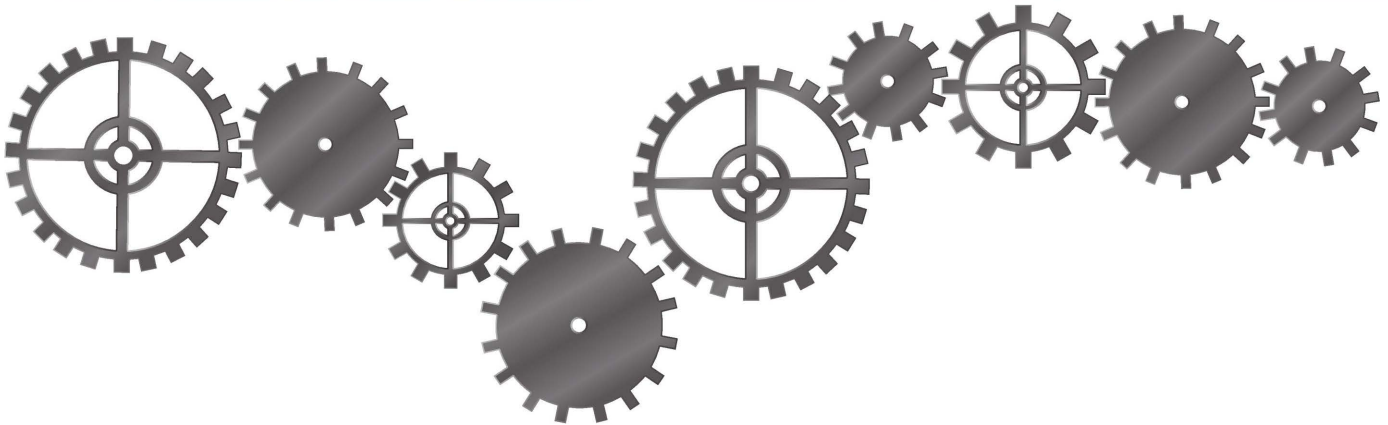




# Task Force Report on Industry, Skill Development, Education and Employment



**State Planning Commission, Chhattisgarh**

Sector -19, North Block Naya Raipur, Chhattisgarh

# Foreward



At the very outset, I thank the Government of Chhattisgarh with special mention of Honorable Chief Minister, Mr Raman Singh and Vice Chairman State Planning Commission, Mr. Sunil Kumar for providing me this opportunity to use my knowledge base, skill sets and wide experience on dealing with this subject, so as to be able to contribute as the chairperson of Task Force on Industry, Skill Development, Technical, Higher Education and Employment.

I am happy to share that this report focuses on the holistic brief provided to study the key business environment of the state thereby providing for a clear cut understanding of the existing scenario. This report emphasizes on the current situation of this sector from reliable sources bringing out the hidden potential based on a convergence model involving all the stakeholders with a collaborative public private partnership.

This compilation has been achieved with a careful scrutiny of the secondary data sources, interactive discussions with primary stakeholders, including a one to one with key departments of the state.

I am happy to share that different working groups were constituted with special focus on the sector and highlighted several key issues of contemporary relevance. The seven standing working groups were Urban and Infrastructure, Mineral, Chemical and Heavy Industry, Electronic manufacturing, Extension of Education and Employability, Skill, Micro, Small and Medium Industries, Information technology and Software, Mechanical Automobile and Auto component.

The report aims to propose areas of reforms as studied by the experts of the Task force, required to keep pace with the existing development framework, so as to facilitate Ease of Doing Business; and create an enabling ecosystem with rich dividends for the sector and an overall development framework for the State .

It has been a privilege for my colleagues and me to work closely with the state of Chhattisgarh so as to produce this very handy report with suggestions that may be easily incorporated by the departments so as to facilitate a mechanism of easy governance or a good enough governance.

I hope policy makers, investors, enterprises and policy analysts will find the report useful and will prove to be a ready reckoner for all. Thanking you in anticipation and wishing goodluck to all policy planners and implementers.

**Dr. Damodar Acharya**  
Chairperson

Task Force on Industry, Skill Development, Education  
and Employment  
State Planning Commission, Government of Chhattisgarh



# Acknowledgements

The report on Industry, Skill Development, Education and Employability has been prepared by the State Planning Commission, Government of Chhattisgarh and has been possible through a series of meetings collaboration with experts of the Standing Working Group and institutions of excellence who have generously shared their valuable time and expertise to draw in some valuable points. We are particularly thankful to Mr. Damodar Acharya, Chairperson of Task force on Industry, Skill Development, Education and Employment for his kind consent to be the chairperson of the Task Force and help by sharing key inputs from time to time along with Standing Working Group members with particular mention of Mr. Manish Gupta, Mr. Panchanan Das, Mr. Sandeepan Chakrabarthi, Mr. B.S Sahay, Dr Nagrajan Venkatraman, Mr. M. Ravi, Dr. Nitin Nagarkar, Mr. IM Ioya, Mr. AM Parial, Mr. K B. Das, Dr. R. N. Panda, Mr. Tara P. Dhal, Mr. Lokesh Kavadiya, Mr. C S Pilliwar, Mr. Sanjog Bawane who have provided key inputs, guidance, support and encouragement to bring out this report.

Special thanks to Mr. Sunil Kumar, Vice Chairman State Planning Commission who oversaw every detail and was the guiding light for plausible outcomes and motivated the team with his plethora of experiences and tasked the timely submission of this report. Particular debt of gratitude is owed to Mr. Amitabha Panda, Mr. PP Soti, Dr. S. Viridi, Mr. Rishi Raj Sharma for their timely support and inputs in the generation of this report.

From time to time, we have sought valuable information from the line departments of the State government who have apprised us of the ground situations and key areas of focus for the State. The consolidated observations, recommendations and indicative strategy proposed are a mere impetus to the ongoing efforts of the State adding a more universal flavor to address the gaps and leverage the existing strengths for significant dividends.

The methodology adopted for compilation of this document is indicated in this report to showcase the long drawn efforts taken up by the Standing Working Group members who have immensely contributed through vast pool of experiences and highlighted the urgent needs for various sectoral reforms.

Last but not the least; I would like to thank the Technical Section of the State Planning Commission with special mention of Mr Prashant Dewangan and Ms Sunita Agrawal who have made immense efforts in research and development, thereby significantly contributing in the publication of this handy compilation.



**Nimisha Jha**

Deputy Secretary  
State Planning Commission  
Government of Chhattisgarh



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## Part A

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**A- 1I Background of  
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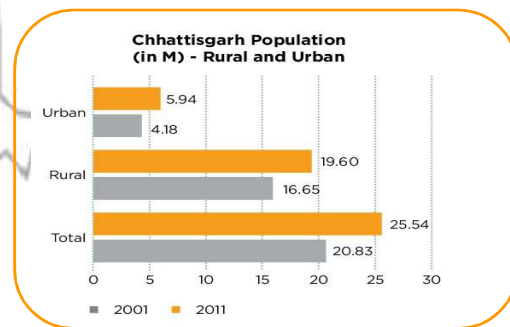
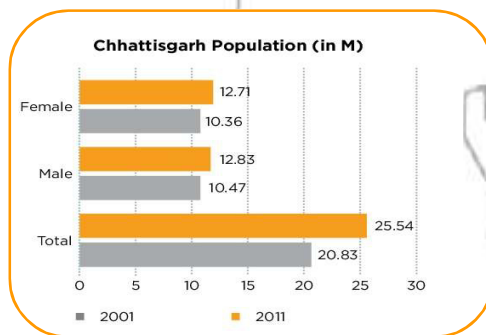
# 1 CHHATTISGARH AN INTRODUCTION

Chhattisgarh, a 21st century state, came into being on November 1, 2000. Since its creation, Chhattisgarh has endeavoured to become a preferred business destination in India. It shares borders with 7 states – Odisha, Jharkhand, Madhya Pradesh, Uttar Pradesh, Maharashtra, Andhra Pradesh and Telangana.

Chhattisgarh has been one of the fastest growing states in India. Strong core sector industries such as iron, steel, cement and thermal power have traditionally imparted for a high growth thrust. The State accounts for 15% of the total steel produced in the Country. It has one of the highest mineral reserves in the Country. With 44% of the State's land under forests, Chhattisgarh accounts for 12% of India's forests. Identified as one of the richest biodiversity habitats, the State of Chhattisgarh has some of the most dense forests in India with a rich wildlife and over 200 nontimber forest products, which offer a tremendous potential for value addition. Business friendly policies and a proactive administration make Chhattisgarh a preferred investment destination.

## 1.1 Location and Demography

With an area of 135,192 sq km, Chhattisgarh is the tenth largest state in the Country. The State comprises of 27 districts. With a 25.54 million population, Chhattisgarh accounts for about 2.11% of India's total population.



| Indicator                                    | 2001 Census | 2011 Census |
|--|-------------|-------------|
| Population Density                           | 154         | 189         |
| Literacy Rate (7 years and above)            | 64.66       | 70.28       |
| Sex Ratio (Number of Females per 1000 Males) | 989         | 991         |

(Source: Census of India, 2001 & 2011)

Source - Census 2001 & 2011 Govt of India

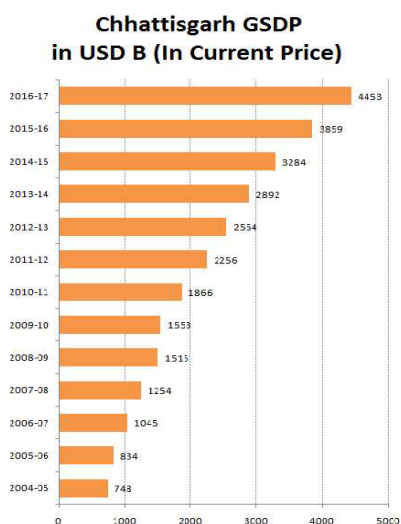
*Chhattisgarh has made significant strides in the past decade*

- The literacy levels have increased from 64.66 in 2001 to 70.28 in 2011 (Census)
- The sex ratio in the State is 991, which is better than the national average of 940 and ranks 10th in the country

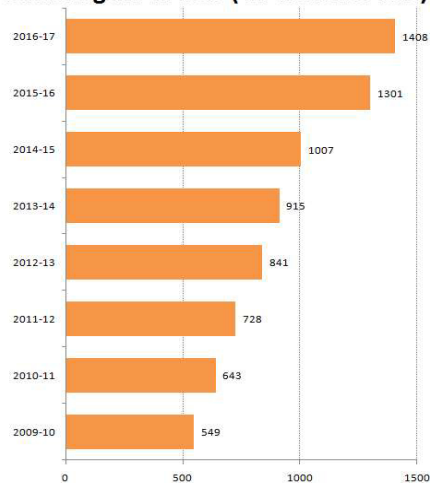
## 1.2 Economic Growth

The GSDP of Chhattisgarh was estimated to be USD 44 billion (on current prices) in 2016-17. Chhattisgarh is amongst five states in the Country that grew faster than the national average growth rate during the 11th Five Year Plan period (2007-12). The Per Capita GSDP of the State has been increasing consistently and registered more than a two fold growth between 2004-05 and 2013-14.

The Per Capita Income in the State increased

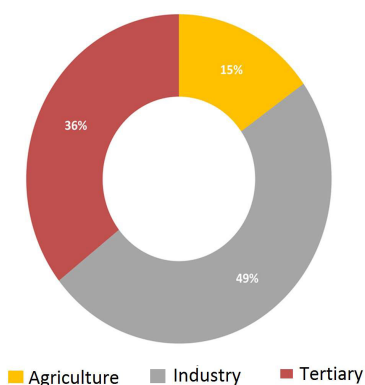


**Per Capita Income in Chhattisgarh in USD ( In Current Price)**



from USD 205 in 2002-03 to USD 1408 in 2015-16. The sectoral composition of the Gross State Domestic Product (GSDP) shows a prominence of the Services sector with a 40% share.

**Sectoral Contribution to the Economy 2016-17**

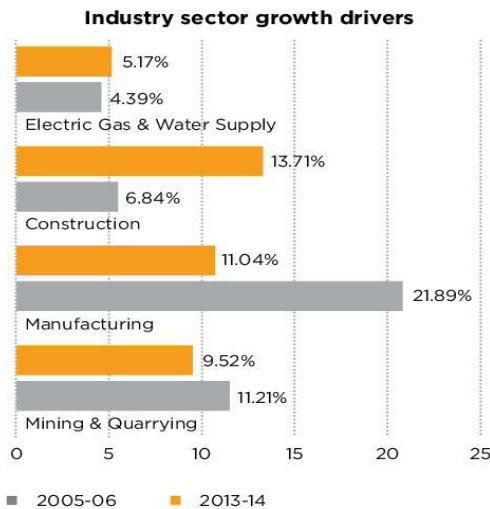


*Chhattisgarh is the best fiscally managed State. The development expenditure of the State (as a percentage of GSDP) is the highest in the country.*

(Source: State Finances - A study of budgets of 2013-14, RBI, Year 2013-14)

### 1.3 Industry Sector

Chhattisgarh is widely known for its rich mineral resources and is a major resource base for major mineral related industries. The mineral industry accounts for almost 80% of the total industrial units in the State. In the year 2005-06, the industry sector grew 44.34% with manufacturing, mining and quarrying being key contributors. The sector grew 39.44% in 2013-14, which was primarily propelled by the construction and manufacturing sub sectors driven by the ongoing infrastructure development

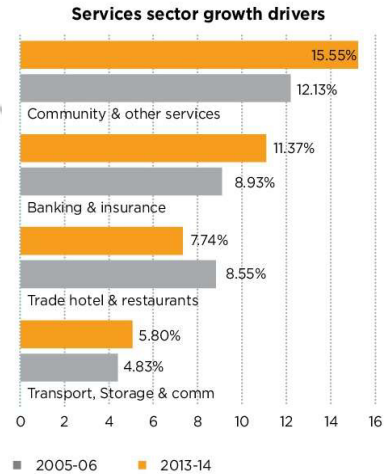


(Source: Directorate of Economics & Statistics of Chhattisgarh)

initiatives in the State.

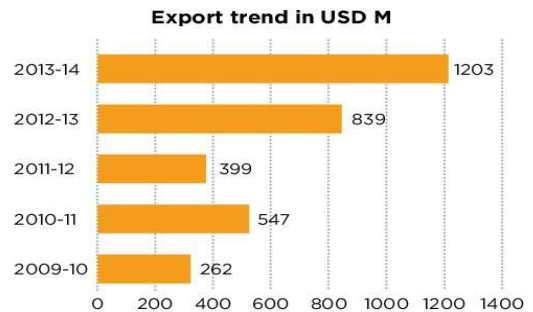
### 1.4 Services Sector

The Services sector contributed the highest to the State's economy, driven primarily by banking, insurance, transport, communications and other services.



### 1.5 Exports

Chhattisgarh's total exports were USD 1.2 billion in the year 2013-14. Nearly 75% of the exports come from Bhilai and the remaining largely from Urla, Bhanpuri and Sirgitti.



