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PROJECTION OF CONSTRUCTION RESOURCES

THEME PAPER

INDIA

PREPARED BY

Construction Industry Development Council

(A body established by the Planning Commission (Now Niti Aayog) Govt. of India &
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EXECUTIVE SUMMARY

This theme note presents the overview of the Indian Construction Industry pertaining to the key to the Projection of Construction Resource.

The development of physical infrastructure in the India and, consequently, the construction sector has been in focus during the last two decades. The increasing significance of construction activities in the growth of the economy was also evident during the course of implementation of the Tenth Plan with areas such as transportation, irrigation, housing, urban development, and civil aviation having received greater importance.

It is well established that the influence of the construction industry spans across several sub-sectors of the economy as well as the infrastructure development, such as industrial and mining infrastructure, highways, roads, ports, railways, airports, power systems, irrigation and agriculture systems, telecommunication systems, hospitals, schools, townships, offices, houses and other buildings; urban infrastructure, including water supply, sewerage, and drainage, and rural infrastructure. Thus, it becomes the basic input for socio-economic development.

CIDC with its unflinching efforts has successfully facilitated the process to accord Industry Status for Construction in India. CIDC's other major contributions and initiatives are:

- Advise the government on policy formulation related to construction industry
- Facilitate Standardization of construction contracts and procedures
- Interact with international organizations to upgrade technology
- Capacity building to create a vast pool of trained manpower at skilled worker, and construction management level
- Devise mechanisms for workers welfare
- Create an environment which ensures equality of opportunity for all Indian contractors
- Help evolve policies for financing
- Help the industry move from the current state of rule bound, lowest -price-based contracting to a more quality -conscious, time-bound, technology-driven improvement for all activities involved in construction.

POLICY / PLANNING

- Participation as Member in the Working Group on Irrigation formed by the Planning Commission of India and Chairing the Sub-Group on Capacity Building
- Member Task Force for Developing Model Contract Documents for Hydro Power Projects in India
- Steering & Chairing the Working Group for Suggesting Recommendations for Procurement and Contracting Under JNNURM
- Steering the working group Constituted by the Planning Commission of India to draft the chapter on construction for the Planning Commission to be included in the 11th Five Year Plan (2007-12). We have successfully completed the same activity for the 10th Five Year Plan (2002-07).
- Inclusion of a pre-qualification condition in NHAI's tender document to employ minimum 5% of trained and certified workers.
- Introduction of training cess of 0.25% of the contract value by Govt. of A. P.
- Income tax rebate under section 35 AC for the CIDC recognized training establishments, max. up to INR 4.5 million for assessment years 2004-07.

In the context of development of the Chapter on Construction in the 12th Plan document, the Planning Commission constituted a Steering Committee vide their order dated 4th August, 2011. Dr. Arun Maira, Hon'ble Member (Industry), Planning Commission was nominated as the Chairman of the Steering Committee, which comprised of Senior representatives of various

Ministries of Government of India, Public Sector Undertakings, Construction Companies, Industry Associations and, Individual Experts from Construction Industry. The Steering Committee was convened by Dr. P R Swarup, Director General, Construction Industry Development Council, supported by several Senior Experts drawn from Construction, Legal, Technical & other sub-sectors. Dr. Manoj Singh, Advisor (Tpt), provided integral support by organizing the meetings of the steering committee, articulating and explaining the approach & also moderating the deliberations.

The introduction of Chapter on Construction in the National Plan was done in the 10th Plan (2002-2007), and recognizing the importance of construction, as a major economic entity, it was decided to amplify the deliberations during the 11th Plan as well. The 12th Plan document further amplifies the actions to be taken & also recommends actionable points. It is also envisages that, post plan document finalization a Steering Committee shall be constituted to oversee the implementation of the recommended actions made by the plan document drafting Steering Committee. The proposed terms of reference, have also been detailed in the subsequent chapters.

India has been experiencing unprecedented economic growth. During the 10th & 11th Plan periods, substantial contribution to the National Economy has come from the Construction Sector, however with the slowing down of global economies, even the Indian economy is facing certain challenges. Maintaining the pace of growth experienced during last one decade, probably is a major issue, and this amplifies the need of bringing in further reforms and streamlining the functioning of construction industry.

Whereas, some of the policy statements recommended in the Chapters of Constructions in 10th & 11th Plan have been initiated for implementation, much needs to be done. The government has put in place policies, which have generated over **8 % growth** on an average for the past few years. The plans are on anvil to achieve **9-10 % annual growth rate in the next 5 years**. This would be the basis for generating the resources needed for the massive investments to be made in development of Physical Infrastructure & also the policy frame work to be modified, developed & adopted.

