Asia Construct

INDIAN CONSTRUCTION INDUSTRY

2008-2009

PREPARED BY

CONSTRUCTION INDUSTRY DEVELOPMENT COUNCIL

INDIA

Contents

1. Introduction & Construction Industry Development Council

Construction Industry Development Council (CIDC) is promoted jointly by the Planning Commission, Government of India and the Construction Industry of India. This article presents an overview of practices used in the Indian construction industry, one of the fastest growing construction industry internationally and the second largest employer in India. Key areas of construction opportunity and activity, the use of PPP models, type and extent of use of International Standard Form of Contracts and Contract Administration and Certification Processes are discussed.

2. Political, Social & Legal framework:

- Secular Constitution.
- Stable Democratic environment since 1947.
- Broad consensus on Economic policy across party lines.
- Independent multi-tier judicial system.
- Judicial systems in sync with international practices.
- Preferred language of domestic business & international interactions is English.

3. Economic Overview

India's economy encompasses traditional village farming, modern agriculture, handicrafts, a wide range of modern industries and a multitude of support services and industries. Production, trade, and investment reforms have provided new opportunities for Indian businesspersons. India has an estimated 350 million middle class consumers. India is a young country with median age of population being 24.6 years and one-third of the population is below 14 years of age. An economic overview of the country would include the following:

- India is the second fastest growing economy of the world at present. India has recorded one of the highest growth rates in the 1990s. The target GDP growth of the 10th Five Year Plan (2002-07) is 8% while the actual is 7.8%. The target growth rate for the 11th Five Year Plan

(2007-12) is 9%. As the last two years of the 10th Plan has seen a growth of 9% it was argued to keep the growth of the 11th Plan period as 10 to 11%. However it is indeed a challenge to even maintain the 9% growth.

- India's services sector growth of 7.9% over the period 1990-2001 is the second highest in the world. The 10th Five Year Plan period (2002-07) witnessed an average annual growth of 12.9% in construction; 8.5% in trade & hotel; Transport & Communication, Financing, Real Estate & Housing 11.7%; Community services 7%.
- Long run GDP has recovered considerably from an average of 5% a decade and half ago and less than 3% two decades ago.
- The opportunities unfolding in India is as a result of reforms enacted from early 1990s as well as a result of India's increasing competitiveness and confidence.
- Positive outlook to international investments and trade policies.
- Fiscal incentives from Central Government and States support in physical and social infrastructure development.
- Very large pool of educated, trained and skilled manpower.
- Rapidly developing R&D, infrastructure, technical and marketing services.
- Agricultural self-sufficiency, rich mineral base and abundance of other natural resources.
- Large, diversified and geographically well distributed manufacturing capability.
- Diversified infrastructure facilities available and under development.
- Sound banking system with a network of 70,000 branches, among the largest in the world supported by national and state level financial institutions.
- Leading international banks entrenched and expanding.
- Vibrant capital market comprising 23 stock exchanges with over 9000 listed companies.
- Large coastline with easy access to South Asian markets.
- Third largest investor base in the world.

Size of Indian Household by Profile (Millions)

Class	2006-07	2001-02	1995-96
Rich	5.2	2.6	1.2
Middle Class	75.5	46.4	32.5
Aspiring	81.7	74.4	54.1