(Source: Chhattisgarh State Industrial Development Corporation)

| Particulars   | 2012-13 | 2013-14 |
|---|---------|---------|
| Iron & steel  | 303.69  | 435.53  |
| Ores, slag and ash  | 199.56  | 336.77  |
| Cereals   | 235.86  | 271.59  |
| Nuclear reactors, boilers, machinery and mechanical appliances, parts thereof | 14.31   | 59.39   |
| Articles of iron & steel  | 28.61   | 27.58   |
| Aluminium & articles thereof  | 4.89    | 22.98   |

(Source: Chhattisgarh State Industrial Development Corporation)

*Chhattisgarh has been ranked second with regards to cumulative value of Industrial Entrepreneurs Memoranda (EMs) since 2010.*

*The State has attracted EMs worth USD 107.6 billion {14% of the total EMs worth USD 781.2 billion across the country from 2010 and 2015 (July)}*

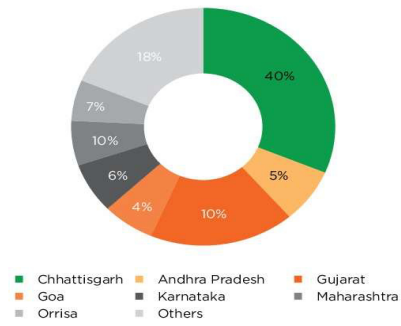
(Source: Department of Industrial Policy and Promotion, Govt of India), 1 USD=INR 64 [US Forex, 2015]

Chhattisgarh is a major producer of iron and steel in the Country. About one-fifth of the total iron ore produced in the Country is mined in the State. Some of the best quality iron ore deposits in the world are to be found at the Bailadila mines, south of Chhattisgarh. With more than 66% super high grade iron content that is free from sulphur and other deleterious materials, the iron ore from this region is considered the best for manufacturing steel.

## 1.6 Investment

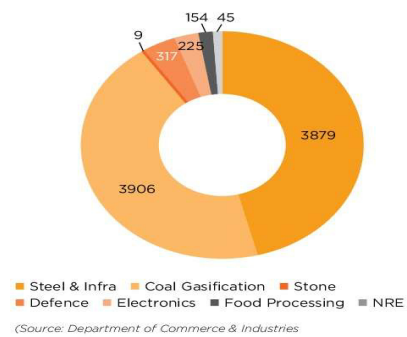
Chhattisgarh accounted for over 40% of the total proposed investment of more than USD 25.3 billion, as per IEMs filed in the year 2014. Chhattisgarh attracted IEMs worth USD 107.6 billion {14% of the total IEMs worth USD 781.4 billion across the country from 2010-2015 (July)} Continuing its investment focus journey, Chhattisgarh signed MoUs worth more than USD 8.5 billion in financial year 2014-15 (till November) across coal gasification, steel & power, defence equipment manufacturing, food-processing, NRE and IT/Electronics sectors.

Percentage of Investment in the Year 2014 as per IEMs filed

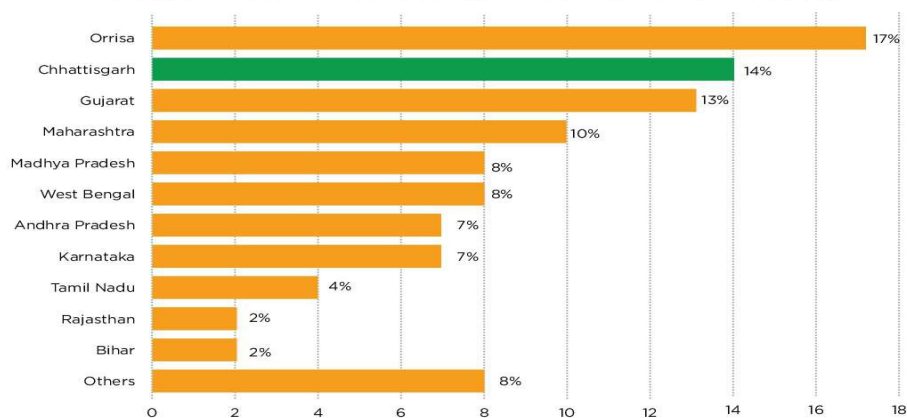


- IEMs filed worth ~USD 25.31 billion in the year 2014, which was highest in the country in 2014
- Second best State for attracting investments, as per IEMs since 2010 (till July 2015)
- Investment Intents (MoUs) of more than USD 8.53 billion signed by the State in the financial year 2015-16

Investment intents (million USD) through MoUs in 2015-16 (till November)



Percentage contribution in investment through IEMs between 2010 and 2015 (July)



Source - Department of Commerce & Industry, Govt of Chhattisgarh

## 1.7 Industrial Potential

Traditionally the core sector has been driving growth and investments in the State. Major industry players like Ambuja, Birla, Essar, indal, K Lakshmi, Lafarge, L&T, NMDC, Vedanta, amongst others, have a substantive presence in the State.

Indicated below are the key sectors which have attracted investment in the State:

Additionally, the State has identified a list of sunrise sectors, which are receiving a special



impetus and are outlined below.

- Agribusiness and food processing
- Automotive
- Defence
- Electronics
- Engineering
- Handicraft
- Healthcare
- IT/ITeS
- Logistics and warehousing
- Minor forest produce
- New & Renewable Energy
- Pharmaceuticals
- Textiles & Apparels

## 1.8 Industrial Regions

Chhattisgarh State Industrial Development Corporation Ltd (CSIDC) is the nodal agency designated for the development and maintenance of industrial areas as well as industry related infrastructure development in Chhattisgarh. Major industrial regions in the State are highlighted below:

### Raipur Region

- Rich reserves of minerals, limestone and coal make Raipur district one of the key industrial centres in the State
- Naya Raipur city is the administrative State capital and the Government proposes to develop the city into a new world class capital city
- Raipur has 158 large and mid scale industries with prominent players such as Monnet Ispat, indal, Century Cement, Lafarge, Ambuja Cement, Ultratech Cement

### Bilaspur Region

- The presence of South Eastern Coalfields Ltd in the region has ensured thriving operations for the ancillary industrial units in the area
- The Sirgitti Industrial Growth Cen-



tre spread over 338 Ha is located in this region

- Bilaspur is also the zonal head-quarter of SEC Railway Zone, which is one of the most profitable railway zones in India, contributing about 17% in revenues of the Indian Railways

### Korba Region

- Known as the Power Capital of India, the region has rich reserves of coal and bauxite
- Connected with Bilaspur and 200 kms from the Raipur airport
- Major industries present in the region operate in the areas of mining (coal and bauxite), electricity generation and aluminum production Durg-Bhilai Region
- Rich in mineral deposits especially iron ore, limestone and quartzite

- Well connected by road and 50 km away from the Raipur airport

- Major players located in the region include Bhilai Steel Plant Steel Authority of India (SAIL) and ACC

- The Borai Industrial Growth Centre spread over 397 Ha is a major industrial region

## 1.9 Industrial Infrastructure

Key industrial infrastructure in Chhattisgarh includes eight notified industrial areas, four large industrial areas and seven industrial parks besides other upcoming industrial infrastructure projects in the State.

| Major industrial areas in Chhattisgarh |  |  |
|--|--|--|
| Industrial Area                        | Details  | Sector/ Industries   |
| Urla (Raipur)                          | <ul style="list-style-type: none"> <li>• On the outskirts of Raipur city on NH 200 375 Ha area, including peripheral industrial areas of Sorora, Sondongri, Gondwara, Gogaon</li> <li>• 418 industries with more than USD 66 million investment</li> </ul>               | <ul style="list-style-type: none"> <li>• Steel, aluminium and ancillaries</li> <li>• Food processing</li> <li>• Electrical &amp; Electronics</li> <li>• Chemical</li> <li>• Silk, Textiles, Jute</li> </ul>        |
| Siltara (Raipur)                       | <ul style="list-style-type: none"> <li>• 13 km from Raipur spread across 1,185 Ha</li> <li>• USD 110 million investment</li> </ul>   | <ul style="list-style-type: none"> <li>• Sponge iron units</li> <li>• Ferro alloy units</li> <li>• Cooking gas bottling plant</li> </ul>   |
| Bhanpuri-Rawabhata (Raipur)            | <ul style="list-style-type: none"> <li>• Located near Raipur and spread over an area of about 200 Ha</li> </ul>  | <ul style="list-style-type: none"> <li>• Core sector ancillaries</li> <li>• Construction materials</li> <li>• Food processing</li> <li>• Machinery &amp; fabrication</li> </ul>                                    |
| Sirgitti (Bilaspur)                    | <ul style="list-style-type: none"> <li>• Located on the outskirts of Bilaspur city on NH 200 spread over an area of about 338 Ha</li> <li>• 324 industries with a fixed investment of USD 70 million</li> </ul>  | <ul style="list-style-type: none"> <li>• Chemical</li> <li>• Food Processing</li> <li>• Steel, aluminium and ancillaries</li> <li>• Auto and components</li> </ul>   |
| Tifra (Bilaspur)                       | <ul style="list-style-type: none"> <li>• Spread over about 65 Ha located on the outskirts of Bilaspur city on NH 200</li> </ul>  | <ul style="list-style-type: none"> <li>• Chemicals &amp; gases</li> <li>• Footwear</li> <li>• Ayurvedic drugs</li> <li>• Food processing</li> </ul>  |
| Borai (Durg)                           | <ul style="list-style-type: none"> <li>• Adjacent the new Durg Bypass off NH 6</li> <li>• 0.5 km from the Rasmada railway station</li> <li>• Spread over an area of approx. 451 Ha</li> <li>• 44 industries with fixed investment of more than USD 20 million</li> </ul> | <ul style="list-style-type: none"> <li>• Sponge iron</li> <li>• Confectionery</li> <li>• Machinery &amp; fabrication</li> <li>• Fabric pigments</li> <li>• Pipes &amp; tubes</li> <li>• Food processing</li> </ul> |
| Rani Durgawati (Pendrroad)             | <ul style="list-style-type: none"> <li>• Located in Bilaspur spread over an area of about 20 Ha</li> </ul>   | <ul style="list-style-type: none"> <li>• Food processing</li> <li>• Core sector ancillaries</li> </ul>   |
| Heavy & Light Industrial Area, Bhilai  | <ul style="list-style-type: none"> <li>• Located in Bhilai</li> </ul>  | <ul style="list-style-type: none"> <li>• Core sector ancillaries</li> <li>• Machinery &amp; fabrication</li> <li>• Chemicals &amp; gases</li> </ul>  |

## 1.10 Major Industrial Areas

### Large Industrial Areas

- Dagori (Bilaspur)J
- Tilda (Raipur)J
- Lara (Raigarh)J
- Silphari (Bilaspur)J

## 1.11 Key Industrial Parks

### Metal Park (Raipur)

- Spread across 87.57 Ha at Rawabhata (12 km from Raipur)
- Proposed downstream metal industries like tower manufacturing, windmills, nut bolt, hand tools, forgings, castings, utensils, auto components, cutting tools, ties & fixtures, railway track material, wire ropes, electrical and modular furniture

### Engineering Park (Bhilai)

- With Bhilai Steel Plant and other ancillaries, Durg district is the metallurgical hub of the State
- Engineering Park is established in Bhilai on 121 Ha of land
- 150 units based on engineering products, machine tools, auto components, casting and forging

### Aluminium Park (Korba)

- Aluminium Park to cater to downstream industries spread across 140 Ha in area
- Proposed industries: aluminium cables and conductors, casting utensils, bus body structures, auto components, aluminium wheels, foils, aluminium powder, dross refinery and dross based articles

## Commercial Ready to Operate Infrastructure

### Udyog Bhawan (Raipur)

#### Commercial complexes at

- Siltara, RaipurJ
- Sirgitti, BilaspurJ
- Dangania, RaipurJ

#### Shopping complexes at

- RaipurJ
- BilaspurJ

### Central Business District in Naya Raipur

## 1.12 Special Economic Zones (SEZs)

Two Special Economic Zones are being developed in Chhattisgarh

### Solar SEZ in Rajnandgaon

- Being developed by Lanco Solar Private Ltd. across 250 acres
- The SEZ will cater to the solar equipment manufacturing industry
- Operational 100 MWPA polysilicon and wafer manufacturing facility (by Lanco Solar Private Ltd.)

### IT/ ITeS SEZ in Naya Raipur

- Multi sector complex being developed by Naya Raipur Development Authority (NRDA)
- State of the art facility for manufacturers and service providers
- Focus on IT/ITeS and Electronics

## 1.13 Strengthening Railway Infrastructure in Chhattisgarh

### Industrial Rail Corridor

- 546 km of rail network, which constitutes more than 45% of the present rail network of 1,187 km in the State, will be added over the next 4 years through PPP
- Government of Chhattisgarh has signed an MoU with SECL and IRCON for the development of three rail corridors in joint venture partnership
- Three rail corridors project worth USD 1.5 billion are being developed:
  - Dalli-Rajhara to agdalpur – 235 km
  - East Corridor (Khasaria-Korba) – 180 km
  - East-West Corridor (Gevra Road-Pendra) – 131 km

## 1.14 Upcoming and Proposed Industrial Infrastructure Projects

### Electronic Manufacturing Cluster

- Spread over 28.32 Ha, an Electronics Manufacturing Cluster is being established in Sector 22 of Naya Raipur
- The proposed EMC will have a world class ecosystem for electronics manufacturing industries
- Facilities proposed in the EMC include a product design house, tool room, testing, calibration and certification facility, printing and packaging facilities

- MoUs worth USD 155 million proposed investment in the EMC

### Mega Food Park

- Located in bagod, Dhamtari, a mega Food Park is being developed over 68.68 Ha
- Dhamtari region is rich in paddy, horticulture and pisciculture
- The Food Park is 1.5 km from the Raipur- agdalpur-Hyderabad NH 30 Dhamtari falls in the Mahanadi Basin, the lifeline of Chhattisgarh
- Another private mega Food Park - Indus Best Mega Food Park - is being developed in Raipur over 26 Ha

### Plastics Park

- CSIDC along with the Government of India (as per Plastics Park Scheme) plans to develop a Plastics Park in village - Khairjhiti, Rajnandgaon district to promote the plastics industry in the State
- The Project spread over 100 Ha area is proposed to be implemented through an SPV
- The Park is to be developed inviting participation from entities, joint ventures and consortia possessing experience in the plastics industry and/or development and management of plastics parks

### Dr. Shyama Prasad Mukherjee Udyog Avam Vyapar Parisar, Chhattisgarh Trade Centre, Sector 23, Naya Raipur

- Spread over an area of 40 Ha, the Chhattisgarh Trade Centre is designed to host national and international meetings, conferences and exhibitions
- Facilities include an exhibition pavilion, convention centre, cultural ground, seminar halls, a crafts vil-

lage and food court]

- Design of the Trade Centre is based on effective utilisation of energy

#### **MSME Technology Center, Bhilai**

- A Technology Centre at Bhilai with an outlay of USD 17 million under the World Bank funded TCSP project of the Ministry of MSME, Government of India, has been approved
- Focus on improving access to technology, providing skill upgradation and offering advocacy support to MSMEs with a high growth potential
- The catchment area has leading units in steel, power and cement to cater to the engineering market within and outside the State.