The 12th Plan envisages a growth rate of over 8% per annum, and would need infusion of substantial capital, estimated at over Rs.50.0 lakh crores to build India's physical Infrastructure. The development of physical infrastructure, through such massive investments would need commensurate growth in delivery potentials of Construction Industry which in turn necessitates evolution of reformed practices & establishment of Institutions.

It is note worthy to mention that the present capacity of asset building of the Indian Construction Industry is estimated at Rs.4.15 lakh crores per annum. In order to accomplish the task in hand (to build assets valuing Rs.50 Lakh Crores), the sector has to double the capacity. The human as well as the material inputs need substantial stepping up & therefore the plans & policies too, would need rank upgradation & modifications.

Impediments therefore need to be removed and necessary facilitation need to be taken. The objectives and the approach of this Steering Committee are given below:

I. OBJECTIVES

1. To study & analyze the Indian Construction Industry, keeping in view the focus on creation of a world class infrastructure and rebuilding rural India through schemes such as Bharat Nirman & Schemes under MNREGA. To make an assessment of qualitative and quantitative capabilities of the Indian Construction Industry in the background of category-wise

- projections for construction and allied supporting activities in the 12th Plan with a view to evolve strategies for overcoming deficiencies and bottlenecks and achieve time bound targets, by suggesting measures for better coordination among the stakeholders..
2. To review the regulatory framework governing the sector including fiscal & other regulations and suggest any changes required to make the sector more efficient & productive.
 3. To review the present procedures of Government procurement including dispute resolution mechanisms for construction work and evolve measures for improvement, especially in view of increase in privatization in the infrastructure sector.
 4. To review the present system for execution, supervision of progress and quality, release of funds, certification, billing and payment for work and suggest remedial measures for minimizing time and cost over-runs in projects undertaken by or on behalf of Government.
 5. To review the State of present financing models for construction work; institutional financing from Banks/ Financial Institutions and their lending norms, and recommend measures to enable access to finance at globally competitive rates.
 6. To focus on R&D activities in the construction sector and suggest measures for greater use of modern technologies and equipment and speedy adaptation of new methods..
 7. To evaluate role of Construction Sector in generating employment, keeping in view the qualitative & quantitative changes which have occurred in the recent past and to suggest measures for qualitative upgradation and more remunerative employment in the construction industry.
 8. To assess the demand of manpower, category-wise and suggest remedial measures, including skill development, to face shortages, and suggest improvements in the functioning of National Skill Development Mission.
 9. To review the quality and safety aspects in construction and to suggest necessary measures, and to recommend measures for evolving a Techno-legal regime.
 10. To review the status of asset management and evolve strategies for implementation at local/State/Central Government level.
 11. To study the impact of this industry on environment and suggest measures to make it more environmental friendly and sustainable; to also review the present regulatory framework for environmental clearance with a view to making it more business friendly.
 12. To review the status of data base in the construction sector and to suggest ways and means to upgrade, augment and effectively maintain the same on institutional basis.
 13. To study the best practices adopted worldwide and draw lessons for the Indian Construction Industry.
 14. To suggest a policy framework for the increasing productivity and reducing construction costs, in order to ensure the healthy development of the construction sector after examining/ reviewing of the above mentioned areas and the existing regulating framework .
 15. To recommend the measures for self-regulation for the constituents of the Construction Industry.
 16. To evolve suitable mechanisms to ensure implementation of the recommendations of this Group during the twelfth plan period.
 17. To examine any other matter considered important by the Steering Committee.

II Overall Vision

With the slated investment of over US \$ 1 Trillion or Rs.63910 billion (INR) to build the Physical Infrastructure in the Nation, thereby raising the quality of life of citizens, giving a boost to the National Economy, & generating employment, the construction sector would play a major role during the 12th Plan.

Effective management of the sector & mitigation of the bottlenecks & impediments, both in the regulatory systems and also in the working dynamics of the sector shall be essential to achieve the targets.

This would involve Institution building, systemic improvements to be instilled & creating a holistic approach to bring in required reforms to convert the rule bound & rigid structure administering the sector, to a more meaningful, vibrant & efficiently run entity.

The reforms to be brought in need to be sustainable & must spring from within as well.

Since the sector covers a wide variety of economic activities including construction of houses & buildings, Transport structures, energy systems, Petrochemicals, Industry & several more, the issues affecting the performance to this sector are both generic, and specific to the respective sub sectors.