Source: NCAER

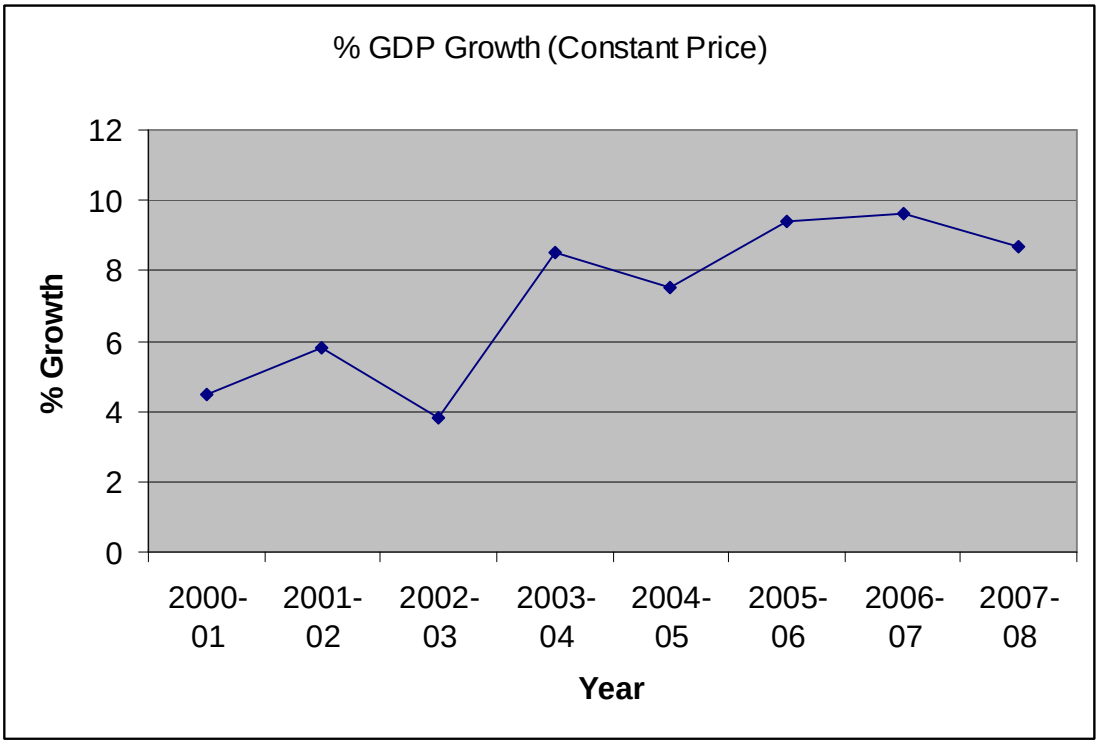
3.1 Main Macroeconomic Indicators

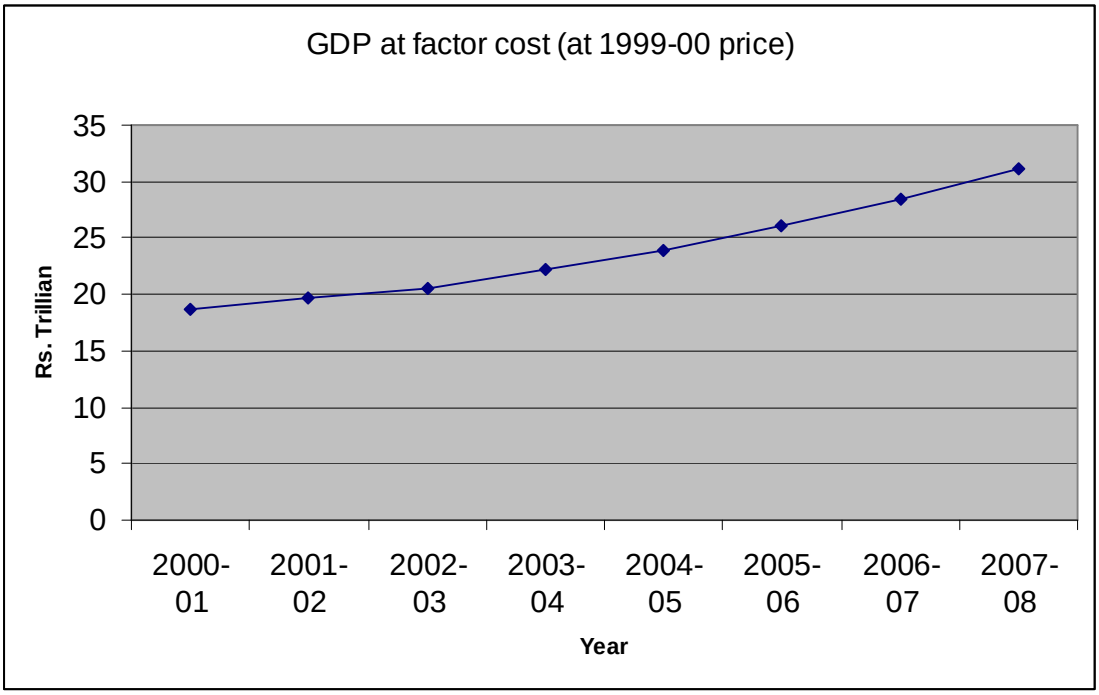
3.1.1 Overview of National Economy

	Unit	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007 - 08
GDP at factor cost (at 1999-00 price)	Rs trillion	18.7	19.7	20.47	22.22	23.89	26*	28.48	31.1
GDP at current market prices	Rs trillion	19.3	20.80	22.65	25.49	28.55	32.5*	37.90	42.8*
% GDP growth (constant price)	**%**	**4.5**	**5.8**	**3.8**	**8.5**	**7.5**	**9.4***	**9.6***	**8.7***
Sub-Sectors of GDP									
Agriculture & Allied	Rs trillion	4.5	4.8	4.4	4.9	4.9	5.1*	5.3	5.4*
(%) Growth	**%**	**-**	**6.6**	**(-) 7.3**	**10.**	**0**	**5.9***	**3.8**	**2.6**
Manufacturing Sector	Rs trillion	2.8	2.9	3.1	3.3	3.6	3.9*	4.3	4.7
(%) Growth	**%**	**-**	**3.5**	**6.8**	**6.6**	**8.7**	**9**	**12**	**9.4**
Service Sector	Rs trillion	10.4	11.1	11.9	12.9	14.2	15.7*	17.58	19.9
(%) Growth	**%**	**-**	**6.7**	**7.2**	**8.4**	**10**	**10.5***	**12***	**13.2***
Construction Sector	Rs trillion	1.8	2	2.2	2.46	2.75	3	3.46	3.8
(%) Growth	**%**		**12.1**	**12.21**	**12.14**	**12.2**	**12.3**	**12.1**	**12.05**
Project Exports (Overseas construction engineering and/consultancy projects secured during the year)@	Rs billion	12.2	14.3	25.2	33.47	440	-	-	

Population* (Millions)	Millions	1019	1037	1055	1073	1088	1106	1122	1137
Population growth rate (%)	%	1.80	1.77	1.76	1.73	1.41	1.4	1.4	1.4
Total labour force in Construction	Million	31.5	31.5	31.5	32	32.5	32.85	32.9*	33.2
Construction labour force growth rate (%)	%	1.61	0.00	0.00	1.2	1	1.1	1.1*	1
Unemployment Rate #		#	#	#	#	#	#	#	#
Short term interest rate (%)	%	17-18.5	14-16	11-14	11-12	11	11	11	12
Long term interest rate (%)	%	10-12.5	9-11.5	9-11.5	6-11	6-11	6-11	6-11	8-12
Wholesale Price Index		155.7	-	166.8	175.9	187.3	195.6*	206.1	228*
Average Consumer price index @		371	390	405	420	436	456	486	518(Dec)
% change in CPI	%								
Base lending rate (Commercial Banks)	%	12.5	10	10	11	10.25	10.25	10.25	12
Base lending rate (Finance Companies)	%	14.5	12.5	12.5	9	9	9	9	11.5

Source : Central Statistical Organisation & Union Budget – 2003-04
Base Year - 1993-94 for all except CPI @ Base Year 1982 = 100 (Source – Labour Bureau, GOI)
* Subject to revision
** Indian Financial Year form 1st April 2006 to 31st March 2007
Major employment is in unorganised sectors. No verifiable data available.
@ Source: Project Export Council of India


% GDP Growth (Constant Price)
12
10
8
6
4
2
0
% Growth
2000-01
2001-02
2002-03
2003-04
2004-05
2005-06
2006-07
2007-08
Year


GDP at factor cost (at 1999-00 price)
35
30
25
20
15
10
5
0
Rs. Trillian
2000-01
2001-02
2002-03
2003-04
2004-05
2005-06
2006-07
2007-08
Year

Construction Investment (Rs. Billion) at current (nominal) price				
Category	**2004-05**	**2005-06**	**2006-07**	**2007-08**
Residential (A)	**127.50**	**150.00**	**170.00**	**190.00**
Public	54.53	63.87	69.85	80.07
Private	72.97	86.13	100.15	109.93
Commercial (B)	**127.50**	**150.00**	**170.00**	**190.00**
Public	37.50	44.16	50.52	56.09
Private	90.00	105.84	119.48	133.91
Industrial (C)	**918.00**	**1,080.00**	**1,224.00**	**1,368.00**
Public	652.88	768.09	876.87	975.25
Private	265.12	311.91	347.13	392.75
Infrastructure(D)	**1,377.00**	**1,620.00**	**1,836.00**	**2,052.00**
Public	979.32	1,152.14	1,315.31	1,462.87
Private	397.68	467.86	520.69	589.13
Total Public	**1,724.23**	**2,028.28**	**2,312.55**	**2,574.28**
Total Private	**825.77**	**971.74**	**1,087.45**	**1,225.72**
Grand Total(A+B+C+D)	**2,550.00**	**3,000.00**	**3,400.00**	**3,800.00**

Stratified Employment Quantum

Category	Number (in 000s) in 2005	% age
Engineers	**822**	**2.65**
Technicians & Foreman etc.	**573**	**1.85**
Clerical	**738**	**2.38**
Skilled Workers	**3267**	**10.57**
Unskilled Workers	**25600**	**82.45**
	TOTAL	**100.00**

4. Tenth Five Year Plan and Construction Sector (2002 - 2007)

The 10th Five Year Plan brought by the Planning Commission, Government of India, which is a policy paper for the economy for the period 2002 - 2007 has for the first time incorporated a chapter on Construction. This shows the importance given by the Government of India to the Construction Industry. The plan encourages 8% growth in GDP for which total development outlay is Rs 15,25,639 crore allocated for the 2002-07 period. The investment in construction is about 40% to 50% of the same which is Rs 1,22,051 crore annual additional (for new development) investment in construction.

