing to climatic changes. The approach for XII plan will have to look at encouraging experiments on these lines and pilot them across various states.
- *Better crop planning:* The misuse of water in agriculture is also contributed by faulty crop planning. Encouraging better crop planning measures will be a key determinant in regulating water usage. These measures could include regulations on the time of sowing of crops as has been done in Punjab through a legislative measure namely The Punjab Preservation of Sub Soil Water Act, 2009 which prohibits sowing paddy nursery before May 10 and transplanting paddy before June 10. Legislative measures such as these have to be adopted at a basin level, by other states to regulate the use of water and prevent over-exploitation of a common pool resource.

6. Skill Development in Rural Areas

The tertiary sector employment is on the rise in rural areas and from this it can be clearly said that the core strategy should focus on strengthening hotel, trade, transport, rural tourism, information & communication technology and automotive segments. Follow a cluster based planning and ensure that supply does not outstrip demand for these services. The following measures can be looked into:

- Can government incentivize corporate for employing rural BPL families by offering 100 per cent deduction in expenditure incurred on these employee salaries for a period of 2 years?
- Government is incentivizing the employment of disabled persons in the private sector by bearing the employer's contribution to the Employees Provident Fund and Employees State Insurance for the first three years. This incentive may be extended to the private sector for employing rural BPL households.
- Public Expenditure should be increased on skill development of the rural youth. Short and modular skills for locally demanded trades should be introduced in vocational training institutions to promote employability.

- Skill development centres should be started on PPP mode, to cater to a cluster of 4-5 villages.

SUSTAINED GROWTH OF AGRICULTURE

Agriculture

Agriculture has a strong impact on the Indian economy, close to 50% of the population is directly dependent on agriculture for their livelihood, making it the single-largest occupation. Besides this, significant industrial activity is directly dependent on it as a source of raw material, viz textiles, sugar, dairies, rice & flour mills, etc. Price fluctuation of raw material used in these industries has a direct impact on their financial performance. Agriculture also retains a direct 14 % weightage on India's GDP, besides having an indirect impact through industrial & service components. Any detrimental impact on this segment hence has a negative impact on the GDP of the country, as was evidenced by poor monsoon during the kharif '09 season which resulted in 299 of the 612 districts in the country being declared as drought-hit. Besides this commercial implication, the social importance of agriculture in India is high as it sustains 17% of the world's population on a mere 2.4% land area. It is hence an utmost priority for the Government to ensure the welfare of the farming community through various instruments/ policies.

Agriculture R&D and Technology

The yield of several crops in India are not at par with other agriculture developed countries and in some instances, not even one third to half of the world average. Also within India itself, there are significant differences in yields of eastern India states and the states of the northwestern region such as Punjab and Haryana and western Uttar Pradesh. The yields in the eastern states can be vastly improved by focusing on development of drought resistant varieties, water logging and thermo tolerant varieties in rice and wheat, infusion of these genetic traits together with improved water, nutrient and crop management practices could bring manifold increases in production and productivity. India's allocation towards agriculture R&D as percentage of agriculture GDP stands at 0.36 per cent compared to developing countries average of 0.54 per cent indicating that agriculture R&D is underfunded.

The new framework for agriculture R&D could be adopted by choosing carefully salient features of Chinese, Brazilian and South African agriculture R&D systems. Some of the major parameters that need to be kept in mind while designing the framework could be:

1. Urgent need to infuse more public investments into agriculture R&D
2. Encouragement of private sector participation in agriculture R&D through incentivization of scientists and technical staff. Brazil and South Africa have also brought about policy changes in agriculture R&D that engage private sector more actively and incentivize investments in agriculture R&D.
3. There is a need to encourage public sector R&D firms to take-up other possible streams for increasing revenue by undertaking consultancy and ancillary businesses.
4. Encouraging public sector firms to commercialize innovations
5. Allocating funds for agriculture R&D through competitive bidding mechanism, where the private sector or a consortium of public-private could bid for the same
6. There is also need for easing some regulatory controls. Developing a new policy framework that encourages stronger IPRs for commercial crops would go a long way in bridging the existing gaps.

These policy changes would also give added and fresh impetus to private firms for making increased investments in agriculture R&D.

Cultivation of Genetically Modified Food Crops

The severe drought in 2009 reinforces the stresses on agriculture production stemming from climate changes. This coupled with changes in dietary habits necessitates for augmenting food production in short and medium term. Bio-technology is one the factors that can help us in alleviating agriculture in our country. Multiplication of high yielding varieties of seeds through tissue culture is already a well accepted practice.

Transgenic or genetically modified crops are new biotechnological tools, and therefore there exist numerous divergent views on their efficacy in meeting the said objectives. However, it is pertinent to point that today, bio-tech crops are being grown in more than 25 countries across the world and more than 300 million hectares of land worldwide has been allocated for the same.

Commercialization of GM crops should be based on approval after a thorough enquiry on agricultural, ecological and social aspects of introducing a GM crop in the environment by an expert committee of scientists and other domain experts appointed by the Central Government. Their recommendation should be considered as final and not subject to debate by various ministries and state governments.

There is an urgent need for increased allocation to public R&D institutes in agriculture for developing transgenic crops with resistance to economically important viruses, tolerance to drought, heat and salinity. The multiplier effects of benefits associated with such investments are evident from the success of Bt Cotton in Indian context.

Agriculture Extension

Indian agriculture has transformed from a food deficit subsistence farming system to a food self sufficient commercial farming model. However due to technological, infrastructural, and resource related constraints, including biotic and abiotic stress, the Indian Agriculture System continues to be fragile. It is in response to such constraints that agriculture extension system has also to undergone significant changes, in terms of management and reorientation including its role and approach. Moving from a top down to bottom up approach is an improved way of meeting these diverse needs. Today, India has the largest extension system in the world, but the capacity of the personnel to adapt to fast moving changes and challenges, is limited. A new agriculture extension framework that would cope with the new challenges and provide customized solutions to the farming community is the need of the hour.

The new extension framework also needs to look beyond productivity enhancement and encompass other areas such as, agriculture marketing, value addition, packaging, processing, financial knowledge, natural resources management and issues related to climate change adaptation. The private sector and NGOs have forayed into agriculture extension and have set new benchmarks. Some successful private sector initiatives in agriculture extension are McCain's efforts in potatoes in Gujarat, Pepsi's initiative in direct seeding in Paddy, DSCL's Hariyali Kissan Bazar, ITC's e-choupal of empowering farmers and NGOs in AP working on ground water recharge and augmentation. The challenge before the policy makers is

to create a structure where these initiatives could be up-scaled and the national capability of the private sector and NGOs could be leveraged.