### **1.15 Other Proposed Industrial Projects**

|                             |   |   |
|-----------------------------|---|---|
| <b>Aluminium Park</b>       | - | <b>Dodro, Korba</b>                           |
| <b>Food Park</b>            | - | <b>Tedesara , Rajnandgaon</b>                 |
| <b>Agro park</b>            | - | <b>Bastar</b>                                 |
| <b>Herbal Park</b>          | - | <b>Bagod, Dhamtari</b>                        |
| <b>Aparel Park</b>          | - | <b>Bhanpuri, Raipur</b>                       |
| <b>IT Park</b>              | - | <b>Naya Raipur</b>                            |
| <b>Poly Park</b>            | - | <b>Tilda, Raipur</b>                          |
| <b>Agro E port Zone</b>     | - | <b>Siltara, Raipur</b>                        |
| <b>Rice Mill Comple</b>     | - | <b>Dhamtari &amp; Tilda</b>                   |
| <b>Kosa Tusser Comple</b>   | - | <b>Janjgir Champa</b>                         |
| <b>Hastshilp Comple</b>     | - | <b>Jagdapur, Bastar</b>                       |
| <b>Railway Comple</b>       | - | <b>Bilaspur</b>                               |
| <b>Stone Cutting Comple</b> | - | <b>Basin, Rajim &amp; Ghodari, Mahasamund</b> |

## 2

# Advantage Chhattisgarh

Chhattisgarh is amongst the youngest and fastest growing states of India, which offers immense opportunities for business and development. Powered by factors critical to business development, namely, good governance, essential infrastructure coupled with a surplus of power, a stable labour environment, talent pool, abundant mineral resources, and a diverse forest produce — all make Chhattisgarh a leading business destination.

### 2.1 Availability of minerals & metals

- Chhattisgarh ranks amongst the richest Indian states in terms of

| Chhattisgarh's contribution to all India mineral/metal production |                          |                    |
|---|--------------------------|--------------------|
| Aluminium<br>15%  | Steel/Sponge Iron<br>30% | Tin<br>100%        |
| Coal<br>22.60%  | Iron ore<br>19.80%       | Dolomite<br>36.50% |
| Diamond<br>11.24%   | Cement<br>15%            | Limestone<br>7.60% |

(Source: Prashasanik Prativedan 2014-15, Government of Chhattisgarh)

mineral wealth. It is well acknowledged for 28 varieties of major minerals, including diamonds, spread across 205 mines;

- Chhattisgarh ranked fifth in terms of value of major mineral production in India with a 9.8% share in 2014-15;
- Accounting for 36% of India's tin ore reserves, Chhattisgarh is the only State producing tin concentrates in India;

- Chhattisgarh ranked first in India for coal, tin and dolomite production in 2014-15. The State accounts for 4% and 36.5% of the Country's diamond and dolomite reserves respectively.

### 2.2 Availability of Power

- Chhattisgarh is acknowledged as a power surplus State. It is self sufficient in power and ensures an uninterrupted 24x7 power supply across the State. Korba district in Chhattisgarh is known as the Power Capital of India;
- An abundance of minerals makes prices of cement, steel and aluminium lower in Chhattisgarh in comparison to other states in the Country;
- Chhattisgarh's large coal reserves present a huge opportunity for electricity generation;
- Installed power capacity in Chhattisgarh was 13,728.39 MW as on August 2015. 33% of the installed capacity belongs to the State and the Central government with the remaining 67% owned by private players;
- In the 12th Five Year Plan (2012-17), the State Government plans to increase the power generation capacity to 30,000 MW;
- Electricity tariff in Chhattisgarh is significantly lower than the na-

tional average;

- Being a power surplus State, Chhattisgarh is an ideal destination for high power consuming industries like cement, aluminium, iron & steel, paper, fertilisers and chemicals;
- With an uninterrupted quality power supply, the State offers an attractive power tariff slab to many focus sectors like IT/ITeS, Electronics, and other manufacturing focussed sectors.

### 2.3 Connectivity

Centrally located in the country, Chhattisgarh offers locational advantages to be leveraged both in terms of a regional logistics hub as well as from the standpoint of accessibility to vast consumer markets in the neighbourhood. A new Integrated Container Depot (ICD) across 40 Ha area is being developed by CONCOR in Naya Raipur. This will be in addition to the existing ICD in Raipur and would further boost direct exports from the State.

### 2.4 Air connectivity

- Swami Vivekananda Airport in Raipur has been the recipient of **Best Airport** for the best airport in India in the non-metro category in 2012-13 and 2013-14;
- The Raipur airport received 0.93 million passengers and handled more than 8,000 flights in 2014-15. Connectivity with Chhattisgarh would be augmented with the commencement of international flights;
- Two additional airports will add to the State's existing air connectivity with Airports Authority of India (AAI) having agreed to establish

civil airports at Bilaspur and Raigarh in partnership with the Government of Chhattisgarh. Further, a new green field civil airport is proposed in agdalpur;

- Chhattisgarh has eight air strips located at Bhilai, Bilaspur, Korba, Raigarh, agdalpur, Ambikapur, ashpur and Sarangarh regions.

### 2.5 Road connectivity

- 33,176 km of total road network;
- Highway network of 3,169 km with 18 national highways;
- Construction of an additional 3,000 km road network with an investment of USD 2.34 billion by 2018 on the basis of an Annuity/BOT/Loan from the Asian Development Bank

| Road infrastructure in the State |                  |
|----------------------------------|------------------|
| Road Type                        | Road Length (Km) |
| National Highways                | 3169             |
| State Highways                   | 4438             |
| Major district Roads             | 11184            |
| Rural roads                      | 14385            |
| Total road length                | 33176            |

(Source: Chhattisgarh Govt Economic Survey 2016-17)

### 2.6 Rail connectivity

- Highest contributor to India's rail freight— accounts for one-sixth of the total national freight revenue;
- The State has an existing rail network of 1,187 km. An additional 546 km of rail line is planned through a State SPV;
- The State is seamlessly onnected with nearly all major cities in the Country, including Chennai, Kolkata, Mumbai, New Delhi,

Ahmedabad, Allahabad, Bengaluru, Cochin, Pune and Hyderabad.

## 2.7 Additional locational advantages

- Located in the seismically safest zone of the Indian subcontinent;
- Significantly far from any hostile international border;
- Access to a potential market of a cumulative population of about 500 million (about 40% of India's population) across seven bordering states, which contributes 38% to India's GDP;
- Potential to become a logistics hub for central India with exports to Asian markets (Singapore, China, Korea and Japan) being targeted through the Vizag port, approximately 500 km from Raipur.

## 2.8 Rich in land and water

- Over 6,000 Ha of identified land parcels for industrial development across 11 districts of the State;
- High rainfall: over 130 cm annually drained by three major river basins;
- An abundance of natural resources with a low population density;
- Competitively priced land and water available in plenty.

## 2.9 Rich in Agriculture

- Known as the *Rice Bowl of India*, Chhattisgarh is rich in agriculture with 43% of its 135 lakh Ha area under cultivation;
- Rice is the major crop of the State covering 66% of the total cropped area. Pulses, oil seed and horticulture occupy rest of the cropped

area at 17%, 5% and 2% respectively;

- Chhattisgarh is also a major producer of maize, cereals, pulses;
- Chhattisgarh grows 6% of total papaya produced in the country. Additionally, it is a major contributor of horticulture produce like turmeric, ginger, guava, tomato, brinjal, okra, pea and cabbage;
- Maize production in Chhattisgarh increased to 0.75 M MT in 2014-15 from 0.23 M MT in 2012-13;
- Production of fruits and vegetables doubled in Chhattisgarh between 2008 and 2014. Additionally, the area under fruits and vegetable crops increased at a rate of 61% and 36% respectively during the same period;

| Major Produce    | Production in 2014-15 (M MT) | Key Produce  |
|------------------|------------------------------|--|
| Fruits           | 2.16                         | Banana, Mango, Papaya, Guava, Jackfruit etc.                   |
| Vegetables       | 5.7                          | Tomato, Brinjal, Potato, Ladyfinger, Cauliflower, Cabbage etc. |
| Spices           | 0.64                         | Chilli, Ginger, Turmeric, Coriander, Others                    |
| Medicinal Plants | 0.06                         | Eucalyptus Citriodora, Jam Rosa, Aloe Vera, Lemon Grass        |
| Flowers          | 0.05                         | Tuberose, Marigold, Rose                                       |

(Source: Department of Horticulture, Government of Chhattisgarh)

Chhattisgarh produced 0.64 M MT of spices in the year 2014-15. Major spices like chilli, ginger and turmeric produced in the State constitute around 78% of the total spices produced in Chhattisgarh;

- Chhattisgarh produced 47,000 MT of flowers during 2014-15. The marigold variety comprised 57% of the total flower produce followed by gladioli and tuberose at 12% each;

- The State's 76 cold storage units have a capacity of 0.38M MT for perishable agricultural produce;
- Chhattisgarh ranked sixth in the Country in fish seed production and inland fish production in 2014-15. Chhattisgarh produces 1.1 M MT milk annually. Milk consumption in the State is estimated to reach 3.7 M MT by 2020;
- A growing population, an increasing per capita income, a high rate of employment and rapidly changing food habits and lifestyle of the people in the State are driving growth in the agro and food processing sector in the State.
- Chhattisgarh accounts for more than 43% of total lac produced in India;
- Known as the *Herb Shelf*, Chhattisgarh produces 312 species of commonly traded medicinal plants. Out of about 19,000 populated villages in the State, about 11,200 are located within a 5 km of the forest perimeter;
- Minor Forest Produce offers significant trade potential and the State is implementing numerous programmes to realise its full potential.

## 2.10 Rich Forest Cover

- Rich in biodiversity with 44% of the State's geographical area covered by forests;
- 22 varied forest sub types present in the State. Chhattisgarh is home to more than 200 varieties of medicinal plants;
- Apart from timber, minor forest products like Tendu leaves, Sal seeds, Gum, Lac, Tamarind and sev-

| Area under forest in Chhattisgarh |               |                        |                     |
|-----------------------------------|---------------|------------------------|---------------------|
| Forest Type                       | Area (sq. km) | % of Geographical Area | Biodiversity status |
| Sal Forests                       | 19,682        | 14.56                  | Very Rich           |
| Teak Forests                      | 5,858         | 4.33                   | Fairly Rich         |
| Mixed Forests                     | 34,230        | 25.32                  | Rich                |
| Total                             | 59,772        | 44.21                  |                     |

(Source: Chhattisgarh Minor Forest Produce Co-operative Federation)

| Trade potential of MFP in Chhattisgarh |   |                         |
|--|---|-------------------------|
| Category of MFP                        | Species/Produce   | Estimated Trade (USD M) |
| Nationalised                           | Tendu leaves and Gums, Sal seed, Harra  | 110                     |
| Non-Nationalised                       | Imli, Mahua, Lac, Kosa, Mahul Leaves, Chironjee Baibaring, Vanjeera, Kalmegh, Amla etc. | 126                     |
| Total                                  | 236   |                         |

(Source: Chhattisgarh Minor Forest Produce Co-operative Federation)

## 2.11 Naya Raipur, First Greenfield Smart City of India

- Spread across 237 sq km, Naya Raipur is the first greenfield smart city in India; Fourth planned State Capital of the Country, after Gandhinagar, Chandigarh and Bhubaneswar;
- With over 2,500 Ha of public spaces, parks and landscaping with 26% of green area, Naya Raipur is the first Indian city to be surrounded by a 500 m wide green belt;
- Included in the NNURM scheme, Naya Raipur is a demonstration city under the GEF/World Bank assisted Sustainable Urban Transport Project (SUTP) that is being implemented by the Government of India;
- The Administrative Capital of



Chhattisgarh, Naya Raipur houses State administration buildings. World class amenities and initiatives in the pipeline in Naya Raipur include star hotels, a golf course, a theme township, amusement park, a logistics hub, jungle safari, convention centre, IT SEZ, shopping malls, multiplexes and an Electronics Manufacturing Cluster (EMC);

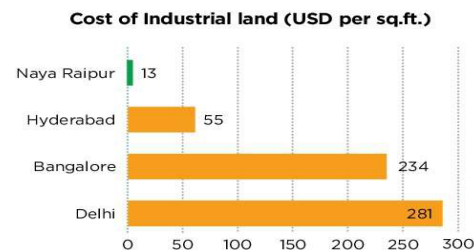
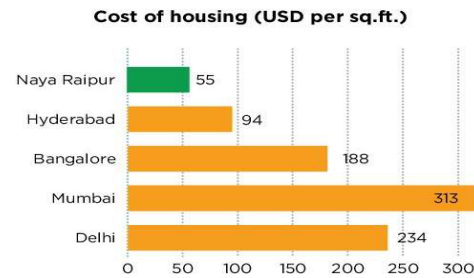
- An international cricket stadium with the second highest seating capacity in the Country
- The *K e g e H b f h h g h* with universities, research and institutional complexes, including IIM, IIIT and a national law university;
- Bus Rapid Transit System (BRTS) and 80 km of non motorised cycle track.

## 2.12 A Hot Spot for Tourism

- The State offers more than 125 tourist destinations across four mega circuits, including the Country's biggest waterfall Chitrakot besides wildlife, forests and historical sites;
- Chhattisgarh has 3 national parks, 11 wildlife sanctuaries, 30 plus significant waterfalls, multiple caves and an untouched natural topography;
- The State is home to the largest tribal population in India: 42 tribes, including 5 particularly vulnerable tribal groups;
- Annual Sirpur National Dance and Music Festival organised by the State Government, attracts tourists from all across the world. Dussehra in Bastar is another major tourist attraction in Chhattisgarh;

- Natural splendours like mysterious caves and the finest waterfalls coupled with an enchanting wildlife and untouched greens can mesmerise and pleasantly surprise any tourist visiting Chhattisgarh;
- A rich cultural heritage – the land of hallowed shrines, tribal culture and an ageless art with an ethnic tribal culture embedded at its core;
- Rich in dance forms, musical instruments, clothes, handicrafts, festivals, the State foresees large private sector participation in the tourism sector

## 2.13 Competitive Cost of Doing business



### Capital Cost

- ~ Lower cost of land
- ~ Lower cost of construction due to competitive pricing of steel and cement
- ~ Lower cost of raw materials (metals)

- ~ Fiscal incentives
- ~ Capital subsidy
- ~ Interest subsidy
- ~ Discount on land premium

### Operating Cost

- ~ Lower cost labour
  - ~ Lower cost of electricity
  - ~ Lower cost of living
  - ~ Lower rentals
  - ~ Lower cost of production
  - ~ Fiscal Incentives
  - ~ Electricity duty exemption
- Power tariff in Chhattisgarh is lower than the national average;
  - Cost of metals and cement is lower in the State owing to local manufacturing;
  - Cost of land in the State is lower than in other parts of the country on account of a low population density;
  - Cost effective transportation and logistics;
  - Cost of construction in Chhattisgarh is competitive;
  - Cost of living in Raipur and other cities in Chhattisgarh is significantly lower compared to other parts of India.