For the 11th Five Year Plan (for the period 2007-2012) it is proposed to enhance the investment in infrastructure two folds.

4.1 11th Five Year Plan (2007 – 2012)

For the 11th five-year plan (for the period 2007-2012) it is proposed to enhance the investment in infrastructure two folds. The estimate of additional investment for the 11th Plan period is given as follows: -

ADDITIONAL INVESTMENT IN SECTORS

Sl	Item	Amount
1	Private investment in Roads	34,000
2	Expressway development (Modernization / Up gradation)	220,000
3	Railways (Public)	180,000
4	Railways (Private)	120,000
5	Civil Aviation	40,000
6	Ports (Private)	50,000
7	Freight Corridors for railways	22,000
8	Power Generation	420,000
9	JNNRHU	60,000
10	Housing	150,000
11	Others	160,000
	TOTAL	**14,50,000**

Comparison of 11th (Period: 2007-12) & 10th (Period: 2002-07) Plan Development Outlay

In Rs crore

Head	2007-12 11th Plan	2002-07 10th Plan	% Change
Agriculture	136381	58933	131%
Rural Development	301069	121928	147
Special Area Programme	26329	20879	26
Irrigation & Flood Control	210325	103315	104
Energy	854123	403927	111
Industry & Minerals	153600	58939	161
Transport	572443	225977	153
Communication	95380	98968	-4
Science tech. & Env.	87933	30424	189
Gen. Economic Services	62523	38630	62
Social Services	1102327	347391	217
Gen. Services	42283	16328	159
TOTAL	**3644718**	**1525639**	**139**

5. Union Budget 2008 - 09

The Government of India announces the Union Budget every year on 28/29 February. The Budget is introduced as a Finance Bill in the parliament and passed by the Parliament . The Budget announces several policy issues as well and provides an insight into the Government's thrust area. The issues related to construction / infrastructure in the Union Budget 2008-09 announced on 29th February 2008 is highlighted below:

Impact of Union Budget 2008 to 2009 on Construction Industry

Sl.	Item	Impact on Construction Industry
1.	**Bharat Nirman Programme** The Bharat Nirman has shown impressive progress. The programme is providing each day of the year drinking water to 290 habitation and 17 habitations are provided with all weather road. On each day 52 village are provided telephones, 42 villages electrified and 4113 rural houses completed. The allocation for this programme in this budget is **Rs. 31, 280 crore** as against Rs. 24, 603 Cr. in 2007-08.	The increased allocation will increase the turnover of the Construction Industry while providing the much needed rural infrastructure.
2.	**Nation Rural Employment Guarantee (NREGS)** NREGS has been extended to 596 rural districts with an initial allocation of Rs. 16,000 Crores.	The number of districts has been doubled where NREGS shall be applicable. This will boost the turnover of Construction Industry as under this scheme construction works are executed for rural development.

3.	**Other Social Schemes** Other Schemes such as **Rajiv Gandhi Drinking Water Mission** (allocation Rs. 7,300 Cr from Rs. 6,500 Cr in 2007-08); **Total Sanitation Campaign;** setting up of more Navodaya Schools; new Institutes of Higher education and new Central Universities; special development allocation for **North Eastern Region** (Rs. 16,447 Cr up from Rs. 14, 365 Cr in 2007-08); **Accelerated Irrigation Benefit Programme** (Rs. 20,000 Cr up from Rs. 11,000 Cr in 2007-08); CSS on **micro irrigation** project; setting up of **Water Resource Finance Corporation (WRFC)** with an initial capital outlay of Rs. 100 Cr etc.	This will boost the turnover of the Construction Industry as allocations have been increased and new and innovative schemes launched.
4.	Corpus of **Road Infrastructure Development Fund** (RIDF) has been increased to Rs. 14,000 Cr and further a separate window made under RIDF for rural roads with a corpus of Rs. 4000 Cr.	This streamlining initiative will boost the construction of Rural roads.
5.	**JNNURM** Allocation Rs. 6,866 Cr. (up from Rs. 5,482 Cr. In 2007-08)	Boost turnover of Construction Industry while facilitating up-gradation of urban centres.
6.	**National Highway Development Project (NHDP)** Allocation Rs. 13,966 Cr. (up from Rs. 10,867 Cr. In 2007-08)	Increased allocation will help the much needed upgradation of National Highways.
7.	**Power Sector** The Hon'ble Finance Minister has urged to award the 4th Ultra Mega Power Project (UMPPs) soon and also to	Increased allocation and innovative schemes will boost construction

	explore the possibility to set up 5 new UMPPs. ➢ Rs. 5000 Cr. allocated for Rajiv Gandhi Grameen Vidyutikaran Yojna ➢ Rs. 800 Cr to Accelerated Power Development & Reforms Project.	
8.	**National Housing Bank (NHB) & Housing for Poor** Rs. 1200 Cr allocated to NHB to enhance refinancing of rural housing sector. Subsidy on housing for poor has been enhanced to Rs. 35,000 (from Rs. 25,000) and for upgradation make Rs. 15,000 (up from 12,500)	Boost rural housing & enhance turnover of construction industry.
9.	Import duty on melting scrap on steel and aluminium made nil	Help moderate price of steel and aluminium & reduce cost
10.	Parity on Excise duty on bulk cement and packed cement.	Help rationalization.
11.	Excise duty on Clinker proposed to be Rs. 450/- per tone (from Rs. 350/- per tone)	Increase cost of cement
12.	Excise duty on Flush Doors brought down to 8% from 16%.	Reduce cost of flush doors
13.	➢ Five Year Tax holding for Hospitals under Section 80IB ➢ Five Year Income tax holding for two, three & four star hotels that are set in World Heritage site	Boost infrastructure development

14.	**Reverse Mortgage** The Finance Minister has provided clarifications related to Income Tax on reverse mortgage as follows: (i) Reverse Mortgage will not be treated as transfer. (ii) The revenue received by Senior Citizen is not income.	Clarifications are positive and will make the scheme popular.
15.	**Personal Income Tax** New structure of personnel income tax regime has been recommended and threshold limit of income tax enhances. Senior citizens & women provided with more concessions.	More money in peoples hand will boost spending and also boost construction
16.	➢ Import duty on Project Imports reduced to 5% from 7.5%. ➢ However CVD of 4% imposed on specialized projects in power sector	Cost will reduce in case of Projects Imports & hence impact is +ev
17.	**Climate Change** The FM has proposed to set up a permanent institutional mechanism that will play a development & coordination role for clean and green technology.	Help Construction Industry to be more eco-friendly
18.	**Skill Development Mission** Objective to garner Rs. 15,000 Cr as capital from Public & Private Sectors, multilateral & bilateral agencies & Govt. Sources	Shall enable skill development for Construction Industry. Better productivity with quality & availability of skilled manpower.