The new framework could have some of the following salient features:

1. All agriculture extension projects in the country should be implemented through a defined set of quantifiable outputs preferably in a public private partnership approach
2. Various extension departments/agencies of state and federal government such as, SAMETIS, ATMAs, KVKs, state line departments, agriculture call centers and agribusiness centers need to be converged
3. Funding for the agriculture extension projects in the country could be broadly categorized into two categories i.e. direct funding based on service mandates and indirect fiscal incentives for the private sector. Illustratively, service mandate could be area specific proposals from state SPVs and the private sector for increasing yields of wheat/rice in a particular district/area through process of open tenders/bidding for achieving these quantified goals, through public/private/cooperative agencies or a mix of joint sector organizations could be selected for implementing these mandates/services.
4. Fiscal incentives in form of 150 per cent weighted deduction in the expenditure incurred by the private sector for providing extension services, or reimbursement formulae in case of cooperatives or public agencies.

Restructuring of the agriculture extension system on the proposed lines would lead the way towards better utilization of resources and funds. It would definitely address the new challenges that farmers are facing in context of climate, farm mechanization, risk management and poor yields. This would assist in enhancing the efficiency and accountability of government institutions too for improved delivery and also result in improved public-private partnerships.

Value Added Agriculture

The low value addition in agriculture in India is characterized by number of structural issues in agriculture. The fragmented land holdings and low yields result in low marketable surplus in many crops. Either the varieties are not suitable for food processing or many a times, poor quality of produce makes it unviable to go for value addition. The weak agri-infrastructure, especially the one required for

perishables such as pre-cooling, grading & sorting, cold chains, etc is the main reason for deterioration in quality before it is available for value addition.

Archaic APMC Act is another major stumbling block in the development of food processing sector and value addition in agriculture. The companies are not assured of regular availability of quality inputs for processing due to presence of large intermediaries. Therefore, the government should focus on the following issues to improve the value addition in agriculture:

- 1. Improving Marketable Surplus:** The low marketable surplus in many crops is due to fragmented land holdings and cultivation of varieties that are not suitable for food processing. For instance, most of the potato varieties grown in the country are not suited for processing. Therefore, there is an urgent need for the Central Potato Research Institute to work closely with farmers and the private sector to develop potato varieties that are suitable for food processing.
- 2. Reforms in APMC Act:** The private sector should have freedom to procure and sell agriculture produce from anywhere in the country. For this to happen, there is an urgent need to accord a special status to perishables and horticulture commodities and these horticulture commodities could be de-listed from the schedule-I containing the list of notified commodities in APMC Acts of all states.
- 3. Farmer Cooperatives/ Farmers Marketing Associations:** Encouraging farmers to form producer associations and aggregating the produce of small and marginal farmers would go a long way in improving the bargaining power of the farmers. It would be easier for companies to work with these associations in improving the quality of produce or inclusion of varieties required for processing. The government could also support these producer associations by investing in the infrastructure required for perishables such as pre-cooling, grading & sorting, cold chains.
- 4. Better R&D Linkages:** There is also a need for close cooperation and linkages between the agriculture R&D institutes, farmers and the private sector to develop varieties that are suitable for processing.
- 5. Cluster Approach:** The government needs to identify the crops and clusters/districts where they could be grown and undertake a mission mode approach to address all issues in a comprehensive manner.

Agriculture Infrastructure

As per the sub group on agri-infrastructure constituted by the planning commission during the XI plan, it was estimated that an investment of nearly Rs 65000 crores is required for the development of agri-market infrastructure for agriculture related activities. As a result of non-conducive policy environment pertaining to APMC regulations in states and FDI in retail being not permitted, fraction of the required investment would have taken place over the last five years. Moreover, the payback period for pure agri-produce warehousing and cold chain is about 12-15 years and hence not lucrative for the private sector to invest. Therefore, it is necessary to devise new mechanisms to attract investments in agri-infrastructure:

- Direct Finance from NABARD: In order to attract large investments in warehousing and cold chain sectors, NABARD should open a new window of direct financing to the private sector at low rate of interest. The rural infrastructure development fund (RIDF) available with the NABARD could be utilized to fund the private sector for investments in warehousing.
- Priority sector lending norms: Currently, investments made by the private sector in agri infrastructure such as warehousing, cold chain and other agri infrastructure projects are considered under the “indirect category” of priority sector lending. If these investments are considered under the “direct category” of priority lending, banks would be more aggressive in lending to the private sector and the agri infrastructure in the country would be developed on a fast track mode.

Risk Management in Agriculture

The most prominent and widely accepted uncontrollable risk in agriculture has always remained weather vagaries. While perils related to pest attacks, diseases, weeds could be controlled in one way or the other, there is no way of saving crop from the failure of monsoon. Weather insurance is a tool which indemnifies for losses that may arise due to abnormal weather conditions. These abnormal weather conditions can be events such as excess of rainfall, shortfall in rainfall or variations in temperature, wind speeds and humidity. Weather insurance has multiplier effect on the economy as it enables access the factors of production.

As, there is no minimum support price mechanism for horticulture crops and yield estimation of horticulture crops is also cumbersome process. Therefore, there is urgent need to develop suitable

insurance products (weather based) that would take care of both production and price risks in horticulture crops.

Agriculture Machinery

The acute shortage in farm labour coinciding with high wage benchmarks set by MNERGA has further pushed agriculture wages for certain operations such as sugarcane harvesting and cotton picking. The average cost of harvesting sugarcane was Rs 200 per tonne. In parts of Andhra Pradesh and Tamil Nadu, farmers had to pay as much as Rs 600 per tonne of sugarcane, which amounts to 1/3rd of sugarcane price per tonne. Situations like this seriously undermine the economic viability of agriculture and lead to distress among farmers.

With the severe shortages in farm labour especially during critical farm operations such as sowing and harvesting, it is but natural for farmers to adopt farm machinery. Today, more than 90 per cent of paddy is harvested by combines in many parts of Andhra Pradesh and Tamil Nadu. Companies have started tailoring equipment to the Indian conditions. As it is economically unviable for farmers to purchase whole bouquet of equipment, whose usage is not more than few days in year, farmers generally prefer to take these machines on lease rental basis. Right now, the practice of custom hiring of farm equipment is highly unorganized in India.