With an average annual value of asset creation being Rs.415,000 Crores and an employment of over 41 Million citizens the sector has many complexities, needing resolution & therefore the approach to meet the planned growth should be to handle the generic issues, which need to be looked into very urgently.

It is noteworthy to mention, that with the present capacity, as defined above the targets laid down may fall short by 45%. It is therefore necessary to critically examine following areas & do the stock taking.

- **Human Resource Development**

The key to the sustainable & robust growth of any sector in the National Economy is the Human Resource. With over 41 Million citizens under direct employment of construction entities, the sector has the distinction of being the second largest employer.

A miniscule proportion (5.65%) of this strength has the benefit of structured training & education, keeping the activity under low value/ low productivity tag.

The thrust, therefore needs to be given on creation of Institutions & Institutional frame work along with provision of Institutional resources to meet the requirements of HRD.

Training, Skill up gradation, & certification of skills need to be taken up vigorously, where the Government & Industry have to join hands. The resources to meet the monetary requirements could be channeled through welfare cess & PF deposits as well as from the training funds earmarked under various state & centrally sponsored schemes.

While developing the Institutions & creating infrastructure for the Human Resource Development, some novel actions could be taken, such as

a) Declaring Construction sites as places of learning.

b) Introducing mandatory internship for engineers, post or during their education.

Mere provision of financial resources may not attain the purpose if the training infrastructure is lacking, & therefore training programmes to groom the trainers & Institutional provisions need to be placed in position.

Even a fresh crop of contractor would need formal training to meet the demands.

- **Regulatory Frame Work**

The regulatory framework governing the construction sector definitely needs toning up in the 12th Plan period.

Enacting a unified set of provisions leading to enactment of a construction law would be a major necessity.

Another important aspect is to harmonize the central & state level legislations to create an improved & hassle free operating climate for construction entities.

With the size & diversity of operations in the sector, a fair amount of self regulation would also be needed to be practiced. Systemic structure, therefore would be evolve to enable the Industry to exercise self regulation, in several areas.

The 12th Plan shall recommend such measures and also the formation and empowerment of Institutions to facilitate ingress of this measure.

- **Procurement Practices**

For effective & transparent performance of the service providers, the toning up of the Procurement Systems, prevalent in the Nation, shall be another thrust area in the 12th Plan.

Following steps would be taken.

- Adoption & periodic up gradation of standard contracting conditions.
- Adoption & periodic up gradation of works manuals

The focus shall be on introducing the harmonized, equitable & transparent provisions to arrest & eliminate the time & cost over runs in the project execution.

- **Dispute Resolution**

Another irritant in effective project & contract execution is the delayed & amorphous dispute resolution systems being practiced.

With over Rs. 135,000 Crores investments held up in the contractual disputes & an overage period of resolution being 15 years, the dispute resolution mechanism in the country are a major contributor to the time & cost overruns of the project & a retarder to the progress.

The focus of the 12th Plan would be to insure implementation of following.

- i. Institutional mode of Dispute Resolution in place of Ad-hoc mode.
- ii. Implementation of the Indian Arbitration & conciliation Act 1996.

During the 12th Plan another vital action would be to educate the stake holders in these aspects.

- **Quality & Standards**

Construction being a capital intensive venture, the stress on quality of the built products would be another prime objective of the 12th Plan.

Construction Methodologies, products, and the eventual delivery would be benchmarked to become comparable to the International Standards. Another important area of action during the 12th Plan shall be to empower the standard Institutions.

To accomplish the task, Institutions shall be established & existing Institutions would be empowered and their functioning be harmonized.

- **Environment**

Construction activities are known to be the biggest energy consumers & have a profound impact on the environment.

Starting from mining of natural resources to building the end product, substantial pollution is created. The thrust of the 12th Plan would also be on

- Adhering to the Environmental Protection laws by construction Industry in a manner that the progress is not retarded.
- Making “Green Construction” a major thrust area.

- **Research & Development**

Ingress & Introduction of new & smart technologies to reduce the costs & time for execution of the Projects, shall be another thrust area during the 12th Plan.

Presently little investment is made in primary R&D initiatives, specially when compared with the volume of work done annually.

During the 12th Plan period the thrust areas shall be.

- i. Focus of Innovations.
- ii. Strengthening the R&D Institutions & facilitating establishment of new Institutes.
- iii. Incentivizing the R&D & Innovating initiatives.

- **Mechanization of Work Practices.**

The functioning of construction sector is primarily manual leading to low value addition, poor quality of products, and also longer time for completion.