### 2.14 Talent

- The State has made significant progress in the field of higher education since its inception and has developed an excellent educational ecosystem;
- Presence of NIT, IIT, IIIT, IIM, National Law University and Indira Gandhi Agriculture University make Chhattisgarh the knowledge hub of central India;
- Annually, 30,000 professionals pass

out of the educational institutions system in Chhattisgarh;

- Chhattisgarh produces about 75,000 Graduates and Post Graduates annually;
- It is the Second Government - after South Africa - to make Right to Skills an enforceable right
- Largest public skill programme in India: over 0.28 million youth trained in last three years;
- Residential livelihood colleges at district level
- 2,400 plus registered Vocational Training Partners in the State

| Growth in professional education infra in the State |  |
|---|--|
| Year 2000   | <ul style="list-style-type: none"> <li>• 3 State universities</li> <li>• 116 government colleges</li> <li>• 226 private colleges</li> </ul>  |
| Year 2015   | <ul style="list-style-type: none"> <li>• 7 State universities</li> <li>• 1 central university</li> <li>• 6 private universities</li> <li>• 204 government colleges</li> <li>• 256 private colleges</li> <li>• Top institutes- IIT, IIM, IIIT, NIT, AIIMS, National Law University</li> </ul> |

*Chhattisgarh is the first state to provide Skilled Development as a right*

## 2.15 Key Investment Enablers : Social and Physical Infrastructure

### Public Transport Facilities

- Bus Rapid Transit System (BRTS)
- Raipur Nagar Nigam Transport Limited (RNNTL) - City Bus is operational and currently multiple routes inside the city are being served by it.
- 4/6 lane road connectivity in Raipur, Naya Raipu, Bhilai and Bilaspur
- Travel time is less within the city and there are no traffic jams, which leads to more productivity and higher quality of life

### Healthcare and Entertainment Facilities

- Healthcare Institutions such as Apollo Fortis, AIIMS Raipur (regional) Vedanta Cancer , Care, Shri Satya Sai hospital and Narayana Hospital are functional.
- 6 Shopping malls in the city of Raipur, 2 in Bilaspur. More than 15 lakh sq- ft of shopping space
- Presence of major hotel group : Taj, Hyatt, Marriott, Babylon, VW Canyon, GT Star, TDS.

### Park group

- PVR. INO , Cinemax, Glitz, BigCinema and others

### Support Facilities

- Excellent support facilities and on-site infrastructure like internal road network, parking areas, security, uninterrupted power supply, water supply, sewage treatment, solid waste management and landscaping, espacialy in Naya Raipur.

### Good Quality of Life

- World Class Schools: Delhi Public School (DPS), NH Goel World School, Krishna Public School, Rajkumar College ( Public School), Kanger Valley, Mayur School and others
- Excellent Law & Order situation.
- Abundant availibility of comfortable housing at affordable prices.
- All major and aspirational brands have presence. For example luxury car showrooms such as aguar, Audi, BMW, Mercedes.



# 3

## Ease of Doing Business in Chhattisgarh

Chhattisgarh has been ranked fourth among 36 States and Union Territories in the country, as part of the authentic and comprehensive assessment ever undertaken in India for *Ease of Doing Business* ranking.

The ranking is in accordance with the detailed assessment undertaken by the Department of Industrial Policy and Promotion, Government of India, and validated by the World Bank. It covers 340 parameters spanning the following areas:

- I Access to Information and Transparency Enablers
- II Single Window System
- III Availability of Land
- IV Construction Permit Enablers
- V Environmental Registration Enablers
- VI Labour Regulation Enablers
- VII Obtaining Electricity Connection
- VIII Online Tax Return Filing
- I Inspection Reform Enablers
- Commercial Dispute Resolution Enablers

### 3.1 Ease of Doing Business Strategy

- Single window clearance mechanism under the State Investment Promotion Board (SIPB) for investment promotion in industrial projects;
- Common Application Form (CAF);
- Integrated and automated approval processes;
- Reduction in the number of approvals required for setting up

and operationalising business;

- Service standards with standard time frames with provisions of deemed approval;
- Information dissemination with user guides to facilitate users;
- Self certification/third party inspection in practice.

### 3.2 Departmental Initiatives

#### Department of Industries

- Introduced Udyam Aakanksha with focus on MSME for registration and availing benefits/ incentives. 11,259 self-registered so far, in the first 12 months. Fully online registration. Computerized auto generation of receipt and registration number.
- Reliance on self-certification & no fee charged for registration
- GIS based land allotment system
- Online system for Stamp Duty Exemption, Priority Sector Certificate and Production Certificate and other incentives.
- Transparency and predictability through appropriate user guides, help desk support and website information dissemination;
- ICT enabled single window clearance under SIPB;
- Legal changes to make the services list more comprehensive and in line

with the Government of India recommendations;

- Online grievance redressal and business facilitation helpline.

| Top five states in Ease of Doing Business |                |        |
|---|----------------|--------|
| Rank                                      | State          | Score  |
| 1   | Gujarat        | 71.14% |
| 2   | Andhra Pradesh | 70.12% |
| 3   | Jharkhand      | 63.09% |
| 4   | Chhattisgarh   | 62.45% |
| 5   | Madhya Pradesh | 62.00% |

### Department of Labour

- Online registration and grant of licences under the Factories Act, 1948;
- Factory licence with validity for five years instead of the earlier duration of one year;
- Waiver of licence to establishments having less than 50 labourers under the Industrial Employment (Standing Orders) Act, 1946
- Licence for contractors under the provisions of The Contracts Labour Regulation and Abolition Act, 1970;
- Registration of principal employer's establishment under The Contracts Labour (Regulation and Abolition) Act, 1970;
- Factory building plan approval provided as a service through the single window system;
- Provision for self certification granted to IT/ITeS.

- Only online application allowed; physical application has been totally discontinued
- Computerized risk assessment introduced & Inspection requirements reduced
- Low risk industry exempted from inspection
- Allocation of inspectors, 48 hours deadline for inspectors to upload inspection report
- Self-certification/ third party inspection introduced
- Single integrated returns across all applicable labor laws

### Department of Commercial Taxes

- Single Sign On to business entities for the purpose of all State taxes;
- VAT registration certificate (in case of non sensitive goods) is issued within one working day from the date of application;
- No professional tax;
- Risk based inspection related to tax compliance;
- Advance tax ruling for State level taxes on the lines of the Income Tax Act;
- Comprehensive information dissemination on service delivery through user guides;
- Online system for registration, return, refund for various taxes applicable in the State;
- Fully functional help desk and support centres;
- Risk analysis based on an objective

**2<sup>nd</sup> rank in Labour regulations and reforms**

**3<sup>rd</sup> rank in Setting up of business**

**4<sup>th</sup> rank in Carrying out inspections**

**4<sup>th</sup> rank in Enforcing contracts**

criteria for boosting business confidence.

### Department of Urban Development

- Online application and payment for NOCs, stability certificate, building structural plan, registration under Shops and Establishment Act, 1958;
- List of all documents required for the application process is posted online;
- Service standards with a defined time frame for application approval and inspection. Chhattisgarh Environment Conservation Board
- Single return for various environment/ pollution related Acts (under the purview of State Pollution Control Boards);
- Online registration for various environment/ pollution related compliances (for those under the purview of the State Pollution Control Boards);
- Auto renewal of Consent to Establish basis self certification/ third party certification;
- Auto renewal of Consent to Operate basis self -certification/third party certification;
- Well defined inspection procedures complete with provisions published

on the Department website, which include inter alia submission of inspection reports within 72 hours.

- Simplification of application forms and procedure of approval
- Single ID for all State taxes; Online payment and return filing system
- No check posts required for tax filing and payment
- No Business premises inspection required for VAT registration
- Going forward there will be no manual intervention in any process

### 1st Commercial Court in India

To help reduce the time taken to enforce contracts and providing efficient judgments in commercial cases.

- 1st Commercial Court established in the country in Naya Raipur to expedite commercial cases. New and modern infrastructure
- Dedicated Principal judge and separate staff set-up, New and Modern infrastructure.
- E-filing, summons & cause list for commercial disputes
- E-payment for court fees
- Digitally signed court orders

**4<sup>th</sup> Rank, Again in 2016**  
DIPP & World Bank: Ease of Doing Business State Rankings  
**Consistent Chhattisgarh**  
Implemented 327 Out of 340 Reforms

**LEADER**  
in Ease of Doing Business State Rankings Consistently Ranked 4th amongst 36 States and UTs

**100%**  
Implementation in 7 out of 10 Key Business Reform Areas

**ACCOMPLISHED**  
a Total Score of 97.32% in DIPP & World Bank Rankings for 2016

**BEST**  
Online Single Window System

**FIRST**  
Greenfield Smart City of 21<sup>st</sup> century 'Naya Raipur'

**SURPLUS**  
Power Availability  
Cheaper Power

**LARGEST**  
Public Skill Program in India  
1<sup>st</sup> State to enact Right to Skills

**CENTRAL**  
Location of India  
Shares Border with 07 States  
Access to 40% of India's population

# 4

## Institutional Framework for Investment Promotion Facilitation

### 4.1 State Investment Promotion Board (SIPB)

- The State Investment Promotion Board (SIPB) headed by the Hon'ble Chief Minister assists investors/entrepreneurs to set up projects in the State. SIPB takes up investment proposals more than INR 10 crores (approximately USD 1.6 million) in value. Investment proposals below INR 10 crores (approximately USD 1.6 million) are facilitated by the District Investment Promotion Committee.
- SIPB has been notified as the nodal agency for implementation of the Single Window Clearance System (SWCS). SIPB has developed an ICT (Information & Communication Technology) enabled single window system, which allows investors to apply online for various approvals required to set up business in the State.
- SIPB has been entrusted with industrial promotion and assistance, including marketing, export promotion and supply of raw materials to micro and small industries. SIPB assists in establishing rate contracts of reserved items required by the government departments for industrial infrastructure development, upgradation and maintenance of industrial areas as well as basic infrastructure facilities.

### 4.2 Chhattisgarh State Industrial Development Corporation (CSIDC)

- Chhattisgarh State Industrial Development Corporation (CSIDC), a Government of Chhattisgarh undertaking, is the nodal agency for the development of industrial infrastructure.
- The functions of CSIDC include land maintenance, entering into joint ventures, managing PPPs, export promotion and maintenance and upgradation of industrial areas.
- CSIDC has prepared and implemented the roadmap for the development of industrial infrastructure. The key objective of the roadmap is to attract private investment, execute investment promotion activities and operationalise industrial infrastructure projects with the participation of the private sector.

### 4.3 Chhattisgarh Infotech Promotion Society (CHiPS)

- Chhattisgarh Infotech and Biotech Promotion Society (CHiPS) is the nodal agency for Electronics, IT/ITes for propelling IT growth and implementation of IT plans in the State. CHiPS is a registered society promoted by the Government of Chhattisgarh. The Chief Minister

heads the High Powered Governing Council of CHiPS.

- CHiPS is involved in the implementation of various mega IT Projects like CHOICE, e-Gram Suraj, e-Procurement, SWAN, e-Treasury, Bhuiyan and GIS. IT projects are drawing upon the services of e-governance experts and consultants from amongst corporates and the academia.

#### **4.4 Naya Raipur Development Authority (NRDA )**

- Naya Raipur Development Authority (NRDA) is a special area development authority established by the Government of Chhattisgarh under the Chhattisgarh Nagar Tatha Gram Nivesh Adhinyam, 1973, for the development and administration of Naya Raipur. As part of the developmental activities, NRDA is developing infrastructure, utility and social projects through various procurement methods such as PPP, engineering procurement contracts, rate contract etc.
- NRDA facilitates implementation of large scale light industry projects, non polluting industry clusters and parks in the Naya Raipur region.

#### **4.5 Chhattisgarh Environment Conservation Board (CECB)**

- Environmental laws, namely, the Water (Prevention and Control Pollution) Act 1974 and the Air (Prevention and Control of Pollution) Act, 1981, have been enacted for the prevention and control of water pollution, maintenance and res-

toration of wholesomeness of water as well as for the prevention, control and abatement of air pollution respectively.

- In congruence with the other Central and State Pollution Boards, the CACB came into existence to meet the objectives outlined in the aforementioned Acts.

#### **4.6 Department of Commerce & Industries**

- The primary responsibility of the Department of Commerce and Industries is the economic development of the State through industrialisation and promotion of trade & commerce. The Department plays a catalytic role in the establishment of micro, small, medium, mega and ultra mega projects to create employment opportunities and develop industrial areas through an increase in investment, trade and export. The Department of Commerce & Industries is the nodal department for ensuring ease of doing business in the State through the implementation of the provisions of the Chhattisgarh Audyogik Nivesh Protsahana Adhinyam 2004 and defining various procedures for investment related business approvals in the State.

#### **4.7 Boiler Inspectorate**

- The Boiler Inspectorate has been established in the state as per the guidelines of the Indian Boiler Act, 1923. The Indian Boiler Regulations, 1950 has been made under Indian Boiler Act, 1923. The Boiler Inspectorate carries out the implementation of rules and regulations of the Act and conducts inspec-



tions and monitoring of the Boilers in the state to maintain the industrial safety standards.

#### 4.8 Registrar Firms and Societies

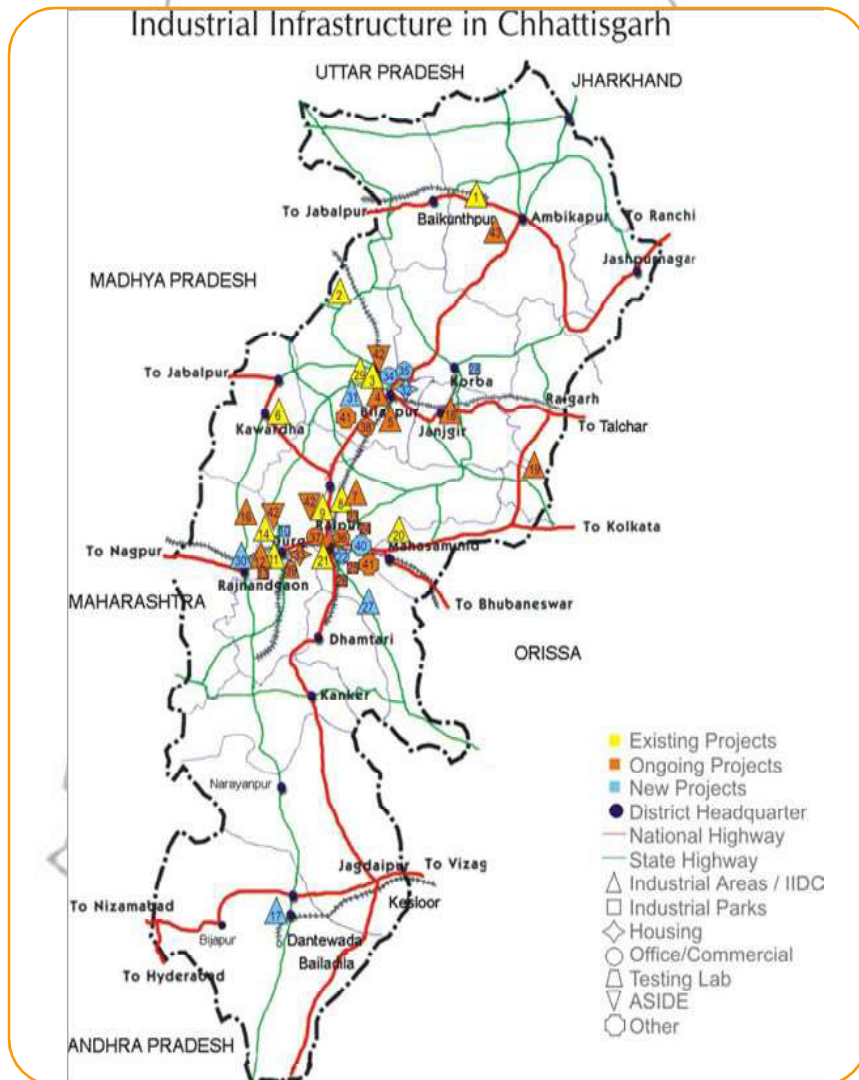
- The Registrar of Firms & Societies was established on 1/Nov/2000. The office of Assistant Registrar of Firms and Institutions division is located in Bilaspur. The Registrar

of Firms & Societies has been entrusted with the registration and administration under following Acts:

**Indian Partnership Act, 1932**

**Chhattisgarh Societies Registration Act 1973 (Revised 1998)**

- Under the Act a total of 56168 committees have been registered.