- Therefore, the government should develop a policy by which it encourages agriculture graduates to become entrepreneurs and undertake custom hiring of farm equipment. Every district should have at least 10 such farm service centers, where farmers could easily approach and avail services of such centers on lease rental basis.
- The banks insist on heavy collateral guarantees apart from hypothecation of farm equipment for giving loans. It is pertinent to devise frameworks that address these anomalies in the credit policy of farm machinery in India. Banks should be taken into confidence to provide loans to farm equipment without collateral by devising new frameworks such as 'credit guarantee fund for farm machinery'. Right now, there is a similar credit guarantee fund in operation for facilitating loans for micro, small and medium enterprises (MSMEs) without collateral, where the credit requirement is anywhere between Rs 5.0 lakhs to Rs 1.0 crore.

Food Security and Public Distribution

Food grains management involves at least four different yet related activities. These are – 1) procurement from farmers at Minimum Support Prices (MSP), 2) maintenance of buffer stocks, 3) utilization of stocks and 4) supply of grains through the public distribution system.

- **Food Grain Procurement:** There is a need to strengthen the procurement operations in other states such as Rajasthan, Madhya Pradesh, Bihar, Maharashtra and Orissa. Multiple agencies should be involved during the limited harvesting period and ensure a larger farmer base under the Minimum Support Price (MSP) framework. Some private sector entities, which have been involved in the procurement activities in the past, have demonstrated that they can do procurement operations at a cost, which is up to 10 percent lower than that of FCI. Evolve a framework for decentralized procurement and meeting PDS requirements in each state wherever feasible.
- **Improving storage operations:** As the bulk of the procurement activity of FCI is concentrated in certain parts of the country, due to this one finds that in these regions the stress level on the storage capacities is high. And in certain other parts of the country, one finds that the utilization levels of storage capacity are much lower. Decentralization of procurement activity involving private sector companies would therefore result in optimal utilization of existing storage facilities. Moreover, once the entire procurement and storage contract is given to the private sector, it would also ensure simultaneous development of warehousing infrastructure in the non-traditional procurement states. Accordingly, the burden on FCI and state warehousing corporations to develop new infrastructure would be reduced.

Setting up and maintaining a warehouse is a capital intensive process. Given the prevailing prices of land and the commercial rate of borrowing, the payback period for setting up of a warehouse in certain areas could be as long at 15 years. Given this scenario, if the government wants to attract large scale investments in warehouse development then it must come out with a comprehensive policy for the same. Finance at relatively lower cost is a major factor that determines the interest of the private sector in warehousing sector. The government can consider setting up of a special purpose vehicle, which could in turn negotiate with the World

Bank, Asian Development Bank and other such development agencies, for providing long tenure loans of up to 20 years at an interest rate of 3 to 4 percent per annum or at LIBOR plus 1 percent per annum.

- **Improving stock management operations:** Present buffer stock levels are way above the specified minimum norms. This puts a lot of pressure in terms of carrying cost and maintenance of stocks. Additionally, with the government holding large stocks, the floating stock in the market goes down, resulting in upward pressure on food prices. Put a cap on strategic buffer norms. Anything above this should be available for active trading and off-loading in the domestic and international markets. In the domestic market, it will be more efficient if stocks are offloaded in smaller lots over multiple locations using channels like spot exchanges. Money made from trading operations should be kept in a special fund, which can be later utilized for importing food grains if the need arises.
- **Improving distribution operations:** Several deficiencies plague the working of the TPDS – Identification errors, ghost cards, leakages, issues of quality, etc. The ongoing work on the Unique Identification Number being carried out by the Unique Identification Authority of India (UIDAI) will also provide the groundwork to efficiently roll out the ‘Food Stamps’ program throughout the country. By putting in place a highly secured information technology system akin to the core banking system and leveraging the benefits that would follow the roll out of UID program, we can evolve a system where a BPL family could utilize their food vouchers at any outlet in the country, including those of the small kiranas, organized retail, FMCG firms, agriculture inputs suppliers, and organized retail players, to buy their monthly quota of food grains. This can be further dovetailed with other government schemes with benefits flowing to families only contingent upon their participation in these programmes.

J. MANAGING URBANIZATION

Urban growth in India, combined with rapid growth in economy as a whole has placed immense strain on infrastructure & services and the institutions responsible for their provision. The critical issues for India's Urbanization are:

- Poor Local Governance
- Weak Finances
- Inappropriate planning of cities
- Critical urban infrastructure shortages

JNNURM has been effective in renewing focus on the urban sector across the country; however the need to raise capacity and investment resources is still substantial. Attention also needs to be paid towards efficient implementation of projects under JNNURM.

PLANNED URBANIZATION

Some of the suggestions for planned urbanization are:

- Clarify mandates and roles by transferring the planning function to local government in an appropriate manner. In this regard implementation of 74th Amendment to the Constitution of India which emphasizes devolving power and responsibilities from the state government to ULBs, District Planning Committees and Metropolitan Planning Committees on 18 key functions be expedited.
- Need to revisit India's town planning system. We should firstly plan for conservation of our resources, then for fulfilling transportation needs and then for satisfying housing and other requirements. Great cities pay lot of attention towards devising policies for most important sectors that influence city's economy and quality of life.
- Infrastructure Plan for a city needs to be prepared along with developmental plan

Planning with a Focus on Tourism

There is lack of urban infrastructure and facilities for tourists in key tourist spots. There is an urgent need to improve civic amenities in tourist destinations through PPP model which will include:

- Improving the approach roads to various tourism sites and providing better civic amenities in their vicinity.
- Identification of select model cities (major tourist hubs) by the Ministry of Urban Development, Govt. of India where a pilot PPP model-based civic amenities improvement scheme can be launched. This scheme can be run in collaboration with the Ministry of Tourism, Govt. of India.
- Each state government pro-actively involved in tourism development should aim to develop one of its major tourist destinations as a model destination. This successful model can then be replicated across other destinations within that state as well as across the country and further the process of effective investment in hotel infrastructure

ENHANCING THE CAPACITY FOR GROWTH

To deliver basic services, India needs \$ 1.2 trillion in capital expenditure and \$ 1 trillion in operating expenditure over the next 20 years. (Source: Mckinsey Report: India's urban awakening, building inclusive cities, sustaining economic growth.)