Mechanization of operations, though gaining popularity, yet needs larger thrust. This would be another area of attention during the 12th Plan period.

Plan period would see

- Establishment of Equipment Banks.
- Better fiscal concessions for manufacturers of construction equipment, thereby reducing costs.
- Availability of trained operating & maintenance personnel.

- **Project Exports**

Construction Industry in India is generally an in bound Industry, with a very small contribution to the National Economy through Project exports.

At present only 1.85% of the total output comes from projects & need substantial rise.

During the 12th Plan period, Project export shall be another thrust area & following actions be taken.

- Generating more business for Indian construction companies through G to G interactions & bilateral treaties.
- Provision of better fiscal incentives to the project exporters both for business development & execution initiatives.

- **Institutional Financing**

Institutional Financing is the key to smooth & efficient implementation of construction projects & following shall be the thrust initiatives during the 12th Plan.

- Raising the share of Institutional lending from 1.5% to at least 5% and more to improve the liquidity of service Providers.
- Encouraging Institutions to resort to innovative products to meet the equity & debt provisions for PPP projects.
- Creating & adopting Insurance & non Insurance risk assessment & mitigation products
- Provision of working capitals for start up ventures & entrepreneurs in construction Industry.
- Establishing a nodal construction Development Bank to meet all such needs.

Establishing Institutions, nodal bodies, & facilitating Interaction among all stake holders.

Construction activities are undertaken by several Ministers, PSUs & also the developers from the corporate sector.

The most important action, to be taken during the 12th Plan period, shall be to ensure a seamless coordination among all the Project execution & Project owning agencies.

Needless to mention empowered commissions, regulators and such Organs would be established to ensure implementation of the Plans thus laid down.

III RECOMMENDATIONS

The development of recommendations took in cognizance the issues listed above, needing address and encompassed existing impediments/limitations and relevant mitigation measures, having recognized that, the Construction Industry has a great contribution potential to the overall National Economy, having displayed consistent growth trend of around 8% during last plan period. These include the macro recommendations, which require policy intervention at Central and State Governments level, action by stakeholders, and certain implementation models at gross root level, which may be elicited as examples for detailing a blue print for action.

- i) Review of present procedures of procurement of projects & services including dispute resolution mechanisms, and quality issues and evolve measures for improvement, particularly in view of the increasing privatization in infrastructure sector. The Steering Committee recommends following:-
- a. The Contract Conditions being used by various Project Authorities in the Country, **whether in Public or Private Sector**, should be harmonized. The recommendations issued by the **Ministry of Statistics and Programme Implementation in this regard, must be implemented fully** by all Project Owners in the Country. This would require Government's intervention to convert guidelines of MOSPI into specific directions for all Public Agencies/ Undertakings/Organizations. The recommended guidelines on contract conditions & also the model works manual are hosted on the web site www.cidc.in.
 - b. For the Public Private Partnership models, the Model Concession Agreement developed by the Planning Commission for the Road & Highway Sector, could be used as a base model and modifications could be made to cater to other sub-sectors, as well.
 - c. Necessary provisions in the procurement system, be made to ensure that standard quality certification (third party) systems are adhered to. Some system giving incentives for timely completion and good performance by concerned construction agencies be suitably introduced. A system may also be developed and promoted to facilitate small and medium construction companies to share services and available plants and machinery at equipment banks. In fact similar systems have already been introduced in several highway construction projects of Maharashtra State Road Development Corporation.
 - d. The emphasis must be laid on Institutional Arbitration system, instead of Ad-hoc system, as is being followed presently. The arbitration should be in line with Indian Arbitration and Conciliation Act 1996.
 - e. To minimize "disputes" leading to time and cost overruns proper project planning process should be encouraged and DPRs may be completed before technical sanction.
 - f. Suitable institutional modifications be introduced for risk mitigations. New insurance products should be developed.
- ii) A National Plan for **training and certification of Construction personnel** at all levels should be developed and implemented.
- The plan should include initiating a system of 'Graded Certification' depending upon levels of proficiency achieved. To meet shortage of available trained manpower in certain urgently needed trades short terms courses may be introduced where ITI courses are of long duration.
- It is further recommended that some kind of Permanent Identification number be granted to the workers, and a nationwide scheme of granting e-cards be launched for effective availability of the benefits.
- The construction sites could be designated as the learning centers & introduction of mandatory Internship for the students of engineering programs both at Diploma and Degree level be made.
- iii) Well defined and harmonized institutional financing systems be evolved to build the capacity of Construction Industry.