# 5

## Key Industries in State

### 5.1 Mineral Based

Steel Authority of India Ltd  
(SAIL)



सैन SAIL

BHILAI STEEL PLANT



Prakash



balco

BHARAT ALUMINIUM COMPANY



JINDAL

STEEL & POWER

#### Others-

- WAGON Repair Shop
- Bharat Refractory's Ltd
- Ferro Scrap Corporation Ltd
- Hindustan Steel Construction Ltd
- IBP Explosives
- Power Grid Corporation

### 5.2 Cement

ACC Ltd



Lafarge India



सिंसाई



CCI



ADITYA BIRLA



UltraTech

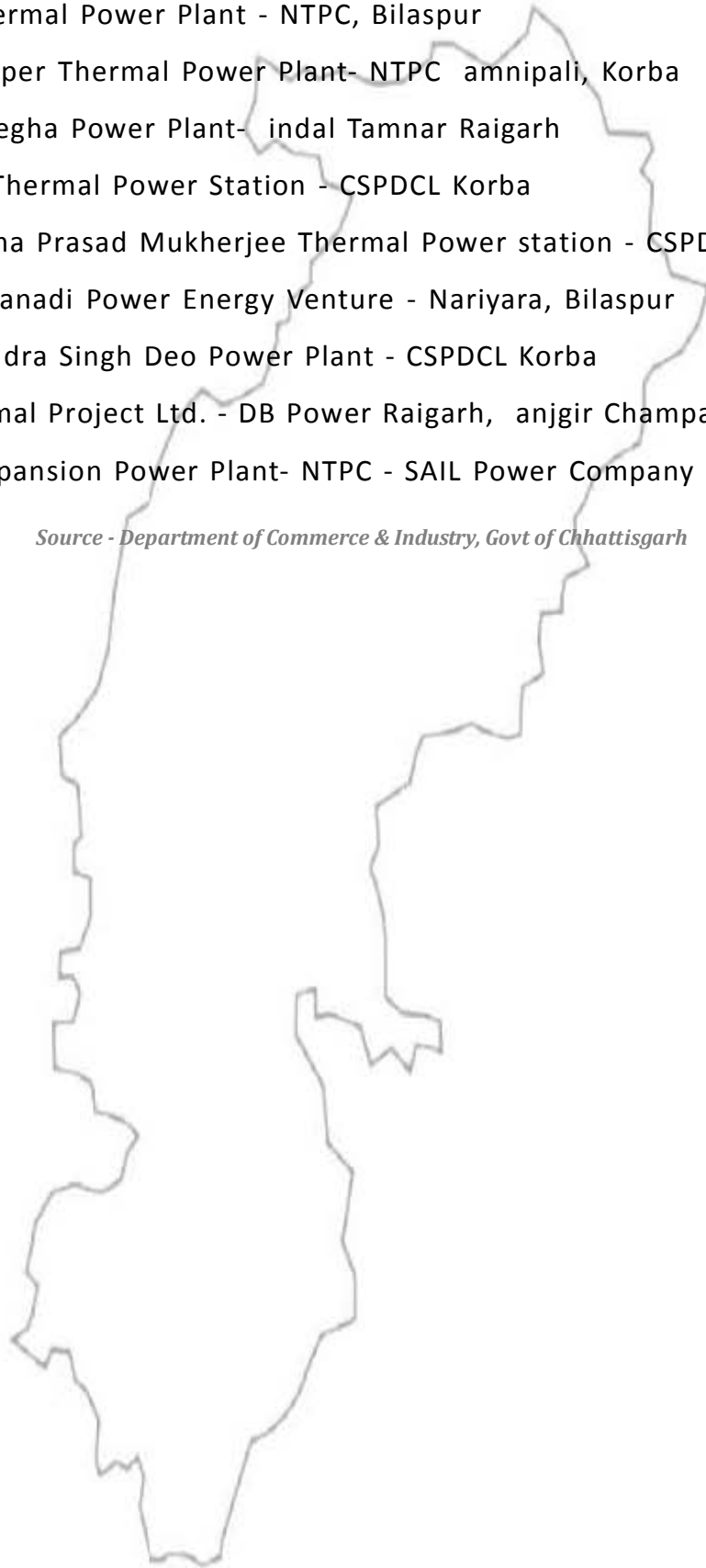


Ambuja  
Cement

### 5.3 Power Sectorx

- Sipat Thermal Power Plant - NTPC, Bilaspur
- Korba Super Thermal Power Plant- NTPC amnipali, Korba
- indal Megha Power Plant- indal Tamnar Raigarh
- Hasdeo Thermal Power Station - CSPDCL Korba
- Dr Shyama Prasad Mukherjee Thermal Power station - CSPDCL Korba
- KSK Mahanadi Power Energy Venture - Nariyara, Bilaspur
- Bhawnendra Singh Deo Power Plant - CSPDCL Korba
- DB Thermal Project Ltd. - DB Power Raigarh, anjgir Champa
- Bhilai Expansion Power Plant- NTPC - SAIL Power Company Ltd. Bhilai

*Source - Department of Commerce & Industry, Govt of Chhattisgarh*



# 6 Policies and Incentives

## 6.1 Industrial Policy 2014-19

The Industrial Policy has been implemented in the State for executing the Five Year action plan for industrial development with a special focus on emerging sectors.

### Key Objectives

- To promote *Make in India* in alignment with the national agenda of Make in India
- To bring the State at par with the industrially developed states of the country, by leveraging the positive environment created for overall and rapid industrialisation of the State
- To promote new industrial sectors of growth in the State with a focus on pollution free and skill based industries
- To create a conducive environment for the promotion of exports and to attract foreign investments through the establishment of special industrial zones
- To ensure a balanced industrial growth with a focus on developing industrially backward areas of the State
- To facilitate participation of the private sector in the construction and maintenance of industrial infrastructure
- To increase the Per Capita Income and GDP of the State
- To ensure balanced industrial growth by facilitating commercial viability for businesses in industrially backward areas of the State
- To provide relatively more economic benefits to the weaker sections of the society such as SC/ST, the Disabled, Retired Soldiers, Naxal affected families and Women Entrepreneurs, bringing them into the mainstream
- To provide opportunities to the private sector in the construction and maintenance of industrial infrastructure
- To enhance employment opportunities through value addition to the available mineral and forest resources
- To ensure participation of industries in the skill development of the local people
- To increase the storage capacity for the agriculture produce/products in the State, especially in rural areas.

### Incentives and Concessions for Priority Industries

#### Interest Subsidy

- Micro and Small Industry: Upto 60% of the total interest paid with a maximum limit INR 30 lakhs per year
- Medium and Large Industry: Upto 60% of the total interest paid with

a maximum limit INR 40 lakhs per year

- Mega projects and Ultra mega projects: Upto 70% of the total interest paid with a maximum limit INR 100 lakhs per year
- Special Economic Package for Scheduled Caste (SC)/Scheduled Tribe (ST): Upto 75% of the total interest paid with a maximum limit INR 120 lakhs per year

#### **Fixed Capital Investment Subsidy**

- Micro and Small Industry: 35% of the fixed capital investment with a maximum limit of INR 80 lakhs
- Medium and Large Industry: Upto 45% of the fixed capital investment with a maximum limit of INR 120 lakhs
- Mega projects and Ultra mega projects: Up to 50% of the fixed capital investment with a maximum limit of INR 500 lakhs
- Special Economic Package for SC/ST: Up to 50% of the fixed capital investment with a maximum limit INR 500 lakhs Electricity Duty Exemption
- For all categories of industry: Full exemption upto 10 years (from the date of commencement of commercial production)
- Special Economic Package for SC/ST: Full exemption upto 12 years from the date of commercial production

#### **Stamp Duty Exemption - 100%**

##### **Exemption from Entry Tax**

- Upto 7 years Exemption/concession in land premium on allotment of land in industrial areas/industrial parks

- Small, Micro, Medium Industry: Upto 60% exemption in land premium

- Large, Mega projects/ultra mega projects: Upto 25% exemption in land premium

- Special Economic Package for SC/ST: 100% exemption in land premium shall be given on land allotment for establishing industries and service enterprises. Rate of lease rent will be INR 1 per acre per year Project Report Subsidy

- For all categories of industry: 1% of the fixed capital investment; maximum limit INR 2 lakhs

- Special Economic Package for SC/ST: 1% of the fixed capital investment; maximum limit INR 2.5 lakhs

#### **Quality Certification Subsidy**

- Small, Micro & Medium Enterprises: 50% of expenditure for certification; maximum limit INR 1 lakh

- Special Economic Package for SC/ST: New and existing Micro, Small and Medium category industries - 60% of the amount spent; maximum limit INR 1.25 lakhs for obtaining certification

#### **Technology Purchase Subsidy**

- For all categories of industry: 50% of expenditure for patent; maximum INR 5 lakhs

- Special Economic Package for SC/ST: Small, Micro, Medium, Large industry and Mega & Ultra Mega Projects - 60% of the amount spent on purchase of technology; maximum limit INR 6 lakhs

#### **Technical Patent Subsidy**

- Small, Micro & Medium Enter-

prises: 50% of expenditure for patent, maximum limit of INR 5 lakhs

- Special Economic Package for SC/ST: Small, Micro, Medium, Large, Mega & Ultra Mega Enterprises - 60% of expenditure for patent, maximum limit of INR 6 lakhs

#### **Margin Money Grant**

- Women Entrepreneurs, Retired Soldiers and Naxal affected families and entrepreneurs in the Disabled class in the State to get 25% Margin Money Grant on a capital cost of INR 500 lakhs for the establishment of new industry, the maximum limit being INR 35 lakhs
- Special Economic Package for SC/ST: 25% Margin Money Grant on a capital cost of INR 500 lakhs for the establishment of new industry, the maximum limit being INR 40 lakhs

#### **Industrial Award Scheme**

- At the State level: First, second and third prizes of INR 1,00,000/-, INR 51,000/- and INR 31,000/- respectively, along with a citation
- Special Economic Package for SC/ST: Every year first, second and third prize along with a citation at the State level with the prize money

## **6.2 Agro & Food Processing Industries Policy 2012**

“Agro and Food Processing Industries Policy – 2012” focusses on promoting the downstream industries in the State to value add to the rich natural agro and food produce of the State.

#### **Key Objectives**

- To enhance farmer income in the State
- Value addition to the agriculture produce, fruits & vegetables and pulses & oilseeds in the State
- Generation of new employment opportunities in the sector
- Provision for secured storage for agriculture produce, pulses & oilseeds and fruits & vegetables in the State
- Ensure better price of agriculture produce for the farmers in the State
- Reduction in the cost of production of agricultural products as well as marketing and branding facilitation
- Ensure availability of quality food materials to the public at appropriate prices
- To promote agricultural diversification of horticulture and other cash crops through the agro and food processing industry in Chhattisgarh

#### **Incentives & Concessions**

##### **Reimbursement Concession in Value Added Tax and Central Sales Tax**

- Maximum limit is 150% of the fixed capital investment upto a maximum period of 10 years, whichever is completed earlier

### Entry Ta

- 100% exemption for a period of 7 years from the date of commencement of commercial production

### Electrical Duty exemption

- 100% exemption for a period of 10 years from the date of commencement of commercial production
- Total exemption leviable on agro products shall be granted to the agro & Food Products Processing units for a period of five years; maximum limit 75 percent of the fixed capital investment of the unit. Facility on Contract Farming
- Provisions of the Chhattisgarh Krishi Upaj Mandi Act – 1972 are applicable in the State.

### Single Licence System

- Sale–Purchase can be undertaken in the notified Krishi Upaj Mandies in the State

## 6.3 Chhattisgarh Food Processing Mission

The Chhattisgarh Food Processing Mission was notified in January 2016 on the lines of the National Mission on Food Processing (NMFP), to provide additional incentives to the food processing sector in Chhattisgarh

### Key Objectives

- To encourage investment in the food processing sector
- To promote technology upgradation and modernisation in the food processing industry
- To develop cold chain infrastructure in Chhattisgarh

- To encourage establishment of primary processing centres for food processing in Chhattisgarh

### Scheme for technology upgradation, establishment and modernisation of the food processing industry

Applicable to the cost of plant & machinery and technical civil works

- @ 25% upto INR 50 lakhs in general areas
- @33.33% upto INR 75 lakhs in ITDP areas (Integrated Tribal Development Project)

### Scheme for cold chain, value addition and preservation infrastructure

- Grant-in-aid @35% of the bank appraised project cost, including Interest during Construction (IDC), upto INR 5 crores per project
- Interest subsidy @6% upto a maximum of INR 2 crores for a period of 5 years from the date of completion of the project

### Scheme for the setting up of Primary Processing Centre (PPC)/Collection Centre (CC) in rural areas

- Grant in aid @ 50% of the project cost with a maximum of INR 2.50 crores Exemption on Stamp Duty
- 100% exemption from payment of Stamp Duty on direct purchase/ lease on allotted land Scheme for reefer vehicle
- Grants-in-aid @ 50% of the cost of new reefer vehicle upto INR 50 lakhs

## 6.4 Electronics & IT/ITeS Policy 2014-19

The IT/ITeS and Electronics industry has been identified as a priority sector by the State in services sector. The “Electronics & IT/ITeS 2014- 19” Policy has been released with the objective of promoting talent and high job creation in the sector to be able to contribute to the socioeconomic development of the State.