Cities in developing countries with lower per capita incomes are unable to finance capital expenditure through user charges and municipal taxes alone. Suggestions to tap other sources of revenue are:

- **Monetise Land Assets and dedicate a certain percentage of funds generated for urban infrastructure. This includes:**
 - Charging of development fee on FAR increase

- Auction of developed Greenfield Sites. City Governments can acquire additional strips of land next to new road construction projects or new metro rail stations at the time of construction, provide basic infrastructure such as water supply, sewerage and electricity and then auction them off after the construction is completed
- Charge development fee on all construction to fund urban infrastructure.
- **Maximise the potential of Property Taxes and User Charges.**
 - **Property Taxes:** It requires improving collection & coverage rates through better enforcement by moving towards a capital value or unit rate method based system with appropriate property tax rate. GIS mapping of properties can be undertaken to facilitate the process.
 - **User Charges:** It is suggested that a composite levy for services as water, sewerage, gas be brought under single infrastructure management. This would bring in efficiency in the cost of collection and also ensure more revenue for the local body. Such a system is anyway prevalent in the group housing schemes.
- Encourage private participation in urban infrastructure projects by City Governments. Private sector should not be restricted only to Engineering, Procurement & Construction (EPC) projects. Operation and maintenance should be regarded as part of EPC. Government should allocate specific sum under the JNNURM for O&M in projects
- Create appropriate enabling mechanisms to facilitate funding sources which involves distribution of land revenues and govt. funding support equally between Municipal & Metropolitan Authorities
- Deepen the bond market and encourage municipalities to tap them for urban infrastructure
- Create ring fenced 'city development funds';

- Creation of effective accounting system at the local level: The Task Force constituted by the Comptroller & Auditor General of India had recommended for introduction of accrual basis of accounting system for the urban local bodies (ULBs) and suggested model budgeting and accounting formats for that purpose.

ENHANCING SKILLS AND FASTER GENERATION OF EMPLOYMENT

Issues

- Shortage of skilled resources including labours, masons, carpenters, architects, designers, planners, etc has resulted in delay of construction activity by an average of 6 months to a year.
- The current education set-up in India does not adequately provide for specific curriculum requirements and specialized courses for the construction and real estate sector.
- Municipalities do not have adequate capacity and requisite knowledge about executing procurement/ contracts.

Suggestions

- To meet the shortage we may have to import experienced urban planners just like we did for experienced pilots. Meanwhile, new planning institutes be set up in the country and academic programmes aimed at urban development should be strengthened.
- Training and skill development of public officials should be taken up to make such officials aware of the issues involved in urban planning.
- Capacity building of staff working at the local government level also needs to be enhanced. Computerization of offices of the local government be undertaken.
- Developing a municipal cadre by developing a group of experienced people who are capable of providing leadership and skill to officials to expand managerial capacity.
- There is a need for a transaction advisory cell at the State Level that would handhold the local bodies of the state to set procurement standards, formulate project documentation contracts, standardize bidding documents at State Level.

MARKETS FOR EFFICIENCY & INCLUSION

Proposed Solutions to Urban Poverty

- States should realize the need for all-inclusive growth and adopt holistic approach focusing on each & every aspects of human development index while planning for cities.
- There should be greater equity in the provision of basic services as interstate and intercity disparity has acquired alarming proportions.
- Small and medium towns (i.e. towns with population of less than 50000), particularly in backward states, should get special assistance from the central / state government as their economic bases are not strong enough to generate adequate resources.
- Constitutional amendments for decentralization should be backed by actual devolution of powers and responsibilities to urban local bodies. One of the reform measures mandated under JNNURM is 'Assigning or associating elected ULBs with city planning functions and transferring over a period of seven years, all special agencies that deliver civic services in urban areas to ULBs'.
- Restructure of subsidy programmes to poor to ensure efficiency in reaching out to target group.

As a step towards urban poverty alleviation, the Government of India announced Rajiv Awas Yojana (RAY) in the year 2009 for the slum dwellers and urban poor. This scheme aims at providing Central support to States that are willing to assign property rights to slum dwellers. The Government's effort is to create a Slum-free India through the implementation of RAY.

Rs. 1270 crores were allocated for RAY in the budget 2010-11. For credit enablement of EWS and LIG households, setting up of Mortgage Risk Guarantee Fund has been proposed to be created under RAY in

the budget 2011-12. This would guarantee housing loans taken by EWS and LIG households and enhance their credit worthiness.

DECENTRALISATION, EMPOWERMENT AND INFORMATION

The most successful governance is a devolved model that empowers local leaders but holds them accountable. Despite the fact that 74th Amendment to the Constitution of India devolved power and responsibilities from the state government to ULBs, District Planning Committees and Metropolitan Planning Committees on 18 key functions, state policy makers have been mostly silent on implementation of these reforms. India has not devolved power to the local level, leaving states to run cities from a distance with weak accountability. India has not adopted a system in which empowered mayors run cities and where dedicated expert agencies deliver services. Urban management will be more effective if cities have local “owners” more closely accountable to residents, rather than being run top-down by the state.

TECHNOLOGY AND INNOVATION

Effective urban planning requires reliable base data. Every urban centre in India should create rigorous econometric models to project likely economic & demographic evolution, devise a detailed GIS mapping of existing land use and conduct detailed studies of future needs in various urban sectors.

There is need for innovative technologies in the field of:

- Water Management
- Sewerage Treatment
- Solid Waste Management
- Computerization of Municipalities

For efficient usage of new technology, technical staff needs to be hired and existing staff needs to be trained in the above sectors.

Public Transport: It is important to evaluate alternative public transport technologies in the context of city characteristics. Mobility Plans has to be comprehensive and eco friendly which will serve a range of human needs. Inner city congestion tax be levied as a disincentive for using private vehicles.

ISSUES OF ENVIRONMENTAL SUSTAINABILITY

The biggest challenge for India is to focus on how best to incorporate sustainability within the country's existing and emerging urban centres. In this regard, the first task for any city seeking to address a complex sustainability issue such as GHG emissions is to establish a baseline and set targets against which it can measure progress.

The following could be considered for sustainable urban infrastructure:

- Greater usage of public transport
- Tax incentives for constructing green buildings and sustainable habitats with energy efficient landscaping.
- Maintenance of buildings, infrastructure on periodic intervals to ensure that the environment norms are not violated
- Abandon inefficient technologies and deploy those that are more efficient and less emission intensive.

K. IMPROVED ACCESS TO QUALITY EDUCATION

The demographic advantage that India is bestowed with, would bear results in future only if we empower our youth with knowledge and appropriate skill. It is widely felt that India has the capacity to create 500 million certified and skilled technicians by the year 2022. The world is looking at India as the future stock of skilled and semi-skilled human resource. We would not only have to cater to the global demand but also serve our own domestic needs.

Tertiary education in India is characterized by a well established higher education system and evolving vocational education and training segment. Public spending on Education is 3.6% of GDP which the government has been hoping to increase to 6% of GDP without much success. Similarly, the public spending on higher education is 0.7% of GDP which is aimed at being increased to 1.5%. The private sector has contributed significantly in the growth of the higher education system with about 63% of the total higher education institutions being private unaided institutions.