	To setup a not for profit corporation for the mission with a corpus of Rs. 1000 cr.	
19.	**Industrial Training Institute (ITI)** Rs. 750 cr set aside for development of 300 ITIs	Skill development and enhance availability of skilled workers

6. Administration and Regulations of Construction Industry

Construction Projects are subject to a host of Central and State laws simultaneously. Administratively and in terms of regulation, Central & State Governments have their own roles to play in Construction.

6.1 Structure and Role of Construction Administration

- Structure and Role of Construction Administration of Central Government &
- Structure and Role of Construction Administration of Local Government

There is focussed central machinery or structure of administration for the Construction Industry. As this sector's activities are involved with every sector of the economy, at the Central Government level, the issues related to Construction are taken up by the Planning Commission. In fact Construction was given the Identity of an Industry only two years ago.

Housing & Real Estate, constituting around 10.3% of total Construction, is the only one segment of the Construction Industry which has a Ministry called the "Ministry of Urban Affairs". Equivalent Ministries

exist at State level and at Municipal/local levels. Activity at any site is governed by the State or a combination of State and Central administration, depending on the location.

Administratively the following Ministries/Departments/Organisations have operating influence over Construction Industry:

Central Government Ministries

- ✓ Ministry of Commerce
- ✓ Ministry of Finance
- ✓ Ministry of Urban Affairs and Employment
- ✓ **Ministry of Industries**
- ✓ Ministry of Home Affairs

Central Government Departments

- ✓ Cabinet Committee on Foreign Investment
- ✓ Secretariat of Industrial Assistance
- ✓ Foreign Investment Promotion Board
- ✓ MRTP Commission
- ✓ Registrar of Companies
- ✓ Central Excise and Customs Department

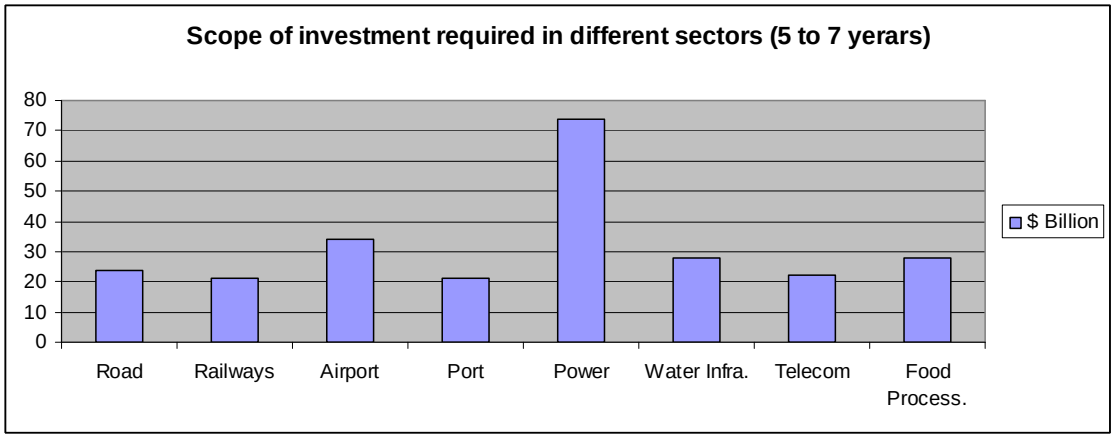
State Government

- ✓ Revenue Department
- ✓ Urban Development Authorities
- ✓ Sales Tax
- ✓ Town and Country Planning

Autonomous Statutory Bodies

- ✓ Reserve Bank of India
- ✓ Security and Exchange Board of India
- ✓ Municipal Committee

7. CONSTRUCTION OPPORTUNITY & ACTIVITY



FDI Infrastructure Equity Ceiling

Real Estate(townships)	**100%**
Roads	**100%**
Power	**100%**
Airlines	**74%**
Airports	**74%**
Banks(Private)	**74%**
Mining	**74%**
Telecom	**74%**
Defence	**26%**
Insurance	**26%**

Civil Aviation

Domestic and international passenger traffic in India has grown annually at the rate of 9.1%(CAGR) and 29% (CAGR) respectively over the period 2004-07. The domestic & international cargo traffic has grown at the rate of 13%(CAGR) and 11%(CAGR) during the period 2004-07.

The ***Airport Authority of India (Amendment) Bill, 2003*** has been passed by the Parliament. The Bill provides a legal framework for operational and managerial independence to private operators. It also seeks to ensure a level playing field to private sector green field airports by lifting control of AAI except in certain respects. The Amendment Bill defines a private airport-one that is 'owned, developed or managed' by any agency or person other than AAI or a state government, or managed jointly by AAI, a state government, and a private player, where the latter's share is more than 50 percent - and allows leasing of existing airports to private operators.

Two major airports of the country at Mumbai and Delhi have been handed over to private parties for extensive development and operation. Proposals for upgrading Kolkata airport by 2010 have been take-up where in an integrated terminal to handle 20 million passengers per annum is to be created by an investment of Rs 1942 crore. Similarly a proposal to upgrade the Chennai airport with an investment of Rs 1808 crore that will facilitate in augmenting the capacity by 13 millions per annum is being taken up by the government. Airport Authority of India (AAI) has taken-up the task to modernize ***24 non-metro airports*** by March 2009 & further ***11 non-metro airports*** by 2010. The ***11th Five Year Plan (2007-2012)*** has the main objective to create world class infrastructure facilities, safe, reliable & affordable air services to facilitate growth in passenger & cargo traffic, and air connectivity to remote & inaccessible parts of the country.

It has been decided to setup an ***Airport Economic Regulatory Authority (AERA)*** An Appellant Tribunal is also proposed to adjudicate any disputes between (i) two & more service provider (ii) a service provider & a group of consumers and (iii) hear and dispose of appeals against any direction, decisions or orders of AERA. Proper regulatory framework would help in fostering healthy competition by creating level playing field & encourage investment in airport facilities.

Cement

The cement output has been 100 million tones in 2000-01 & has grown to 154.7 million tones in 2006-07 (CAGR growth rate of 7.5% per annum).

Cement Manufacturers' Association (CMA) is the apex representative body of large cement manufacturers in India. It is a unique body with the private as well as the public sector cement units as its members.

- To promote Indian cement industry's growth
- To protect consumer interests
- To identify newer usages of cement
- To establish contacts with similar bodies abroad for exchange of information data, publications, etc.

India has excellent deposit of lime stone which can be used for cement production. As the construction industry has been growing the cement industry has been enhancing its capacity to meet the demand. With the doubling of investment in construction during the 11th Five Year Plan Period (2007-12) it is estimated that 381 million tones of additional cement shall be required during the five year period.

Ports

India enjoys a strategic location in the Indian Ocean and has a vast coastline of 7517 km having 12 major ports & 200 non-major ports (as per the last information available). However, due to the conscious policy the country followed for over four decades self-reliance through import substitution rather than export-led growth-its share in international trade was not significant. India's economic strategy has, however, been changed radically in the last few years. As India globalises its economy fast, it will need to handle a growing volume of international trade. Thus, upgrading and expansion of its ports will be a key success factor for India's economic development programme.