### Key Objectives

- To encourage investment in Electronics, Information Technology and Information Technology enabled Services in the State
- To develop Naya Raipur and other major cities of the State as Electronics and IT hubs
- Skill development of local youth in accordance with the requirements of the Electronics, Information Technology and Information Technology Enabled Services related industry
- Promote development of IT Hubs/ IT Park by providing incentives to investors for IT infrastructure development

### Incentives & Concessions

#### Interest Subsidy

- 75% of the total interest paid for 7 years; maximum limit of INR 60 lakhs per annum Fixed Capital Investment Subsidy
- Upto 50% of the fixed capital investment, excluding the cost of land with maximum limit of INR 150 lakhs per unit Rebate on Land Premium
- Rebate upto 80% of the land pre-

mium for units established within notified IT areas Rebate on Lease/ Rental Space

- Reimbursement upto 50% of lease or rental charges for a period of 3 years; maximum limit of INR 10 lakhs Exemption on CST and Entry Tax
- 100% exemption on CST and Entry Tax for 10 years

### Electricity Duty Exemption

- 100% exemption on electricity duty upto 12 years

### Additional Incentives

#### 1. Micro, Small and Medium Enterprises

- Incentive for Quality Certification - MSME Units established in the State are entitled to an incentive by way of reimbursement of 50% expenditure on ISO-9000, ISO-14000 or other similar national/ international certifications, the maximum limit being INR 7.00 lakhs. A unit can avail of this incentive for a maximum of two quality certifications per unit per annum.
- Incentive for Technical Patent - Units established in the State are entitled to an incentive by way of reimbursement of 50% expenditure on technical patents in the name of the unit with a maximum limit of INR 10 lakhs. The Unit can avail of this incentive for a maximum of two technical patents per unit per annum.
- Subsidy on Bandwidth Charges - MSME Units established in the State are entitled to a subsidy by way of reimbursement of 30% of the total charges paid towards availing of



internet bandwidth from ISP, the maximum limit being INR 3 lakhs per annum.

## 2. Large Investors

- Entrepreneurs with an investment of more than INR 100 crores during the Policy period may be considered for additional incentives over and above the incentives given in the Policy on a case to case basis.
- IT infrastructure developers possessing experience in IT infrastructure development on more than 3 lakh sq ft area over 5 years, with an investment of more than INR 100 crores, may be considered for additional incentives over and above the incentives given in the Policy on a case by case basis Special Incentive Package
- The Units, which commence commercial production during the financial year 2015-2016 with a minimum of 500 employees are entitled to following incentives during the Policy period
  - ~ Preference in the evaluation process by way of award of bonus points in Technical Evaluation equivalent of 5% of the maximum score in IT related tenders of the Chhattisgarh Government
  - ~ Free of cost advertising space, if available, in Government sponsored events for IT units in the State.
- The State would ensure uninterrupted quality power supply at the most competitive tariff to the units.
- Relaxation in working hours, work shifts and employment of women under the Shops & Establishments Act.
- Relaxations under the Industrial Disputes Act and Contract Labour Act to all Electronics, IT and ITeS units in the State at par with Special Economic Zones.
- Permission to Electronics, IT and ITeS units for self certification of reports, returns. All units under this Policy are declared essential service under Essential Services Maintenance Act.

## 6.5 Automotive Industry Policy 2012

The “Automotive Industry Policy – 2012” encourages the establishment of automotive (automobile, two wheelers, three wheelers, passenger and commercial vehicles, earth movers, agricultural utility vehicles, auto components etc.) and non core sector industries.

### Key Objectives

- To encourage the establishment of non core sector industries in the future
- To attract a minimum of USD 3000 million in investments in the automotive industries sector and create 20,000 additional employment opportunities over next ten years
- To encourage establishment of micro, small, ancillary and medium industries in the automotive industry to foster local entrepreneurship and create direct and indirect employment opportunities

### Incentives & Concessions

#### Value Added Tax reimbursement

- Limited to a maximum 115% of the capital investment for original and ancillary units for a maximum period expiring before 18 years,

whichever is earlier Rebate in Central Sales Tax

- For a period of 18 years 50% on the rate prevailing at that time Rebate in Electricity Duty
- For the period of 10 years from the date of commencing commercial production
- 100% rebate on purchase of the first raw materials for the project for a period of 8 years

#### **Exemption from Stamp Duty**

- 100% on sale/lease related documents of land, buildings, sheds and flat Exemption from Registration Fee
- 100% exemption on land, buildings, sheds and flat

## **6.6 Solar Policy 2012-17**

The “Chhattisgarh Solar Energy Policy 2012” has been framed to leverage the National Solar Mission and develop opportunities for investment in the New and Renewable Energy sector.

#### **Key Objectives**

- To encourage, develop and promote solar power generation in the State
- To meet the growing demand for power in an environmentally and economically sustainable manner
- To enhance private sector participation in solar power generation
- To create a favourable environment for the development of solar manufacturing capabilities within the State
- To contribute to long term energy

and ecological security of the State

- To promote Off-Grid Solar applications to meet the energy needs of the vulnerable sections of society residing in distant areas
- To enhance universal access to clean energy
- To encourage a decentralised, distribution generation system in the State
- To create opportunities for direct and indirect employment in solar generation, manufacturing and related support industries
- To efficiently utilise the available wastelands/ non industrialised unused land for solar generation
- To create skilled and semi skilled talent for the sector
- To encourage innovative projects for solar power generation

#### **Incentives & Concessions**

- All Solar Power projects are exempt from payment of Electricity Duty (ED) on auxiliary consumption and captive consumption within the State
- State Government extends the facility of ED Exemption to Solar Power Plants commissioned until March 2017 VAT
- VAT for all the equipment/material required for solar power projects included in the list notified by Energy Department is entitled for exemption by the Commercial Tax Department Land for Grid Connected Project

- It is the responsibility of the project developer to acquire the land required for the project as per the policy of the State
- Depending on the availability, Government land can be made available to the project developer as per the prevalent State Policy.
- Terms and conditions of “State’s Model Rehabilitation and Resettlement policy”, as amended from time to time, are applicable for acquisition of private land by the Government for setting up solar power generation plants

## 6.7 State Mineral Policy 2001

### Objectives

- To develop mineral resources keeping the priority for export oriented minerals, strategic minerals, base metals and to enhance the reserves of traditional minerals used by the local populace.
- In case of minerals like gold, base metals and diamond, where enormous capital outlay and modern technique are required for conducting aero-geophysical survey at 250 m. line interval/foreign participation will be sought.
- Ecological concerns shall be in conformity with the local ecosystem

### Features

- **PREFERENCE IN SANCTION OF LEASES FOR MINOR MINERALS** to Co-operative societies constituting members below the poverty line of scheduled castes, scheduled tribes, backward classes and women., Co-operative societies of unemployed youth., Co-operative societies of members where all are below the poverty line., Unemployed youths below the poverty line. , Any person below the poverty line
- **SIMPLIFICATION OF MINING LAWS AND LEASING**
- **Grant and renewal of Mining Leases**
- **EXPORT PROMOTION**
- **DEVELOPMENT OF MINERAL BASED INDUSTRIES**
- **CONSTITUTION OF MINING CORPORATION**

# 7

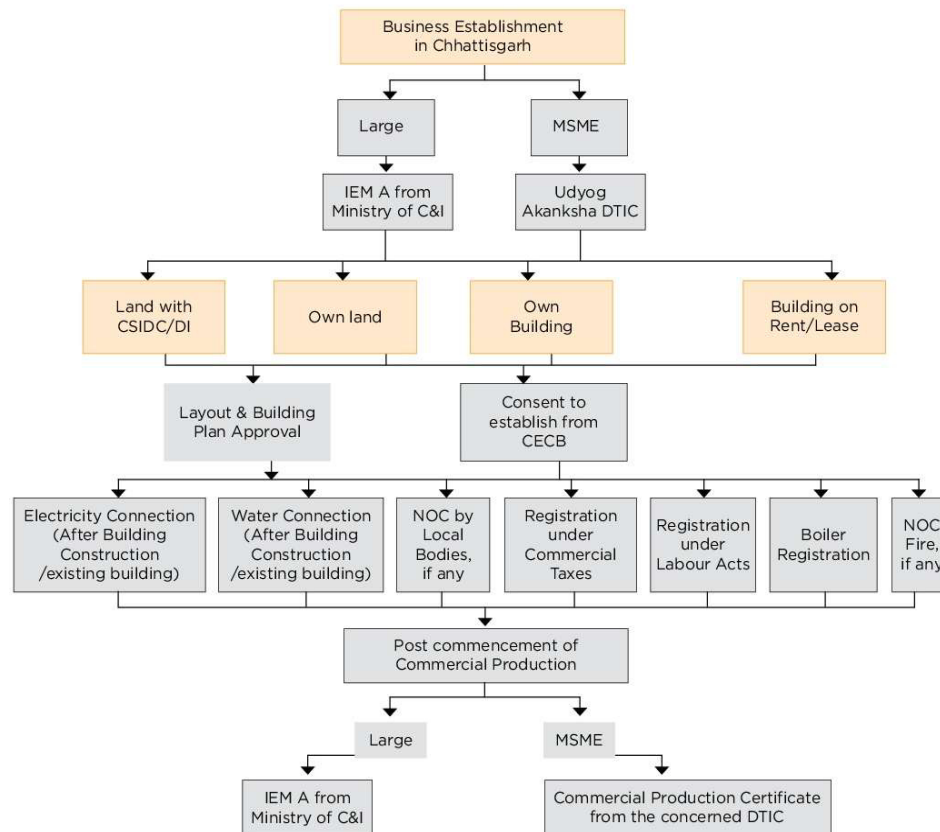
## Framework for Setting up Industry in Chhattisgarh

Outlined below are the nodal departments/agencies and the process flow for setting up industry in Chhattisgarh. The nature of approvals depends upon the type of industry to be set up. Facilitation of approvals and clearances required for setting up and doing business in the State are part of the services offered by the SIPB

| Nodal Departments/Agencies involved in Setting up Industry in Chhattisgarh |                             |  |  |                                  |                                 |   |                                 |
|--|-----------------------------|--|--|----------------------------------|---------------------------------|---|---------------------------------|
| Issuance of IEM/ Udyog Akanksha  | Registration under VAT/ CST | Land Allotment & Diversion   | Approvals for layout and building plans                | Pollution/ Environment           | Water                           | Electricity                                   | Labour & Factory Licence        |
| DIPP, Govt. of India/ DTIC- Govt. Of Chhattisgarh                          | Commercial Tax Department   | CSIDC/Dept. of Industries, Revenue Department, Govt. of Chhattisgarh | Urban/Town & Country Planning Department/ Local Bodies | CECB, Government of Chhattisgarh | Water Resource Department /PHED | Chhattisgarh State Power Distribution Company | Labour Department/ Local Bodies |

*Source - Department of Commerce & Industry, Govt of Chhattisgarh*

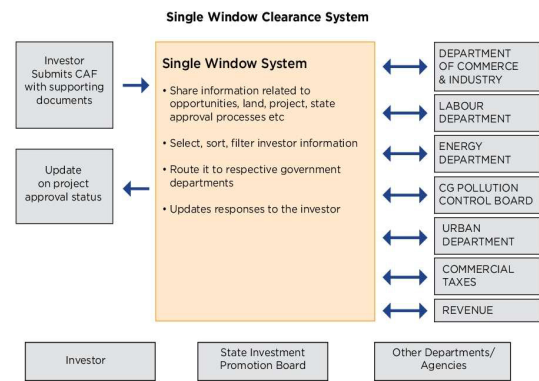
### General Framework of Processes for Setting up Industry in Chhattisgarh



*Source - Department of Commerce & Industry, Govt of Chhattisgarh*

## 7.1 Single Window Clearance System – One Stop Solutionx

The Government of Chhattisgarh has set up a Single Window Clearance System (SWCS), which provides the investors with one Window or a single point of contact (SPoC) for handling all information, data, documents and for coordinating between different departments. SIPB is the nodal agency designated to provide SWCS. Investors can submit all standardised information and documents at a single entry point (physical or electronic) in the form of a Combined Application Form (CAF) to fulfill regulatory requirements.



# 8

## SWOT ANALYSIS

### 8.1 Strengths

- Ease of Doing Business
- Central Location: Well-connected railways and roads
- Rich mineral and natural resources
- The average cost of land per Ha is much lower than similar places in other neighbouring states
- Surplus power
- Good industrial environment: Presence of industrial parks

### 8.2 Weakness

- Landlocked and limited local markets
- Vulnerability to drought
- Poor communication and physical infrastructure
- Non-availability of skilled manpower
- Low urbanisation

### 8.3 Opportunities

- 'New State' advantage
- Energy deficit in the country
- Location – Logistic hub
- Services Industry
- Partnerships

### 8.4 Threats

- Over dependancy on natural resources could lead to lop sided development.
- Suspicion & opposition to change in minds of the people
- Short term policy compulsion.
- Perceived as a Naxal Dominated location.

# 9

## Details of the Standing Working Groups and their Terms of Reference\*

### SWG 1 Mineral Chemical and Heavy Industry

1. To access the potential of the mining, mineral, metallurgical, chemical and major industries in the state.
2. To prepare blueprint for attracting investment, promotion and establishment of such industries.
3. Identification of potential sites for each of these industries.

### SWG 2- Electronic Manufacturing

1. Identifying the potentiality for industries and investment opportunity for semiconductor, component and consumer electronics industry in the State.
2. Strategy for the development of the industries in these sectors including the support needed from the State.

### SWG 3- Extension of Education and Employability

1. Asses the status of school (Primary, Secondary and Higher Secondary) Collegiate, University, Technical and Medical Education in the state.
2. Enhancing access with equity and quality of education.
3. Blueprint preparation for the improvement in each of the sectors.
4. Enhancing the quality of education to achieve higher educational outcome, skill and employability of the graduates.

### SWG 4- Skill, Micro, Small and Medium Industry Department

1. Assessing the potential of MSME (Micro, Small and Medium Industries) development in the State.

2. Assessing skill set needs of the State to support MSME and large industries.
3. Strategy for MSME development and skill set formulation.
4. Identification of MSME clusters and strategy for their development.

### **SWG 5- Information Technology and Software Industry**

1. Identifying the potential for the IT and software Industries in the State including IT enabled education.
2. Developing a strategy for the manpower development for the sector.