India provides an attractive market for the higher education sector as over 50% of the population falls in the age group of 15-64 years, with a median age between 20-30 years. India's education and training sector offers private institutions an estimated US\$ 40 bn market, with a potential 16% five-year CAGR. After K-12, private professional colleges form the single biggest category in Indian education constituting about US \$ 7 bn market. The market size for higher education is projected to treble in next 10 years to \$115 bn.

1. Expansion of Secondary Education with Vocational Alternatives

Need Gap

- 2 % of our population is vocationally skilled which compares poorly with 75% in Germany, 96% in Korea , 80% in Japan and 68% in UK
- Against 12.8 million new entrants per annum to the workforce the existing training capacity is 3.1 million per annum.
- Percentage share of VET in secondary education is just 3% as compared to 60% in Russia, 55% in China and 31% in Korea.
- 22-23 million students drop out of class VIII and X every year and out of 5.5 million students that pass out of class X only 3.3 million go to class XI.
- Only 28% vocational stream pass-outs are employed while 38.3% opt for higher studies.

- Vocational seat in schools remain under utilized as out of total capacity of 846,100, only 47% of the capacity is utilized

About 75 to 80 million jobs are expected to be created in between 2009-2015, of which 75% will require vocational training. To meet the demand private sector vocational market is expected to grow at a CAGR of 25% from USD 1.5 Billion in 2008 to USD 3.7 Billion in 2012.

Resource gap

- Budgeted expenditure on vocationalisation of secondary education remained stagnant at INR 333 million in 2009-2010 allocation
- The Vocational programs in schools are bogged down by poor quality of teachers, obsolete curriculum, lack of infrastructure and adequate funding for training of faculty, establishing industry connect etc.
- About 92% of expenditure on vocational education is dependent on State Governments and thus lacks a national mission like programme

Solution

- Increase allocation of funds for vocational programs in secondary education substantially in Twelfth Plan
- Improve oversight structure for VET management for centralized policy making under MHRD, Government of India while State Governments are responsible for operations. This would enable better coordination and quality growth of VET while maintain flexibility at the state level.
- Fast track unification of National Vocational Education Qualification Framework (NVEQF) by MHRD, GoI to facilitate mobility between vocational and mainstream education
- Create a system of awarding credits for vocational training programs, which will facilitate mobility to mainstream education
- Strengthen National Skill Development Council by allocating INR 10,000 crore to fast track setting up Sector Skill Councils (SSCs) for manufacturing, services and agricultural sector on priority basis to advise on courses and curriculum, developing qualification framework, mapping of competencies, certifications, etc.
- Facilitate award of quality certification/accreditation for vocational programs by independent agencies which are recognized by the government

- Incentivise private sector participation in delivery of vocational programs at secondary level through grants, soft loans and tax breaks

2. Improving the Quality and Reach of Higher Education

Need Gap

- The current gross enrolment ratio (GER) of 12.4% is low compared to average BRIC countries ratio of 21% and 60% in USA and Canada
- The rural areas represent about 65% of the total population but have just 20% of the total professional colleges. Similarly about 58% of all Higher Education Institutions (HEIs) are located in six states of south India. This further affects the GER which ranges from 4% in states such as Arunachal Pradesh to about 26% in Chandigarh
- 64% of engineering graduates and 80% of the graduates in general stream (BSc/BA/BCom) are perceived to be unemployable as they lack specific skills.
- Currently out of the total 455 million jobs in India 90% of jobs are skill- based

The private sector HEIs has steadily increased its presence to meet the demand of higher education particularly in the professional education space. Between 2002 and 2010, the share of enrollments in private HEIs has risen from about 33% to over 50% and accounts for almost 50% of the medical seats and 80% of the engineering seats available to students.

Resource Gap for Expanding Reach

- National Knowledge Commission projected a requirement of 1500 Universities to achieve 15% GER by 2015
- The Government is aiming to achieve a GER of 30% by 2020. Currently, the GDP spending on higher education is low at 0.7% against the requirement of 1.5%
- Self financing private institutions which are set up as Trusts or Societies depend on student fees to raise resources .
- The proportion of students availing scholarships is as low as 2% in comparison to 85% in UK, 77% in Australia and 50% in USA. In 2008-2009, merely INR 450 million was allocated with the objective of covering just 2% of the student population in the universities and colleges. Further,

the interest rate on Education loans is as high as 11.75% in India as compared to 3.37% in USA & UK, 7.50 % in Canada and 2.40% in Australia

- Distance/online education has not been leveraged to its full potential due to lack of appropriate policy and regulatory framework

Solution

- Encourage diversity in higher education by introducing differential financing and autonomy and decentralizing regulation
- Allow Section 25 companies to set up universities and colleges of all types all across the country, an alternative structure to Trusts and Societies, which supports better governance while preserving the not-for profit status of higher education.
- Encourage HEIs to identify and develop innovative sources of income such as monetizing IP (research patents, licenses), consulting, organizing public events, seminars etc by setting out model practices, incentivize faculty through revenue sharing and institutions through higher grants for better performances
- Expedite setting up **National Higher Education Finance Corporation (NHEFC)** in the XII th Plan to address the issue of over dependence of private institutions on student's fee for operation and expansion. The banking sector treats loans and advances to the higher education sector in the same manner as that for the trade, industry or commerce sectors. This constricts space for a large number of philanthropic organizations from sourcing funds from the banking sector to establish, run or operate higher educational institutions. There is, therefore, a need to devise an institutional mechanism that can nurture the philanthropic tradition of the past in the higher education sector and provide institutions a means to access comparatively low-cost funds.
- Develop supporting guidelines and norms to increase utilization of existing assets/land banks of HEIs
- Simplify the procedures for HEI to obtain approval to be eligible for donations which earn tax exemption for the donor
- Promote distance/online education that is comparable to the conventional higher education system in terms of quality of education and employability as it eliminates the need for heavy investments in infrastructure and are financially efficient. Expedite the process of reinstating

an independent Distance Education Council, which has been in limbo since May 2010 after the agreement between UGC, AICTE and IGNOU has ended.

Resource Gap for Improving Quality

- Multiplicity of regulators with overlapping roles and responsibilities create both entry as well as operational barriers leading to a skewed growth of poor quality of higher education institutions
- Absence of effective benchmarking system has led to limited transparency and poor quality control systems. As per official data of 2007-2008, NAAC has accredited only about 30% of the Universities and NBA has done 36% of Engineering and 10% of management institutions
- Shortage of adequately trained faculty is the biggest challenge to the growth of higher education. About 25% of Faculty positions in Universities remain vacant while 24% of faculty in universities and 57% in colleges are without PhD degrees.
- Poor level of people readiness to adopt technology to realize ICT's full potential

Solution

- Streamline the structure and process central to the regulation, administration and management of academic institutions in the impending Bills in the Parliament, namely, The National Accreditation Regulatory Authority for Higher Educational Institutions Bill 2010 (NARAHEI), The Educational Tribunals Bill 2010 and The Prohibition of Unfair Practices in Technical Educational Institutions, Medical Educational Institutions and Universities Bill 2010. These have been introduced ignoring the pendency of NCHER Bill which purports to replace and subsume UGC, AICTE, MCI, etc.