In order to encourage Private investment in Ports as per global trends adequate policies has been laid by the Government. A Private operator can enter into a service contract, a management contract, a

concession agreement or a divestiture depending on the nature of facility/service. Private sector can enter on BOT basis for construction of cargo handling berths & dry docks, container terminals and warehousing and ship-repair facility.

The five year period ending 2006-07(Xth Plan) registered a growth in container traffic of 13.9% annually. The period 2007-08 registered a growth of 13.9% as compared to 9.5% in 2006-07.

The average turn around time in Indian ports is 3.6 days as compared to 10 hours in Hong Kong. The prime reason for this is poor connectivity and lack of efficiency in Port connectivity. Thus all the major ports have setup groups with NHAI, State Government & the railways to prepare a plan for to improve port connectivity. NHDP is already having port connectivity projects as major component.
The 4 major ports-Jawaharlal Nehru Port Trust (JNPT), Mumbai Port Trust, Cochin Port Trust, and Kandla Port Trust have drawn plans to add a container terminal each. The government is following the 'landlord port model' where private parties will operate terminals and other services while the ownership of land, waterfront, and security would remain under government control.

Opportunities in Ports:

- Growth in merchandise exports projected at over 13% p.a. underlines the need for large investments in port infrastructure

- Investment need of $13.5 billion (Rs.60,750 crores) in the major ports under National Maritime Development Program (NMDP) to boost infrastructure at these ports in the next 7 years

    - Under NMDP, 276 projects have been identified for the development of Major ports
    - Public–Private partnership is seen by the Government as the key to improve Major and Minor ports

  * 64% of the proposed investment in major ports envisaged from private players

- The plan proposes an additional port handling capacity of 530 MMTA in Major Ports through:
    - Projects related to port development (construction of jetties, berths etc.)

- Procurement, replacement and/or up-gradation of port equipment
- Deepening of channels to improve draft
- Projects related to port connectivity

➢ Investment need of $4.5 billion (Rs.20,250 crores) for improving minor ports

Roads

Industrialisation in India has brought in its wake considerable demand for more and better roads. A better road network will result in enormous savings, estimated to be between Rs. 200 and 300 billion (US$5.7-8.6 billion) per annum. Improvement of the road network will also enable commercial vehicles to run 500-600 km per day, which is the average distance covered by them in the developed world, as opposed to the 200-300 km per day average in India currently.

Roads in India are categorised as Expressways, National Highways, State Highways, Major District Roads, Other District Roads and Village Roads. Annual growth projected at 12-15% for passenger traffic, and 15-18% for cargo traffic. Over $50–60 billion investment is required over the next 5 years to improve road infrastructure. An ambitious National Highway Development Programme (NHDP), involving a total investment of Rs.2,20,000 crore upto 2012, has been established. The main elements of the programme are as follows:

Four-laning of the Golden Quadrilateral and NS-EW Corridors (NHDP I & II)
The NHDP Phase I and Phase II comprise of the Golden Quadrilateral (GQ) linking the four metropolitan cities in India i.e. Delhi-Mumbai-Chennai-Kolkata, the North-South corridor connecting Srinagar to Kanyakumari including the Kochi-Salem spur and the East-West Corridor connecting Silchar to Porbandar besides port connectivity and some other projects on National Highways. Four-laning of the Golden Quadrilateral is nearing completion. The contracts for projects forming part of NS-EW corridors are being awarded rapidly for completion by December 2009.

Four-laning of 10,000 kms (NHDP-III)

The Union Cabinet has approved the four-laning of 10,000 km of high density national highways, through the Build, Operation & Transfer (BOT) mode. The programme consists of stretches of National Highways carrying high volume of traffic, connecting state capitals with the NHDP Phases I and II network and providing connectivity to places of economic, commercial and tourist importance.

Two laning of 20,000 km (NHDP-IV)

With a view to providing balanced and equitable distribution of the improved/widened highways network throughout the country, NHDP-IV envisages upgradation of 20,000 kms of such highways into two-lane highways, at an indicative cost of Rs.25,000 crore. This will ensure that their capacity, speed and safety match minimum benchmarks for national highways.

Six-laning of 6,500 kms (NHDP-V)

Under NHDP-V, the Committee on Infrastructure has approved the six-laning of the four-lane highways comprising the Golden Quadrilateral and certain other high density stretches, through PPPs on BOT basis. These corridors have been four-laned under the first phase of NHDP, and the programme for their six-laning will commence in 2006, to be completed by 2012. Of the 6,500 kms proposed under NHDP-V, about 5,700 kms shall be taken up in the GQ and the balance 800 kms would be selected on the basis of approved eligibility criteria.

Development of 1000 km of expressways (NHDP-VI)

With the growing importance of certain urban centres of India, particularly those located within a few hundred kilometers of each other, expressways would be both viable and beneficial. The Committee on Infrastructure has approved 1000 k.m. of expressways to be developed on a BOT basis, at an indicative cost of Rs.15,000 crore. These expressways would be constructed on new alignments.

Other Highway Projects (NHDP-VII)

The development of ring roads, byepasses, grade separators and service roads is considered necessary for full utilization of highway capacity as well as for enhanced safety and efficiency. For this,

a programme for development of such features at an indicative cost of Rs.15,000 crore, has been mandated.

Accelerated Road Development Programme for the North East Region

The Accelerated North-East Road Development Project is under consideration, which will mainly provide connectivity to all the State capitals and district headquarters in the north-east. The proposal would include upgrading other stretches on NH and state highways considered critical for economic development of the north-east region.

Institutional Initiatives

Steps are being taken for restructuring and strengthening of National Highways Authority of India (NHAI), which is the implementing agency for the National Highways programme. Institutional mechanisms have been established to address bottlenecks arising from delays in environmental clearance, land acquisition etc. A special focus is being provided for traffic management and safety related issues through the proposed Directorate of Safety and Traffic Management. It is expected that the sum total of these initiatives should be able to deliver an efficient and safe highway network across the country.

In order to specify the policy and regulatory framework on a fair and transparent basis, a Model Concession Agreement(MCA) for PPPs in national highways has been mandated. It is expected that this common framework, based on international best practices, will significantly increase the pace of project award as well as ensure an optimal balance of risk and reward among all project participants.

The World Bank has approved a US$ 348 million loan to improve the quality of 750 km of state highways in Tamil Nadu road sector project. In addition, 14 bypasses will be upgraded to two lanes with or without paved shoulders and 2000 km of roads will be taken up for major maintenance. International consultants have carried out the road segment designs. The scheme is to be implemented by the state highways department. The government on its part will provide US$ 102 million to the US$450 million project. The World Bank loan is payable in 20 years and has a 5 year grace period.