### **SWG 6- Mechanical, Automobile and Auto Component Industry**

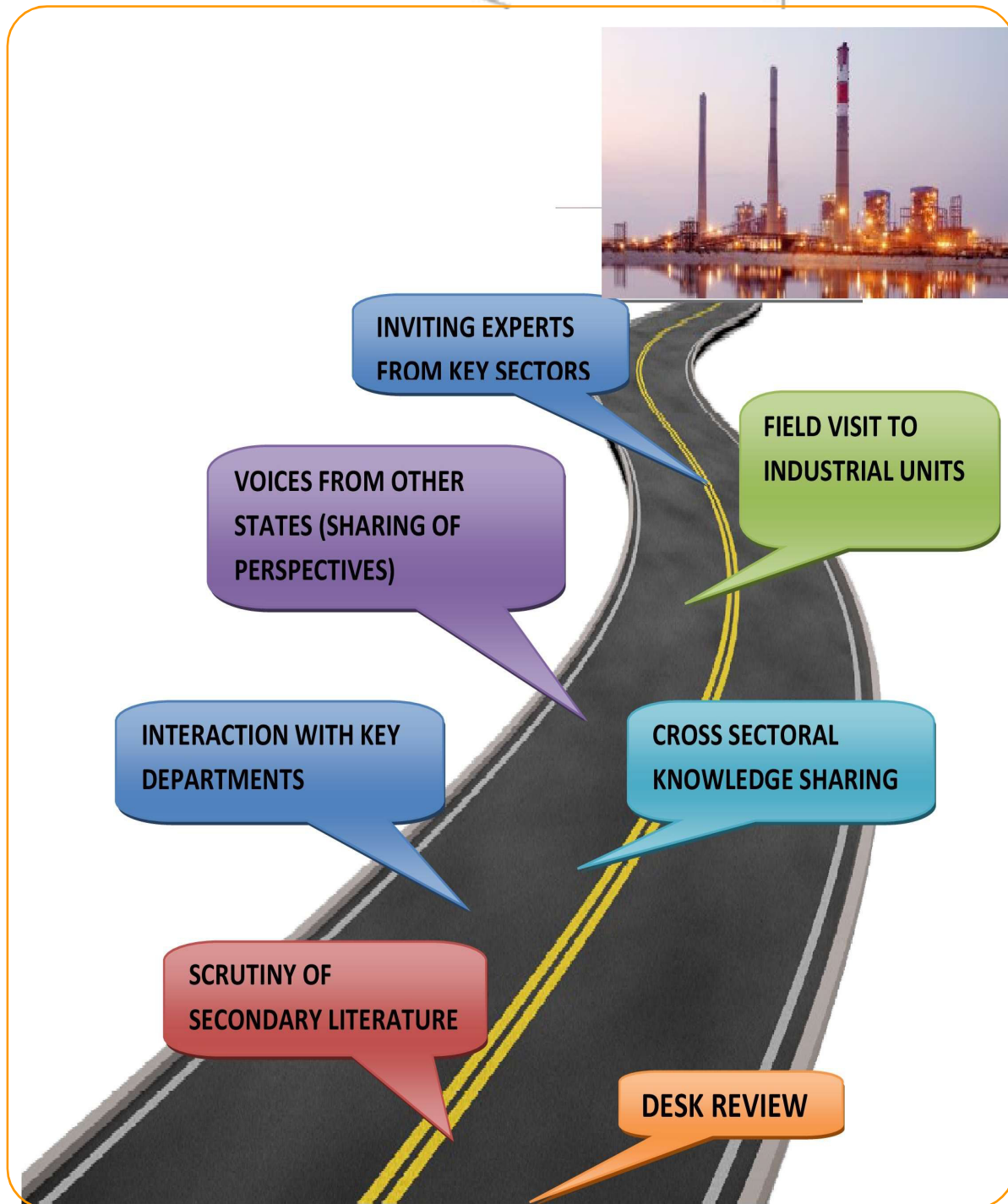
1. To identify the potentiality for pharmaceutical Industries including a pharma park in Chhattisgarh.
2. To identify the potential for automobile and auto component industries in Chhattisgarh.
3. To formulate a strategy for the development of the two sectors in the State including identifying the needed State support.
4. Possible location and infrastructure support needs.
5. Identify the location and State support package for the same.

### **SWG 7 Urban and Infrastructure**

1. Assessment of the need of Infrastructure, in accordance with the development.
2. Study the regional imbalance in the development of infrastructure and suggest measures to equitable development.
3. Study the requirements on a short, medium and long term basis.
4. Determine its impact on the growth of the State.
5. Do determine the enabling requirement/ policies to timely meet the gap on the supply side.



# 10 Methodology of the Standing Working Groups\*



\* There were 7 Working Groups under the Task Force of Industry as per details given in part C of the report at Annexure 1

# 11

## Industrial Task Force Recommendations

### 10.1 Urban Planning and Design

- Town Planning
- Water, Sewage & Solid Waste Managements
- Strengthening of Community based irrigation system in Backward linkages

### 10.2 Health

- Proposal for Satellite Hospital of AIIMS in Chhattisgarh State
- Rural Training centers of AIIMS & all State Medical Colleges
- Establishment of Sickle Cell Institute at Raipur
- Pharma Complex and Medicinal Device Park

### 10.3 Transportation and Mobility

- Railways Corridor Development
- Development of an Air cargo Industry for Chhattisgarh
- ROAD DESIGN & SAFETY
- PARKING - Automated Parking-Part of City Transport System
- Prevention of Accidents
- Post Accident Care: GOLDEN HOUR Software/Apps "Mission to Save Lives – First Responder"

### 10.4 Smart logistics and Smart infrastructure

- Setting up a Common State Public Work Organization
- Developing Chhattisgarh as an Electric-Vehicle Hub of India
- Slum Re-Development

### 10.5 Energy Efficiency and Renewable Energy

- Green Buildings

### 10.6 Development of IT/Software Industry

### 10.7 Development of Micro Small Medium Enterprises

- Developing an Eco-System of Forest Products in Chhattisgarh to Foster a Business Cluster of Micro, Small and Medium Industries

## 10.8 Development of Mineral Based Industries

- Producing Ammonia from Coal gas

## 10.9 Environment Conservation and Protection

- Bio remediation of rivers/ water bodies around industry clusters
- Utilization of Fly Ash- No More a Waste



# 12

## Key Recommendations

### Task Force Recommendations

Ten areas to speed up growth in the Urban and Infra sector

1. Urban Planning and Design
2. Transportation and Mobility
3. Smart Logistic and Smart Infrastructure
4. Energy Efficiency and Renewable Energy
5. Health
6. Education
7. Development of IT/Software Industry
8. Development of MSME
9. Development of Mineral based Industry
10. Environment Conservation and Protection

## Urban Planning and Design

### BACKGROUND

Sustainable urban infrastructure, also called sustainable municipal infrastructure in some countries, is an infrastructure that facilitates a place or region to progress towards the goal of overall sustainable living. Key emphasis is drawn towards infrastructure of cities, to not only be smart, but also sustainable with which greater emphasis on urban planning for sustainable architectural design.

### RECOMMENDATIONS

#### 12.1 Town Planning-

In order to execute City Development Plans maximum focus is demonstrated in developing complete infrastructure and master planning with a vision plan as per document for the same up to 2050. Agencies may be engaged to prepare CDPs and Urban Design guidelines with public participation based on various factors of importance, city wise grading so as to discourage informal settlements.

To improve the town Planning of the state as a whole it is opined that there be separate by laws on the basis of city classification/zones which is stated below.

- A. Raipur ( Importance: mostly trading activities and Capital city )
- B. Bilaspur (Importance: High Court )
- C. Korba, Raigarh, Dantewada ( Importance: Industrial sphere )
- D. agdalpur, Ambikapur ( Importance: Tourism)
- E. Others

Action /Implementation agencies – SUDA, CGHB, Housing and Environment Dept and Urban Development Dept.

## 12.2 Water, Sewage & Solid Waste Managements

Water Sewage and Solid waste Management are essential ingredients for effective urban planning. Key experts during their deliberations were of the view that in lieu of the robust campaign for Swachchh Bharat Abhiyan the main milestone would be to address the challenges in sewage and waste managements so as to rebuild several models like that of Ambikapur

- Upgradation- Cost & Flexibility.
  - Technology becoming obsolete very fast & commercialization of new tech.J
  - High procurement cost for small scale projects.J
  - Politically sensitive.J
- 
- Smart mechanism for Comprehensive disposal of liquid and solid waste with emphasis on reduce, re use, recycle. By far it can be made with social participation. Waste to Energy is one option.
  - Bundling approach to reduce procurement cost & time
  - Make user pay first to Govt and then introduce PPP.
  - Recycle and incentivise participants.

## 12.2 (a) AMBIKAPUR MODEL - Garbage into goldx

Ambikapur become first municipal corporation in country to digitize garbage management, make the city dustbin free and convert into wealth by employing poor women. Inspired with the model, Chhattisgarh urban development department has decided to replicate the project across the state giving a boost to Prime Minister Narendra Modi's dream of Clean India Mission.

"A city with no dumping yard will be first in Chhattisgarh. The present space of dumping yard on land of 17 acres is converted into botanical garden. Gone are the days of jammed drains filled in filth, there are no community dustbins oozing out smoke on roads either,

### Beginning from the red and green boxes

On analysing the expenditure municipal corporation was spending towards sanitation was constantly mounting with no satisfaction or results. In 2013, 2014 and 2015 corporation had spent Rs 490, 523, 551 lakhs that was mind-boggling to see no results.

Beginning from Ambikapur city, Surguja collector Ritu Sain took lead and lined up municipal corporation, arranged for training, general awareness with participation of citizens, selection of needy women from self-help women groups.

The garbage segregation begins from home through red and green boxes given to each house. Red box contains inorganic like paper, cardboard, plastic, electric wires, glass, metal, rubber, bottles, foot-wears and green box contains organic waste like vegetables, garden leaves, meat leftovers, food, coconut, tea and wood. Sanitary pads and diapers are supposed to be covered in paper and kept in red box which would be buried for permanent disposal.

### Segregation

Segregation that already begins from home with is brought to SLRM sheds. Recyclable, organic and non-recyclable items are packed separately after segregation and sent to central treasury for tertiary segregation of plastics, metal and electronic items and are then sold as raw materials for recycling to manufacturers, the administration has tied up

with.

Organic waste like leftovers are fed to cattle, ducks and hens at centres while other remains is used in bio gas digester and composting.

Inorganic waste has 17 categories and several sub-categories of paper, plastic, electric goods etc that are sold for recycling to manufacturers at Ambikapur and Raipur.

### Digitization of Garbage

Making best use of technology, the supervisors of each garbage collecting team have been given a tab and blue-tooth printer at SLRM centres who uploads info on quantity of garbage collected separately on solid and liquid form. A receipt is issued by server and is printed on the spot. Statistics about staff, individual user, area, category of waste, daily collection of waste and user charges etc is always available in the server.

According to the data being maintained by district data centre total 140.6 tons organic waste and 124.6 tons inorganic waste has been collected till date that has worth nearly Rs 4 lakh.

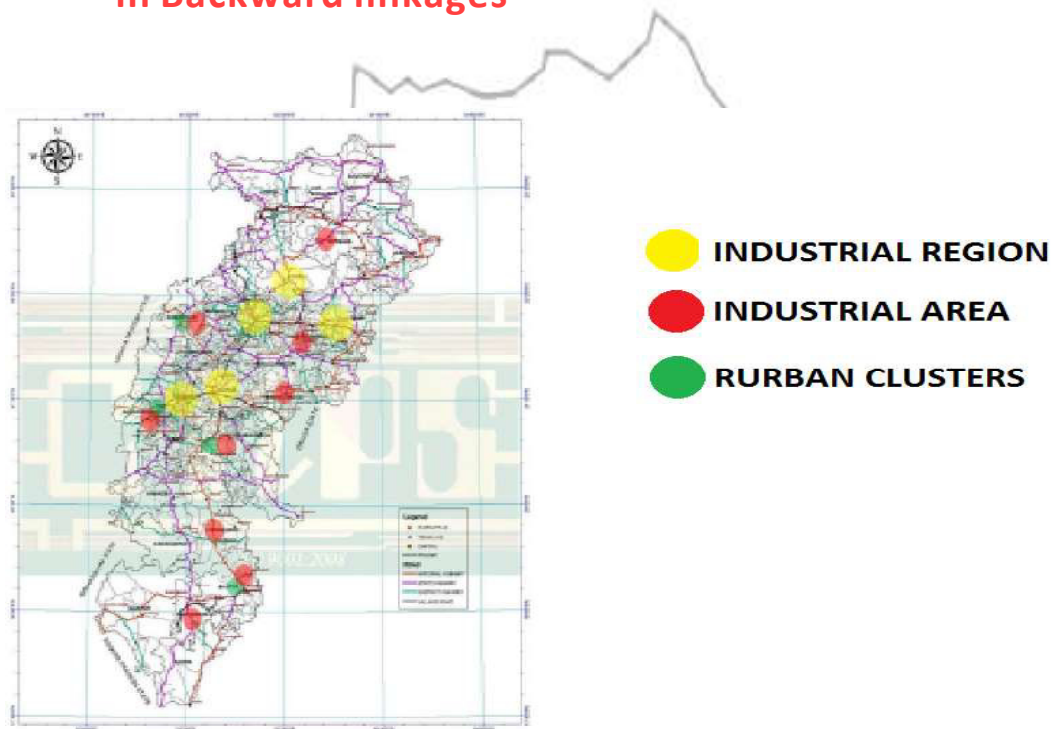
Women of below poor line were trained three rounds with the help of co-operative societies.

Each tri-cycle rickshaw used for collection has a team of four women that comprises upto 250 women employees for the present work while the number would expand to 351 once project spreads its wings across all wards.

Each tri-cycle covers 300 families with fees ranging to Rs 50 from houses, Rs 100 from shops, Rs 500 from hotels, Rs 1000 from hostels & ashrams. Adding the waste recently sold in Rs 3 lakh, women earn nearly Rs 8000-9000 with state government holding support till project gets stabilized.

SLRM was initiated in support with Rs 1 lakh from each corporator of 48 wards. Playing important role they assist women groups in 100% garbage collection from each house and encourage people for participation. The project has given employment to poor women for all 30 days.

## 12.3 Strengthening of Community based irrigation system in Backward linkages



Map - Not as per scale  
Source: CHiPS

SUGGESTION

Create an Ecosystem for industrial development by strengthening the backward linkages through convergence of schemes thus facilitating holistic infrastructure development and employment generation.

### Pilot Project 1- Infra development of backward linkages

#### Example- Infrastructure for Seed Development/Food Processing Industry

EXAMPLE

Target infrastructure development in backward linkages for food processing industries of Rajnandgaon, Kabirdham & Bastar (Convergence-already identified as Rurban Clusters) . Provide amenities through Rurban and create Community Micro Irrigation System for facilitating food processing industry. A system in place for attracting investment. SPV approach adopted for the same to ensure better delivery mechanism. This will lead to enhanced Infrastructure development & employment generation thus arresting Rural to Urban Migration.

## Transportation and Mobility

### 13.1 Railways

In order to add impetus to the existing rail connectivity across the state which are mainly concentrated in the form of the existing East Corridor is around 180 km in length from Bhupdevpur-Gharghoda-Dharamjaygarh up to Korba. East West Corridor in addition to the other existing rail networks, will be of about 122 km from Gevra Road to Pendra, proposal for rail lines from Dongargarh - Khairagarh- KawardhaMungeli- Kota- Katghora. recently approved rail corridor Ambikapur to Barwadih via agannathpur is also in the pipeline through Chhattisgarh Railway Corporation Ltd.

RAIWAYS  
AVIATION  
ROAD SAFETY

Rail corridor from Raigarh - Ambikapur – Korba – Bilaspur - Raipur – Naya Raipur – Dhamtari – Kanker – Kondagaon – agdalpur- Dantewada is suggested. State Govt can develop through Indian Railways in the form of SPV or V route. State needs to be proactive with prefeasibility report, handing over required lands after necessary forest diversion to Railways free, initiating dialogues with all PSUs, companies ( SECL, SPL, NMDC, TATA Steel, NTPC, VEDANTA etc) present in state to invest and to participate in the Rail network. ( Example: Govt of Odisha and Ministry of Railways MOU for Khurda, Bolangir connectivity )

### 13.2 Aviation

New state Air ports can be developed at Raigarh, Ambikapur, Korba, Bilaspur, agdalpur. Air infrastructure can be developed in PPP model.

#### 13.2(a) Development of an Air cargo Industry for Chhattisgarh

India is the second fastest growing economy in the world after China. Trade is one of the most important aspects for the growth of Indian economy. To boost up the trade practices in the country, we need to have a faster connectivity with the different regions of the country and with the other countries of the World.