(FICCI recommendation to the Parliamentary Standing Committee on these Bills in June 2010 is enclosed as Annexure I).

- Retain accreditation as voluntary and peer centric, with market forces deciding the need for it. The process should have direct consequences like relaxation in approval processes for setting up new campuses, starting new programmes, direct empanelment in various government schemes, etc.

- Make it mandatory to set up an Internal Quality Assurance Cell (IQAC) within an institution to promote self-regulation mechanism in the system. It should comprise of a Chief Executive, senior academicians and officers of the institution working together as a steering group. Current regulatory framework should be changed to provide sufficient internal autonomy to universities and HEIs.
- Make it mandatory for all colleges and universities to furnish standard returns and at the same time should be published online through a common website with reward and penalty mechanism
- A ranking mechanism to rank different types of institutions on different parameters needs to be developed.
- Set up a national mission for faculty training and development and facilitate:
 - Promotion of teaching as a vocation
 - Provision of incentives to the eligible students to take up teaching (in both public and private institutions in India) by providing financial support for their PhD education and research in leading institutions/universities of the world
 - Provide grants/funds to Universities/organizations/ industry associations focusing on faculty development programmes.
- Incentivise development of good quality digital content by reputed institutions while also implementing a strong system of quality control and peer/student evaluation of the same. A dedicated cell should be established to support translation of the same to local languages.
- Introduce specific programmes for sectors like Renewable Energy, Environment Mitigation Technologies, Retail, etc. in institutions of higher education in collaboration with industry players to meet the skill requirement. This will address the relevance and quality issue.

3. Facilitating Private Investment, including PPP in Higher Education

Need gap

- Higher education institutions (HEIs) in India can accommodate only 7-8% of the country's college-age students.
- India has a gross enrolment ratio (GER) of 12.4 % in higher education as compared to about 60% in the US and Canada, and around 21% (average) in the BRIC countries.
- The Indian higher education system also suffers from imbalanced reach of education institutions across the country. The rural areas of the country, which represent about 65% of the total population, have just 20% of the total professional colleges. Moreover, there is an unequal distribution of HEIs across the Indian states. Approximately 58% of all HEIs are located in six states, which are among the most populated states in the country. This further affects the GER which ranges from 4% in states such as Arunachal Pradesh to about 26% in Chandigarh.

Resource gap

- While public expenditure on education has increased, the percentage share of GDP spent on higher education has come down from 0.77% in 1991 to 0.7% in 2010.
- Eleventh Five Year Plan had increased the budget allocation for higher education by 9 times to INR 850 billion to expand educational facilities. Considering, Planning Commission had identified a resource gap of INR 2.2 trillion for government's expansion plans, it seems unlikely that the Government alone will be able to meet the fund requirements for the higher education growth in Twelfth Plan.
- The Government is aiming to achieve a GER of 30% by 2020. As per FICCI-Ernst &Young report 2010, the higher education spend is going to increase to INR 155,015 Cr and requires an investment of INR 360,640 crores (\$ 76 bn) by 2020 to create the additional capacity. The amount accounts for around 1.9 % of the current GDP based on Purchasing Power Parity (The current GDP valuation at PPP of India as per IMF report 2010 is \$ 4000 billion).
- Although government plans to augment the public funding for education by 30-40%, the key challenge is to attract private & foreign investments into the sector to achieve the target without compromising on quality and relevance.

Between 2002 and 2007, the share of enrollments in private HEIs has risen from about 33% to over 50%. These private self-financing HEIs prefer to offer education in disciplines like medical, engineering and management, and account for almost 50% of the medical seats and 80% of the engineering seats available to students.

Solutions

For India to meet its GER target as well as to increase the quality of higher education institutes, a quantum increase in funding is required. Attracting investments from high quality private players is an imperative and the Government needs to facilitate such investments through a multi-pronged strategy.

- Permit all Higher Education Institutions/Universities to be established under section 25 of the Companies Act, which supports better governance while preserving the not-for-profit status of higher education.
(MHRD, Govt has taken a step forward towards it by liberalising the professional education system by allowing Corporates under Sections 25 of Companies Act, to set up AICTE approved Programmes in Engineering and Management.)
- Provide 200% weighted tax deductions to all donations made to all recognized universities and not restrict it to only for research funding. Simplify the procedures for HEI to obtain approval to be eligible for donations which earn tax exemption for the donor.
- PPP is a potential mechanism to attract private sector financing
 - Introduce robust institutional arrangement for PPP in higher education
 - Coordination with States to identify a robust pipeline of projects
 - Partner with players with prior experience in developing successful PPP models
 - Facilitate the acquisition of land and other necessary infrastructure for speedy implementation
 - Ensure no dilution in the quality of education delivered by such educational institutions by mandating appropriate accreditation standards
 - Encourage Public- Private partnerships to enhance the higher education infrastructure
 - Revise regulatory framework to accommodate such partnerships

L. BETTER PREVENTIVE AND CURATIVE HEALTH CARE

Healthcare has emerged as one of the largest service sector of the economy and is expected to reach Rs. 3.5 Lakh crore in size by 2012. The public sector spend in healthcare however, is less than 20% of the total expenditure, which ranks India 171 out of 175 countries in the World! In 2009, India spent only 5.2% of the GDP on healthcare with more than 80% (4.3% of GDP) coming from the private sector alone valued at around Rs.1Lakh crore .

However, the health indicators of the country look abysmal compared to global averages and even when compared to developing countries like China and Brazil (*Exhibit 1*) in spite of the fact that it suffers from disease burden (in terms of DALY) which is around 37% higher when compared to Brazil and 86% higher when compared to China. It is therefore imperative that utmost attention is devoted to the health of the population considering the impact of a healthy population on the growth of the country and the overall

	India	China	Brazil	Global
Beds Per 1000 Population	0.9	3.0	2.4	2.7
Avg. No. of Doctors per 1000 population	0.6	1.4	1.7	1.4
Avg. No. of Nurses per 1000 population	1.3	1.0	2.9	2.8
Per Capita Govt. Exp on Health at Avg Exchange Rate (US\$)	11.0	49.0	252.0	478.0
Per Capita Govt. Exp on Health (PPP Intl. \$)	29.0	104.0	348.0	493.0

Source: WHO Report 2010

Exhibit 1

objective of a welfare state.