The government of Madhya Pradesh has taken up upgrading of state highways and major district roads covering a distance of about 1900 km in two phases. An investment of US$ 341.4 million is being entailed and this will be met by loans from the Asian Development Bank (ADB) (US$ 180 million) and with state government funding. The Phase I scheme involves strengthening and widening of 6 state highways for a total distance of 353 km at a cost of Rs. 2610 million under 4 packages.

Power:

As on March 2002 India had around 104,000 MW of installed power generation capacity. About 80% of this is from Thermal Power Plants & 16% from hydroelectric plants. Nuclear plants account for the remaining generation capacity. According to Planning Commission India need additional 47,000 MW of generation capacity in the near future requiring an investment of USD 73 billion.

Overall Generation in Public Utilities

Year	Generation (billion units)
1990-91	**264.3**
2000-01	**499.6**
2004-05	**587.4**
2005-06	**617.5**
2006-07	**650.2**
2007-08	**704.46**

The Power Supply Position

Year	Energy Shortage (%)
2000-01	**7.8**
2001-02	**7.5**
2002-03	**8.8**
2003-04	**7.1**
2004-05	**7.3**
2005-06	**8.4**
2006-07	**9.3**
2007-08	**9.9**

Railways

Demand for rail services has grown in tandem with economic expansion, quickly outstripping the supply capacity of existing assets (GOI 2002). Pricing anomalies and different priorities assigned to the Indian Railways (IR) stretched the internal resources to the extent that regular maintenance of fixed assets was accorded low priority. As a result, important infrastructure deficits have appeared. These deficits have created serious bottlenecks that hamper further growth on certain sections of IR. The need to increase investment in infrastructure was recognized in the late 1990s. Government is seriously considering building dedicated freight corridors with the help of private participations.

In order to meet competition from other modes of transportation on the most congested routes of IR and to make the transport sector competitive, the Prime Minister announced the National Rail Vikas Yojana (NRVY) in December 2002. Under this scheme, IR envisages to increase capacity of the rail golden quadrilateral, provide better connectivity of the network to major ports, and build a few critical bridges over the rivers Ganga, Brahmaputra, and Kosi. An SPV-Rail Vikas Nigam Limited (RVNL) - has been incorporated to carry out the specific projects under the NRVY. Funds required for the NRVY are Rs. 15,000 crore. Out of this approximately Rs. 4500 crore has been promised by the ADB. The

funds are to be disbursed over a 10-year period. It is estimated that Rs 8000 crore would be required to enhance the capacity of the rail golden quadrilateral. IR is working on a proposal to offer projects under the NRVY to private operators on BOT basis using annuity payment scheme on the lines of road projects.

Initiatives at a glance:

- The rapid rise in international trade and domestic cargo has placed a great strain on the Delhi-Mumbai and Delhi-Kolkata rail track. Government has, therefore, decided to build dedicated freight corridors in the Western and Eastern high-density routes. The investment is expected to be about Rs. 22,000 crore (US $ 5 bn). Requisite surveys and project reports are in progress and work is expected to commence within a year.
- With increasing containerization of cargo, the demand for its movement by rail has grown rapidly. So far, container movement by rail was the monopoly of a public sector entity, CONCOR. The container movement has been thrown open to competition and private sector entities have been made eligible for running container trains. 14 applicants have submitted the application seeking permission for container train operation, which have been approved.

- Tariff rationalization and effective cost allocation mechanism are also on the anvil. This includes a methodology for indexing the fare structure to line haul costs. Efforts aimed at introducing commercial accounting and information technology systems are also underway

- Technological upgradation and modernisation for higher operating efficiency
- Transformation from bulk transporter to multi-modal transporter
- PPP envisaged in new routes, railway stations, logistics parks, cargo aggregation and warehouses etc

Earnings of Indian Railways (Rs billion)

Item	2004-05	2005-06	2006-07	2007-08	% growth 2006-07	% growth 2007-08
Goods	307.78	362.87	422.99	477.43	14.9	14.4
Passenger	141.13	151.26	174	200.75	13.80	16.50
Others	24.79	30.78	35.21	48.37	11.30	41.10
TOTAL Earnings	**473.7**	**544.91**	**632.2**	**726.55**	**14.4**	**16.50**

Rapid Mass Transport System

Delhi Metro's first section from Shahdara-Tis Hazari was inaugurated on 24 December 2002. Phase-I of the project has three lines: Shahdara-Tri Nagar-Barwala (28 km), Vishwa Vidyalaya-Central Secretariat (11 km), and Barakhamba Road-Connaught Place-Dwarka (23 km). This phase of the project is completed.

Doubts have been raised about the long term viability of the Delhi Metro project, costs for which not discounting for inflation - are 60 percent higher than Kolkata's and 113 percent cost of around Rs. 160 crore (expenditure was Rs. 10,571 crore for the 66 km first phase, including an 11 km underground stretch) was much higher than the per-km cost of around Rs. 100 crore for the Kolkata Metro and Rs. 75 crore for the Singapore Metro. Delhi Metro Rail Corporation (DMRC) has clarified that the higher project costs were largely due to the use of imported technology, but the matter needs investigation. To reduce overall project cost, the DMRC has projected raising around 6 percent of its total project cost by way of property development and is aiming to generate around Rs. 600 crore through real-estate projects by the year 2005.

Urban Infrastructure

India today faces the problems which most economies have faced at some point of their evolution: the problems associated with urbanisation. In 1951, 83 per cent of the Indian population lived in rural areas. The figure has since then reduced to 74 per cent of a population which has doubled in the last 46 years. Much of the investments flowing into India since the economic reforms began in 1991 has been and will continue to be in the urban centres. Naturally, India's cities and their infrastructure services find themselves under tremendous pressure.

The Government of India recognises that a large portion of these investment and service needs must be met by the private sector, and welcomes domestic and international investors in urban infrastructure. The latest ongoing programme of Government of India is Jawaharlal Nehru National Urban Renewal Mission (JNURM) where the urban infrastructure of 63 select cities is being renewed at a cost of US $ 28 billion.

Urban infrastructure projects are eminently suitable for public-private partnerships. Arrangements such as Build-Own-Operate (BOO), Build-Own-Operate-Transfer (BOOT), Build-Own-Lease-Transfer (BOLT), are promising options.

The Central and state governments welcome private initiatives and public-private participation in sectors like water supply, sanitation, public transport, and township and land development. The Indian Government stands committed to provide support in the form of equity contribution, a package of concessions, dedicated levies to repay loans, and a transparent regulatory framework.

Private investors are encouraged to negotiate the concessions required to make their investments safe and paying.

One significant fact that investors should consider is that local agencies in India have shown phenomenal progress in the recovery of costs of services and some have achieved full cost recovery. The city of Visakhapatnam in Andhra Pradesh offers a good example of how cross-subsidisation between consumer groups can make water supply systems run on commercial principles. The municipal corporation of Ahmedabad in Gujarat has performed a remarkable turnaround from a perennially loss-making body to a highly profitable organisation and has already launched the country's first Municipal Bond.