- iv) A comprehensive Draft Construction Law should be developed and the Construction Law for India be enacted through wider consultations.
- v) Present system of asset management should be reviewed at local/ state/ central government levels and strengthened. A policy frame workensuring mandatory provision for maintenance of assets supported by adequate budgetary allocations and trained manpower be set-up.
- vi) A National strategy and policy framework focused particularly on productivity enhancement and cost reduction be developed to match with envisaged work load and delivery targets of various sectors and for sustainable development and growth of construction industry.

Induction of new technologies, construction systems and energy efficient materials (preferably based on waste recycling) should be adequately emphasized in the development of national strategy for enhancing productivity and efficiency and reducing cost of construction works. For rural roads sector, there appears to be strong need for developing and introducing use of “marginal materials” to enhance cost effectiveness of works.

It is therefore proposed, that a National Construction Research & Development fund be created & an authority be constituted under the auspices of a nodal ministry to administer this provision. As an initial seed support a sum of Rs. 100 crores be allocated to pursue these objectives

- vii) An appropriate Management Information System should be developed and implemented at National, Provincial and Local levels for construction industry. An Institution be nominated as the repository of National Data Base for Construction Industry.
- viii) Systems & Institutions should be developed for expansion of network for project export and attracting more foreign investment. Interactions with Indian Missions abroad, should be intensified, through evolution of an Institutional mechanism.
- ix) A mechanism for registration of professional engineers need to be established for which a nodal agency need to be identified. Intake in academic institutions be regulated to mitigate declining trend in the availability of civil engineers
- x) Taxation & Regulatory Systems should be revamped. Sectoral classification and definition of Construction Industry should be established, as for taxation purposes construction “is treated as “Industry” as well as “Service” The Steering Committee recommends that construction be treated as Industry and the existing definitional anomalies, where for certain sub-sectors of construction sector, service taxes have been introduced, be removed.
- xi) **Institutional Arrangements be made to identify, prevent and mitigate the effects of Natural Disasters.** New programs should be taken as per guidelines and programs announced by National Disaster Management Authority. The Steering Committee recommends that following actions should be taken up on priority.
 - g. To develop the Human Resources in Disaster Mitigation and disaster resistant construction technologies and
 - h. Retrofitting Clinics and Disaster Identification Centres be set up in all major settlements and districts falling in disaster prone regions
- xii) An Institutional mechanism need to be developed for continuous evaluation of various economic parameters such as Construction Cost Indices and impact of policies of other sectors having impact on cost of construction works.

- xiii) A National Plan need to be developed for upgrading the prowesses of Engineering Consultants and advisors, and should be implemented.
- xiv) Adherence of standards should be ensured through relevant regulatory provisions.
- xv) A national plan to be evolved and implemented for entrepreneur development in Construction Industry for raising the capability levels.
- xvi) A conceptual plan to identify a nodal organization to implement and monitor above should be formalized and implemented upon.
- xvii) A national plan for insuring adherence to the Environment Protection Act (2006) be developed and Energy Efficiency issues be addressed in conformity to the Energy Conservation Act of 2001.

Conclusion :

It is not worthy to mention, that the present day Government having recognized the need to develop and improve the overall physical infrastructure, is actively taking appropriate measures to improve the functioning of Construction Industry. Growth and development of the physical infrastructure is directly related to the growth of the development of National Economy. Construction is inherent to infrastructure development, and the objectives defined above were intensively deliberated by the Steering Committee and six associated Working Groups were constituted, to work on specific areas such as:-

- 1. Regulatory Framework including self regulation & issues leading to time & cost over runs.**
- 2. Procurement systems & dispute resolution system.**
- 3. Human Resource Development.**
- 4. Institutional financing.**
- 5. Quality standards & Environment Issue.**
- 6. Research & Development.**

The Chapter on Construction, therefore has been structured to encompass the issues, impediments, their solution & good practices, which could be emulated with respect to above defined key areas, another section has been included, articulating the actionable points & identifying stakeholders.

Keeping in view the continued thrust in several sub-sectors of the physical infrastructure such as, Transportation, Irrigation, Housing, Urban Utility, Civil Aviation, Agriculture, Power Generation, Water Conservation & Management and Power & Energy, the Steering Committee evolved major recommendations, which need to be instilled in the National Plan.

The approach of the Working Groups was focused towards the capacity building of Construction Industry, both in terms of quality and quantity to handle the substantial work load, that is confronting the Construction Industry.