CURATIVE CARE:

A. Medical Education

Need Gap:

The hurdles facing the health sector in terms of Education and human resources across the health domain are twofold- one the sheer gap between the current demand and supply of doctors & nurses and second the negligible availability of professionals in evolving health areas like management of facilities, IT, Health insurance etc.

- India will need 7 lakh additional doctors by the year 2025 while the net addition presently is only 17000 per year. There is a great gap between number of Doctors and Nurses per 1000 population compared to developed and even developing countries. (*Exhibit 2*) The challenge is therefore to

rapidly build a vast quality health professional workforce and corresponding health infrastructure to absorb them to salvage the situation.

	India	China	Brazil	Singapore	UAE	USA	UK
Healthcare Workforce							
Avg. No. of Doctors per 1000 Population	0.6	1.4	1.7	1.5	1.5	2.7	2.1
Avg. No. of Nurses per 1000 Population	1.3	1	2.9	4.4	4.6	9.8	0.6

Source: WHO Report 2010

Solutions:

- **Increase pool of Doctors:**
 - Allow relaxation of built up area for medical colleges to quickly ramp up facilities, simultaneous focus on building health infrastructure in tier-II and tier-III cities to add to the required pool of healthcare professional.
 - Provide an easy path for WELL QUALIFIED foreign doctors to come into India and practice to bridge manpower shortage
- **Streamlining Nurse/Paramedic Education:**
 - Review and standardization of Nurse Job profile and training needed to reduce attrition and enhance service quality.
 - Streamline the procedures and regulatory framework for quality training of para medical staff
 - Introduce newer professionals i.e. Nurse practitioners and Physician assistants by augmenting training procedures.
- **Periodic review** and updating of medical education curriculum.
- **Address faculty shortage:** Private practicing doctors with relevant experience and expertise should be allowed to teach in medical colleges to address faculty shortage.
- **Reducing burden on students:** A common entrance test should be conducted for all admissions removing duplicity and confusion
- Healthcare delivery today does not revolve around doctors/nurses alone. Emerging areas of healthcare education like healthcare management, Health IT, Insurance Management and medical equipment manufacturing need greater focus.

- With the exponential increase in mobile telephony and the deployment of 3G, it is imperative that broad band wireless technology be exploited and used to develop mHealth. Virtual skills laboratories where a large number of medical and surgical procedures are simulated on virtual patients are now a reality in advanced countries. India needs to have such learning centres. To achieve all this, IT should be a part of the medical curriculum
- To address the skill gaps and ensure employability of grade 10, 10+2 and graduate level students for bio-medical and non-biomedical jobs in healthcare, there is a need to develop new courses/training programs addressed keeping in mind the specific needs of the industry.

Note: FICCI has created a Task Force to develop such programs and pilot test it in the member hospitals within a year.

Since, a broad agreement has been reached to develop a mechanism to link the two proposed regulatory bodies - National Commission for Human Resources in Health and the National Commission for Higher Education and Research, the process of formulating both the bodies through Parliamentary ratification needs to be expedited to address long overdue reforms in Healthcare Education.

B. Indigenous medicine: AYUSH

Need-Gap:

With large chunk of the population dependent on traditional medicine of some kind and short supply of conventional health professionals it is imperative to look at **AYUSH therapies** to complement the allopathic system of medicine. Their value in complementing health care requirements needs further assessment.

Solutions:

Ayush medicine and therapies need to be looked at as complementary to allopathic medicine and greater focus on R&D induced growth in the sector should be promoted through sufficient fund allocation. The following should be considered actively:

- **Development of standards** after scientific validation of techniques and therapies.
- **Setting up of guidelines for AYUSH products** on the lines of allopath medicines like manufacturing, licensing and plantation practices.
- Finding ways to **cover AYUSH treatment under health insurance** to achieve critical mass of business for organizations involved.
- **Effective dissemination of information** on various issues in the policy domain of AYUSH to enhance stakeholder interest.
- Pro-active role and support of the Government in protecting and gaining IPR over traditional medicine and herbs.
- Though WHO statistics do not capture AYUSH practitioners, it is estimated that their number is equivalent to Allopathic doctors; therefore it would be useful to plan strategies to utilize this critical health workforce in a big way at the PHC and CHC level, the process of which has already started.
- Effective conservation of medicinal plants

C. Medical Equipment & Diagnostics:

Need Gap:

This segment of the industry needs to be regulated either within an over-arching Health regulator or a separate body. Further a system of quality validation needs to be developed including the aspects of safety, innovation and effectiveness to ensure industry acceptance.

Medical Technology constitutes almost 40% of the overall treatment cost; development of low cost, high quality, India relevant medical devices is of utmost importance. Replicating the western model will be unsustainable in the Indian conditions and therefore an India centric model has to be adopted.

Medical Devices

- There is huge requirement of quality devices / equipment with India specific features. The existing system based on imports would be ineffective to address affordability and accessibility issues for the Indian population.
- There is a need for devices adhering to global standards that are rugged, portable and energy efficient for healthcare institutions like PHCs and CHCs.

- Capabilities shortages in key areas: For example, while India shoulder's the most burden of the world's cervical cancer deaths, there is a clear under-capacity of Cytotechs (who typically read slides and diagnose cervical cancer)

Diagnostics: The relevance of diagnostic testing continues to increase as more and more healthcare decisions are being made based on the insights generated from test results and increasing trend towards lifestyle diseases. In fact the share of diagnostics cost as a percentage of in-patient and out-patient care has increased by 143% and 300%, respectively, over 10 years from 1993-94 to 2003-04. In developed countries like the USA, 70% of healthcare decisions are based on diagnostic testing. However, India's diagnostic testing capacity, capabilities, and quality/ consistency are not aligned with its growing healthcare needs. These problems are more pronounced within the public healthcare delivery system.

- Mandatory registration of all diagnostic centers, dental clinics etc applicable for all systems of medicine.
- Diagnose and predict diseases remotely through the use of technology.
- Lab capacity to meet today's and tomorrow's healthcare needs (i.e., operate high throughput facilities and increase access) and achieve operational efficiencies
- Poor availability diagnostic facilities mainly in the tier 2 and 3 towns.

Solutions:

Medical Devices

To get to a workable **Indiavate** (India+Innovate) model, the following has to be addressed urgently:

- **Effective Regulation:** the medical technology & diagnostics industry needs to be regulated either within an over-arching Health regulator or a separate body.
- **Incentivisation of indigenous manufacturers:** Significant fiscal and non fiscal incentives by the Government are needed to be provided for indigenous manufacturing of medical technologies. Income Tax waiver for up to 250% of the value investment for Research & Development and innovation of Medical Instruments, Diagnostics Instruments, Consumables, Devices, etc should be considered.