Water Supply

Privatisation could be introduced in case of new townships and projects for planning, designing, source development, execution of works, operation and maintenance including billing and collection. In case of metros and mega cities, water supply augmentation schemes for source development, conveyance of raw water, its treatment and bulk supply to the city water supply authorities, maintenance of pumping stations, water treatment plants and city distribution systems can be undertaken by private agencies.

Water scenarios are city-dependent. If there is an opportunity to jointly promote decentralized techniques, decentralized management, and delegation of management, even in limited respects to the local private entrepreneurs and communities, one should consider the initial situation, and adopt a more dynamic approach. Indeed, the Chennai example shows both governance and a technical-cum-managerial solidity of the system that allows capacity building through delegation and technical decentralization.

The traditional question of giving water to the private sphere as a concession versus leaving it within the public sphere can be examined in this very framework. There are no credible projects for a large (international) private water companies. On the contrary, and despite the doubts and hesitations on its possible implementation, Mumbai seems to mostly focus on schemes supported by large international organisations. Chennai at the moment is in the intermediary position, as it simultaneously considers local outsourcing for the water supply and sanitation operation, and large private companies as far as waste disposal is concerned.

River Linking Project

Linking of Rivers is of great importance, the project is of such a magnitude that it can happen once in the lifetime of a nation, it is Rs.560,000 crore project of water linking rivers and is stipulated to be completed by 2016, and the project would benefit the nation as a whole by integrating all of them together for irrigation, drinking water, navigation, fisheries, recreation and power generation. The primary objective remains drought and food relief, employment generation and increase in food production, which can easily go up to 450 million tonnes through increased irrigation. Thus it is a multi-purpose project and the country's GDP itself can go up by about four to five percentage points.

Sewerage

Similarly, in case of sewerage and sewage treatment, works such as maintenance of pumping stations, sewage treatment plants and city sewerage systems could also be taken up. Keeping in view the ever-increasing demands for fresh water, the private agencies may also install tertiary treatment plants for reuse and recycling of sewage and industrial effluents for various non-domestic uses.

Solid Waste Management

Solid Waste Management is another activity which could be taken over profitably by the private sector provided resources recovery is contemplated to make the system self-sufficient and financially viable. In addition, efforts should be made to manufacture various equipment and machinery such as pipes, pumps, quality control equipment and machinery required in the water and wastewater treatment plants etc. within the country by various foreign manufacturing concerns in collaboration with the Indian companies as joint ventures for the Indian market.

Urban Public Transport

India has 63 metropolitan cities(as identified by JNNRUM). All offer attractive investment opportunities in public transport. City-wise studies have been carried out for Delhi, Bangalore, Calcutta, Chennai, Hyderabad, Mumbai, Ahmedabad, Jaipur, Surat, Jammu, Nagpur, Vijayawada, Lucknow, Cuttack and Bhubaneshwar and for the other cities as identified by JNNRUM.

India welcomes private investment in Mass Rapid Transit Systems (MRTS) and Light Rail Transit Systems (LRTS). Governmental support for such projects may include rights for development of property, foregoing returns/ dividends on any investments made by the Government, the availability of budgetary sources for part-repayment of loans and tariff agreements.

The proposed Mass Rapid Transit System for Delhi offers good potential for public-private partnerships and the project is already in an advanced stage of planning. Bangalore and Hyderabad are also planning rail-based public transit systems.

Roads, Bridges & Flyovers

Bypasses to large cities and bridges are investment opportunities. There exists tremendous potential for private investment in construction and maintenance of ring roads, arterial and sub-arterial roads, bridges, flyovers and other facilities in cities.

Housing

The National Housing Policy, 1998 has been formulated to address the issue of sustainable development of infrastructure and for strong public-private partnership for shelter delivery. Private investment in the sector is brisk and the opportunities are unlimited. The Government would provide fiscal concession to carry out legal and regulatory reforms and create an enabling environment.

As per the action plan under the 2 million Housing Programme, Ministry of Urban Affairs and Employment has embarked upon facilitating construction of 7 lakh additional housing units in urban areas every year. HUDCO is entrusted with financing 4 lakh units and balance 3 lakh units per year will be met by other HFIs recognised by National Housing Bank, Cooperative Sector and Corporate Sector.

The Urban Land (Ceiling and Regulation) Act, 1976 was repealed through an ordinance notified on 11.01.99. This has since been approved by parliament and the Repeal Act notified on 22.03.99. Government has issued detailed guidelines to all State Governments and Union Territories to protect the interests of people belonging to economically weaker section and lower income group.

The Ministry of Urban Affairs and Employment offers incentives to non-resident Indians and foreigners of Indian origin as well as overseas corporate bodies that are predominantly owned by them, for investment in housing and real estate sector.

Land & Township Infrastructure Development

Returns on projects for development of land in extended areas of large cities and new townships can be well above 20 per cent. A package of concessions is being worked out.

Appendix – I

Average Construction Material Price as on 1st August, 2008

Sl. NO.	**Item**	**Unit**	**Price**
1.	Cement – OPC	50 kg bag	Rs. 255
2.	Reinforcement Steel TMT – 12 mm dia	1000 kg	Rs. 38,000
3.	Burnt Clay Bricks (9" x 4.5" x 3")	Each	Rs. 3.50
4.	Sand (coarse – local)	Cum	Rs. 1000/-
5.	Stone aggregates (20 mm normal size)	Cum	Rs. 1000/-
6.	Timber (Mango country wood round)	Cft	Rs. 450/-
7.	Petrol	Ltr	Rs. 53
8.	Lubricant – Grease	Kg	Rs. 120
9.	Paint – Synthetic Enamel White	Ltr	Rs. 1200/-
10.	Bitumen Grade 60/70 Bulk	Kg	Rs. 31.4
Daily wages of Labour			
1.	Unskilled	Rs. 120 day	
2.	Semi – Skilled	Rs. 130 day	
3.	Skilled	Rs. 200 day	

Salary		
1.	Sr. Engineer (Civil)	Rs. 40,000 pm
2.	Jr. Engineer (Civil)	Rs. 25,000 pm

Average Construction Material Price as on Jan, 1998

Sl. NO.	**Item**	**Unit**	**Price**
11.	Cement – OPC	50 kg bag	Rs. 146
12.	Reinforcement Steel TMT – 12 mm dia	1000 kg	Rs. 14,000
13.	Burnt Clay Bricks (9" x 4.5" x 3")	Each	Rs. 1.50
14.	Sand (coarse – local)	Cum	Rs. 250
15.	Stone aggregates (20 mm normal size)	Cum	Rs. 450
16.	Timber (Mango country wood round)	Cft	Rs. 250
17.	Petrol	Ltr	Rs. 23
18.	Lubricant – Grease	Kg	Rs. 105
19.	Paint – Synthetic Enamel White	Ltr	Rs. 122
20.	Bitumen Grade 60/70 Bulk	Kg	Rs. 10
Daily wages of Labour			

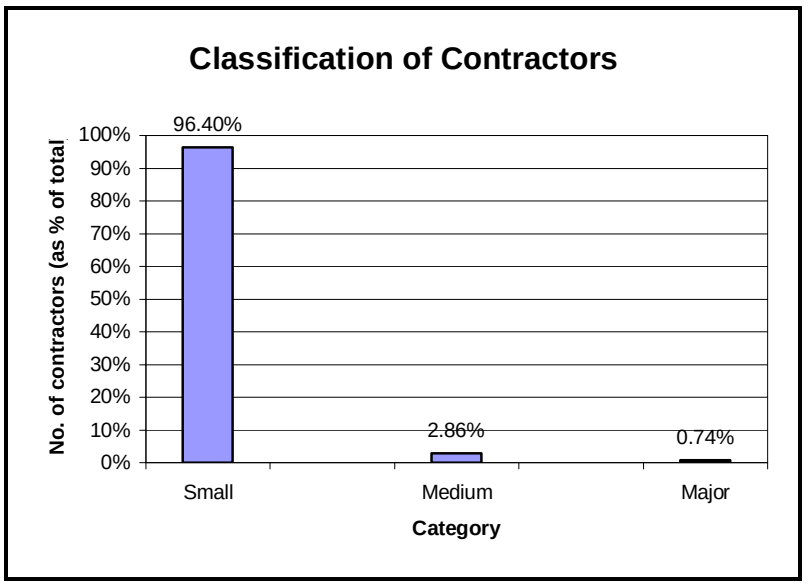
4.	Unskilled	Rs. 75 day
5.	Semi – Skilled	Rs. 85 day
6.	Skilled	Rs. 100 day
Salary		
3.	Sr. Engineer (Civil)	Rs. 10,000 pm
4.	Jr. Engineer (Civil)	Rs. 6000 pm

Appendix - II

CLASSIFICATION OF CONTRACTORS

Table below gives the categorization of contractors by the size of men they employ:-

S.N	No. of people employed by the agency	No. of Agency /contractors	%age	Category
1	1 to 200 persons	27,000	96.4%	Small
2	200 to 500 persons	800	2.86%	Medium
3	500 persons and above	200	0.74%	Major



Safety Record of Indian Construction Industry

Year	Accident frequency rate (accidents / million man-hours worked)
1998	0.08
1999	0.10
2000	0.10
2001	0.10
2002	0.09
2003	0.01
2004	0.01
2005	0.01

IMPROVING PRODUCTIVITY IN INDIAN CONSTRUCTION INDUSTRY

Productivity may be conceived as a measure of technical or engineering efficiency of production. The Indian Construction Industry has enhanced its productivity substantially in the last 10 years period due to technical upgradation, enhanced mechanization, substantial increase in speed of construction, training and skill upgradation of construction workers etc.

The execution of large infrastructure projects such as in Roads, Airports, Urban Infrastructure & transport etc. have also contributed significantly in adoption of efficient and new technologic which has brought a sea change in the Indian Construction Industry. Today the Indian Construction Industry is seen as world-class and continuously enhancing its performance and turnover. Please refer to India Country Report which indicates a sustained growth of 12% in Indian Construction Industry. Further the 11th Plan Period (2007-2012) has doubled the spending on infrastructure to sustain 9 – 10% GDP growth.

The housing industry has a also witnessed positive charge due to more consumer spending and availability of finance for purchase of houses The sector has been opened up to private sector and has witnessed modernization and upgradation with substantial increase in turnover in the last decade. Quality has also improved over the period.

To improve labour productively, CIDC is working for training and certification of construction workers. These programmes are being offered all over the Nation in a massive scale. The skill and knowledge of these construction workers will go a long way in further improving productivity in the Indian Construction Industry. Other measure being taken by CIDC are Grading of Construction Entities, compilation of construction cost indices, standardization and harmonization of construction contracts, dispute resolution in construction work. All these help in better execution of construction works and thus help enhance productivity.

On the specific terms we are giving below the scenario as it exists in the Indian Construction Industry and also the initiatives being taken by CIDC.

1. **OBSERVATIONS OF THE LAW**

It is essential that for fair working practices, adherence of law is of vital necessessity. Construction Industry in India does not have a singular law and is governed by various laws enacted through different ministries. There are labour/ working force related laws, safety law, environmental law, several acts applicable to industrial establishments, corporate law and also laws related to taxation.
The Contractor as well as the sub-contractor is expected to adhere to all the stipulated laws which are indicated in the contract agreement. Violation of any legal provisions attracts severe penalties and other form of punishment. The process however, is some what cumbersome, due to multiplicity of legal provisions. CIDC therefore, has been working to evolve an unified construction law incorporating various provisions emanating out of the laws in vogue.

2. **IMPROVEMENT OF THE RELATIONSHIP BETWEEN CONTRACTORS AND SUB-CONTRACTORS**

Transparency in procurement practices is a must to define the good working relationship between the contractors and the sub-contractors. This is also true in case of the project owners and the contractors as well.
Until 2001 Indian Construction Industry was operating through various forms of contract. CIDC under the directions of the Ministry of Statistics and Programme Implementation (MOSPI) took up the initiatives to harmonize the contract conditions. The standard document has the approval of the government of India, and based on this document several project owners have started modifying their contract practices. CIDC is helping them to achieve this objective.

3. **HUMAN RESOURCES**

Until 1996 a major portion of Human Resources in construction industry remained bereft of any technical training.
The skill sets acquired by an average worker through his/her experience or through family based linkages. Looking at the acute need of a skilled workers for construction industry, CIDC has launched a nation-wide skill

development programme where the industry and the government are the partners. The training is being offered through 173 centres spread through out the country, covers 48 technical trades, and a standardized skill certifications system has also been put in place, so as to enable the employer assess the competence of the worker for eventual placement. In 2007-08 almost 200,000 construction workers were trained, tested and certified by CIDC. The certification of the skills is being done jointly with universities as well as the Govt. of India who have authorized CIDC to execute this work.

4. **INCREASE THE VOLUME OF CONSTRUCTION**

Following measures are being taken to increase the volume of construction work with high value addition :

(i) More investment in different research and development.
(ii) Entering into collaboration with multifarious organization
(iii) Aggressive move to enter over a new market.

In this context, CIDC is a front running organization working on frontier technologies, such as green construction techniques and also opening up of new establishments in African continent.

5. **CUTTING THE COST**

Economies can be achieved more effectively by grooming and training the work persons. The training programme run by CIDC incorporates substantial elements of effective utilization of resources so that when the learners begin their work they start conserving benefiting their employer.

6. **REORGANIZATION OF COMPANIES**

We have briefly touched this particular issue while speaking about the increase of volume of construction.
With excessive work load Indian construction companies are continuously entering into strategic allocations with their foreign counter parts. CIDC always supports such initiatives through interactions using the wide global network they are enjoying.

7. **IMPROVEMENT OF THE EFFICIENCY OF THE EXECUTION OF WORK IN CONSTRUCTION SITE**

This aspect we have touched in item 4 above.

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