- **Validation of quality and customization:** a system of quality validation needs to be developed including the aspects of safety, innovation and effectiveness to ensure industry acceptance for domestic manufacturers.
- Encourage transfer of technology from abroad and promote domestic establishments of world class medical devices companies.
- The proposed GST regime that is to be implemented in India should be cognizant of the cost sensitivities of the Healthcare Industry. As in the case of the possible cost escalation for Healthcare suppliers on account of increased tax cost for equipment procurement, GST must be mindful of cost escalations for Healthcare services. The possibility of zero-rating such services must be examined.

Note: A detailed note referring the concerns of the Healthcare industry on the new GST regime has been submitted to the Finance Ministry for consideration during Budget 2011

Diagnostics

- All clinical establishments including diagnostic centres, dental clinics etc should be mandatorily registered with provision for periodic audit for all systems of medicine, both in the private and the public domain.
- Accreditation of diagnostic labs through NABL should be given a push through consumer awareness.
- Promote and encourage PPP programs, Mobile diagnostic services to increase diagnostic facilities in the underserved areas.
- Promote hub & spoke arrangements linking hospitals in major cities with smaller ones in districts through remote diagnosis tools like tele-radiology, telemedicine, telepathology.

PREVENTIVE HEALTH CARE

Need Gap:

Preventive healthcare should form the backbone of the public healthcare delivery system because it requires significant investment which benefits society in the long run, typically making it economically unattractive for the private enterprise.

Resource Gap:

The quality of health delivery in most public health facilities, particularly in the interiors needs to be upgraded on a priority basis. According to FICCI- E&Y Report 2008, investments to the tune of Rs. 10200 Crores have to be incurred going by an investment of Rs. 2.8 Lakh/bed for around 6066 public health facilities assuming 60 beds per facility. Implementation of mandatory accreditation of all District hospitals/CHCs/PHCs will raise the quality of healthcare and must be adopted on a priority basis.

Solutions:

- Provision of good living conditions includes **provision of water, sanitation, nutrition, basic education and road connectivity**. Absence of hygienic living conditions and clean drinking water results in communities to continue suffering from communicable diseases. Most of the spending on preventive health may not yield desirable results until complimentary investment is made to improve the living conditions. This would require coordinated planning among different government entities on various improvement programs for effective health outcome.
- Some innovative mechanism to bring rural population into preventive health check up net could be:
 - Assessing the feasibility of linking the poverty alleviation programmes such as MNREGA to beneficiary's participation in other social schemes, like compulsory enrolment of children in schools and regular health checkups of the family at specified government hospitals and clinics.
- Promoting healthy lifestyles: India's disease mix is likely to change with burden from the non-communicable diseases likely to double by the year 2020. This would increase the stress on the healthcare system capacity and also potentially have an adverse impact on healthcare costs due to high cost of treatment. This would require government intervention for building awareness and for promoting behavioral changes.
- For improving rural health services, government needs to scale up use of ICT by development, testing, and installation of a new ICT-supported consultative, referral, and epidemiological surveillance system that will interconnect hospitals and health departments with remote and isolated rural health centres.

- Government needs to incentivize health checks through insurance and create clinical prevention departments in public hospitals. In this context, service tax on health check-ups where payments are made by employer/business entity should be omitted immediately.

The national Health Bill 2009, proposed by the Ministry of Health and Family Welfare, Government of India to adopt and implement national strategies and plan of actions for ensuring access to underlying determinants of health needs to be expedited.

Note: FICCI has submitted its proposed amendments to the Bill in 2010 to the Ministry of Health & Family Welfare, Government of India.

Quality and Safety in Healthcare

The Accreditation movement in Health needs to be given a big fillip. Scope and powers of accreditation bodies like the NABH, NABL pertaining to quality standards under the ambit of QCI which regulates and monitors voluntary accreditation needs to be increased. The ultimate aim must be to upgrade all sub district hospitals and above to mandatory accreditation standards in the long run.

- Simultaneously, a market driven approach to promote accreditation by creating consumer awareness about accreditation and what it would imply for them should be promoted for the private sector players.
- A common approach for promoting and measuring of quality in healthcare services in the country is needed. To bring in all categories of hospitals under the ambit of quality framework, a transparent staging process along with incentive measures through health insurance needs to be introduced.

MAKING MARKETS ACCESSIBLE AND INSTRUMENTS OF INCLUSION

Rashtriya Swasthya Bima Yojana & other Health Insurance Products

Need Gap:

Around 70% of India's healthcare expenditure is financed out-of-pocket and the health insurance market is grossly under penetrated with just 15% of the population under any sort of health cover. The high cost of inpatient treatment, in the context of low insurance penetration and high out of pocket expenditure, places an undue burden on individuals and specifically on vulnerable sections of society- those below the poverty line and the aged population. Therefore, until the issue of affordability is addressed, quality healthcare to the masses would remain a pipe dream.

Resource Gap:

With rising healthcare costs, the best way to finance health expenditure is through an automatic payment mechanism of Health Insurance. In this context, the long term vision to make quality healthcare affordable should be to increase the health insurance penetration to at least 50% of population by the year 2020 and 80% by the year 2030. The key therefore is to gain an insight into the healthcare needs of the uninsured, develop differential products aligned to those needs, build robust financing models with cost-effective delivery platforms in addition to encouraging greater awareness among masses about the need for health insurance.

Solutions:

- To enable affordability of quality Health delivery to the masses, health insurance should reach the bottom of the pyramid. **RSBY** is a great initiative for the BPL population which has now been expanded to the NREGA scheme; however, steps need to be taken to further strengthen the scope of the scheme. The issues in RSBY are more implementation related. Stricter norms are needed for empanelment of hospitals and outcome based monitoring of the scheme is imperative to make it a long term success story in the absence of which it will be beneficial only to inferior quality hospitals looking to make quick bucks.
- **Mandatory group health insurance** for organized sector employers will give a much needed impetus to the industry on the lines of motor insurance.
- **Financial product innovations** like **Health savings account** where withdrawals can be limited to meet defined or catastrophic healthcare expenses only operating like a public provident fund.



Constant collaboration between Health with financial sector to create savings and loan products encompassing health cover needs to be facilitated.

- Insurance companies and the regulator have to look into **alternate delivery models** to enhance coverage and greater focus on consumer awareness and feedback is needed to have an informed consumer base.