Currently, the airfreight carriers are the fastest mode of trading. With the advantage of time, it is also safe and reliable. These are the factors which contribute to the extensive growth of air cargo industry in India. Business experts said that India has a huge potential market which attracts the country to the investors. But to increase the Foreign Direct Investment (FDI) in the country, we have to make certain changes in the foreign policies, tax reformations, provide better infrastructure, healthy work place and the most important is connectivity to different regions of the country at a



much lower cost for the streamline flow of trading.

The logistics sector of India is a multi-billion dollar industry. Apart from the fact that India is second fastest growing economy in world, it also has emerged as the second fastest growing air cargo market after the Middle East and is expected to grow at a compound annual rate of about 7% over the next five years. In addition to this, global freight volumes are expected to rise annually by 4.1% over the next five years (Source: IATA)

Air Freight Industry in India accounts for about 1% of world trade by volume but about 35% by value. Over 50 million tonnes of air freight are carried annually all over the world. In India, the cargo carried domestically is about 5 lakh tons domestically and over a million tonnes on international sectors. Following data shows the growth in the trade practices in India. Adding to air cargo growth is the E-Commerce.

Generally there are two types of transportation system in the aviation sector-

### 1. Point to Point Model –

Here, passengers and freight are directly moved between two points without any

| YEAR    | GROWTH IN %    |                     |
|---------|----------------|---------------------|
|         | Domestic Cargo | International Cargo |
| 2013-14 | 13             | 7                   |
| 2014-15 | 12             | 12                  |

transfer at intermediate point.

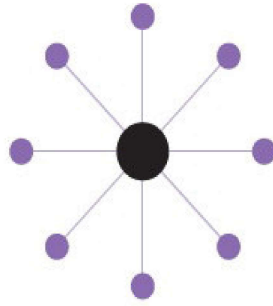
- Mostly preferred for passenger airlines as it is inconvenient for passengers to repeat the process of boarding, security, etc.
- Not economical for cargo industry as it takes large no. of manpower on multiple locations and also causes revenue loss to the country as moving such a widebodied airfreight takes large qty. of fuel which is not cost effective.

### 2. Air Cargo Hub Model –

Here, passengers and freight are moved from various points of origin, segregate at intermediate point and then transported to their respective destinations.

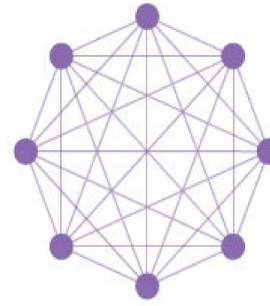
- Mostly preferred for cargo industry as it very difficult to transport such a widebodied aircraft in all regional points.

A hub airport is the most efficient way of connecting many points.



**Hub**

*linking 9 points, requires 8 routes*



**Point-to-Point**

*linking 8 points, requires 28 routes*

## Bangalore- Silicon Valley of India

Bangalore is the largest centre of electronic goods production, and is rightly called the 'Electronic Capital of India.' Bangalore accounts for 36% of India's global IT software services.

### CASE STUDY - 01

The rise of the city dates back to 1970s when the government has approved the concept of developing electronic city and purchased 335 acres of land 18km south of Bangalore. The other factors for the rise of Bangalore to the electronic giant are:

- Location - The most important point is that the location of Bangalore is away from the rival countries like Pakistan and China, which makes it suitable to develop R&D departments of multinationals.
- Connectivity – The four lane mixed corridor elevated highway from Silk Board junction to Electronic City. It is one of the longest elevated national highways in the country. It helps commuters to reach electronic city in less than 15 minutes.
- Transport Facilities - For proper connectivity, the government has developed the bus facilities, metros to connect electronic city with other parts of the city and also with the Bengaluru International Airport.
- Security - The government has provided 500 security officials and CCTV cameras on strategic locations.
- Core Industries – Several residential buildings, food parks, shopping complexes, schools of international standards, fun parks etc. is present which is crucial for the development of any area.

The electronic industry is much diversified industry. It does not run its operations in a single country which ranges from manufacturing to assembling to packaging

of items. It has its manufacturing plant in one country and assembling in other country to sell the final product in the third country. The diversification is cost effective for the industry.

For such a huge diversification requires faster connectivity between different regions of the world. That is why, most of the airlines has chosen Bangalore as its Hub of operations taking the advantage of being the Electronic Capital of India. Many major airlines including Air Asia, Air Costa, Indigo, etc. has chosen Bangalore as its Hub of operations by rejecting Delhi and Mumbai, the two busiest airport of India.

### Advantage of having Airlines Hub to Electronic Industry

- The important fact that makes air cargo industry so big is that it offers the fastest mode of load transfer.
- Having Air Cargo Hubs will boost the country's economy directly or indirectly. Air Cargo Hubs builds the great connectivity by keeping the cost lower. It attracts the foreign companies to invest in India. It allows connectivity within the country and with the outside world. Also, it increases the export of the electronic
- With the rise of electronic Industry in India, it is must that sensitive and small components are delivered from one part to other with proper security and in very less time. The work will fetch a large pool of workers.
- With the incoming of foreign players, the market competition is reached to a new level which helps to keep the prices lower of electronic equipments.
- It also increases the Foreign Direct Investment in the country. When the foreign company comes to India, it employs a huge pool of workforce. In addition to this, it also enables technology advancements in the country.

### Multi-modal International Cargo Hub and Airport at Nagpur (MIHAN)

It is an airport project for Dr. Babasaheb Ambedkar International Airport, Nagpur. It is important to note here that Nagpur comes in the category of Tier1/Tier2 cities. The project here aims to exploit the central location of Nagpur and convert the present airport into a major cargo hub with integrated road and rail connectivity.

This Project consists of two parts, namely

- An International airport to act as a cargo hub.
- A Special Economic Zone (SEZ) with residential zone covering a total area of 40.25 km<sup>2</sup> on the southern end of Nagpur.

Project aims for serving 14 million passengers and 0.87 million tonnes of cargo. The estimated capital cost of the project is INR 2581 crores (by year 2035) and is supposed to generate revenues INR 5280 crores.

## Economic and Social Advantage:

- It brings a real estate boom with the property prices increasing from 25-40%
- Project is expected to add 12 million people to city's population by means of direct and indirect employment.
- The project aims at boosting the economy of under developed Vidarbha region of Maharashtra and stops the brain drain to other parts of Maharashtra and India.
- From environmental perspective half a million trees would be planted and there would be no polluting industries in MIHAN.
- For growth of any area presence of core industries is a must and Nagpur has MIDC area, Asia's second largest air maintenance workshop, SEZ, Gitanjali Jewellery Park, Food Park and many more other projects under implementation with IT majors presence and logistics businesses.
- To meet the manpower demand, Nagpur University has given sanction to 43 new Engineering colleges in and around Nagpur only.

To meet the international standards, it is required that the international airport in and around should have the facilities of same standard. The area wise distribution in the following table gives us the idea regarding the same:

It can be inferred from the above two case studies of Bangalore and Nagpur, that the air cargo hubs boost the economy of the state and takes it to a new height. To understand completely the air cargo industry and the problems which the different airports are facing with respect to their foreign counterparts, the following statistics can be made:

| LAND DISTRIBUTION  | AREA IN HECTARES (ha) |
|--|-----------------------|
| <b>Total Project Area</b>  | <b>4025</b>           |
| <b>Airport</b>   | <b>1200</b>           |
| <b>Rail &amp; Road Terminal</b>  | <b>200</b>            |
| <b>Captive Power House</b>   | <b>52</b>             |
| <b>IT Parks</b>  | <b>400</b>            |
| <b>Health City</b>   | <b>60</b>             |
| <b>Other Manufacturing &amp; Value Added Units</b>   | <b>963</b>            |
| <b>International School</b>  | <b>10</b>             |
| <b>Residential, Open Spaces, Hotels, Roads, Interchange &amp; RoB, Water Supply, Storm Water Drainage, Sewage System, Entertainment, Utility &amp; Land for IAF (exchange)</b> | <b>1140</b>           |

International Freight – Country wise and city wise international freight carried between ASEAN and India is given in the following statistics respectively:

| Country-wise international Freight Carried between ASEAN & India |                 |              |              |                 |              |              |
|--|-----------------|--------------|--------------|-----------------|--------------|--------------|
| Country  | 2005-06         |              |              | 2015-16         |              |              |
|  | Freight Carried |              |              | Freight Carried |              |              |
|  | To India        | From India   | Difference   | To India        | From India   | Difference   |
| Indonesia  | 0.05            | 0.12         | -0.073       | -               | -            | -            |
| Malaysia   | 19.36           | 14.53        | 4.83         | 12.8            | 18.14        | -5.28        |
| Myanmar  | 0.006           | 0.09         | -0.09        | 0.0006          | 0.03         | -0.03        |
| Singapore  | 46.22           | 40.56        | 5.66         | 42.81           | 48.94        | -6.14        |
| Thailand   | 18.05           | 15.12        | 2.93         | 39.07           | 27.69        | 11.37        |
| <b>ASEAN</b>   | <b>83.68</b>    | <b>70.43</b> | <b>13.25</b> | <b>94.74</b>    | <b>94.81</b> | <b>-0.07</b> |
| World  | 328.74          | 486.14       | -157.39      | 491.05          | 770.49       | -279.45      |
| Share of ASEAN in World  | 25.45           | 14.49        | -            | 19.29           | 12.31        | -            |

*Sorce - Air Transport Statistics, DGCA, New Delhi*

| City-wise Air Cargo Flow between ASEAN & India : Metro Airports |                     |                          |              |                   |
|---|---------------------|--------------------------|--------------|-------------------|
|   | ASEAN Cities        |                          |              |                   |
|   | Bangkok<br>Thailand | Kuala Lumpur<br>Malaysia | Singapore    | Yangon<br>Myanmar |
| Metro Airports  |                     |                          |              |                   |
| Delhi   |                     |                          |              |                   |
| Mumbai  |                     |                          |              |                   |
| Bengaluru   |                     |                          |              |                   |
| Chennai   |                     |                          |              |                   |
| Kolkata   |                     |                          |              |                   |
| Hyderabad   |                     |                          |              |                   |
| Ranges are in Tonne   |                     |                          |              |                   |
| 0-1000  | 1000-2000           | 2000-4000                | 4000 & above |                   |
|   |                     |                          |              |                   |

*Sorce - Drown based on Air Transport Statistics, DGCA, New Delhi*

| City-wise Air Cargo Flow between ASEAN & India :<br>Tier I and Tier II Cities |                     |                          |           |
|---|---------------------|--------------------------|-----------|
|   | ASEAN Cities        |                          |           |
|   | Bangkok<br>Thailand | Kuala Lumpur<br>Malaysia | Singapore |
| <b>Tier I/Tier II</b>   |                     |                          |           |
| Ahmedabad   |                     |                          |           |
| Amritsar  |                     |                          |           |
| Kochi   |                     |                          |           |
| Coimbatore  |                     |                          |           |
| Guwahati  |                     |                          |           |
| Jaipur  |                     |                          |           |
| Lucknow   |                     |                          |           |
| Nagpur  |                     |                          |           |
| Pune  |                     |                          |           |
| Trichirappalli  |                     |                          |           |
| Thiruvananthapuram  |                     |                          |           |
| Varanasi  |                     |                          |           |
| Gaya  |                     |                          |           |

| Ranges in Tonne |  |
|-----------------|--|
| 0-1000          |  |
| 1000-2000       |  |
| 2000-4000       |  |
| 4000& above     |  |

**Source - Drown based on Air Transport Statistics, DGCA, New Delhi**

The three basic problems which air cargo industry is facing in India are-

- Infrastructure – Lack of infrastructure for cargo terminals restricts the airports to be the airline hubs in India.
- Volatile Fuel Prices - The fuel used in aviation sector is of much higher value. Its periodic fluctuation causes huge revenue loss to the industry.
- Dwell Time – High dwell times with respect to their foreign counterparts restricts the import/export of goods to, from and within the country. The main reasons for the high dwell time could be lengthy custom processes, lack of automation system in the airports, lack of storage facilities and can be many more apart from the above main problem.

## Comparison of Infrastructure Facilities between ASEAN and India

|                              |            | India   |           |           |       |        | ASEAN     |         |         |       |
|------------------------------|------------|---------|-----------|-----------|-------|--------|-----------|---------|---------|-------|
| Units                        |            | Kolkata | Bangalore | Hyderabad | Delhi | Mumbai | Singapore | Jakarta | Bangkok | Hanoi |
| Area                         | 1000 acres | 1.57    | 4         | 5.49      | 5.22  | 1.55   | 3.2       | 4.45    | 8       | 2.01  |
| Runways                      | Nos.       | 2       | 1         | 2         | 3     | 2      | 3         | 2       | 2       | 2     |
| Terminals                    | Nos.       | 1       | 1         | 1         | 2     | 2      | 3         | 3       | 1       | 2     |
| Passengers Handling Capacity | Nos. in Mn | 20      | 20        | 15        | 46    | 40     | 66        | 38      | 45      | 19    |
| Passengers Traffic           | Nos.       | 10      | 12.7      | 8.36      | 35.88 | 32     | 53.7      | 59.7    | 51.4    | 12.9  |
| Check in Counters            | Nos.       | 128     | 86        | 130       | 240   | 188    | -         | 180     | 460     | 77    |
| Aerobridges                  | Nos.       | 18      | 15        | 18        | 78    | 52     | 156       | -       | 72      | 8     |
| Baggage belts                | Nos.       | 10      | 13        | 4         | 18    | 10     | -         | 30      | 22      | 6     |
| Car Parking Space            | Nos.       | 1250    | 2000      | 1800      | 6300  | 5000   | -         | 4800    | 6000    | ?     |

**Source - AIC based on Various Airport Websites**

## Global Benchmarks of Dwell Time vis-à-vis Indian Airports, 2012

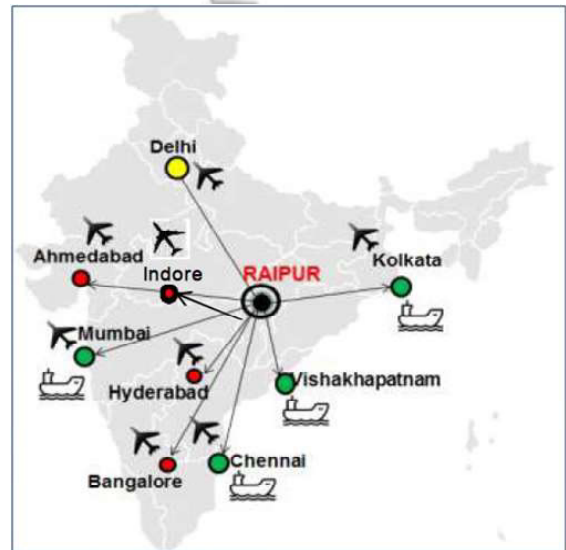
| Airport   | Dwell Time Exports (Hours) | Dwell Time Imports (Hours) |
|-----------|----------------------------|----------------------------|
| Sharjah   | 4                          | 4 to 8                     |
| Singapore | 6                          | 3 to 6                     |
| Frankfurt | 6                          | NA                         |
| Incheon   | 2 to 3                     | 2 to 7.5                   |
| Dubai     | 2 to 3                     | 2 to 6                     |
| Hongkong  | 3 to 6                     | 4 to 8                     |
| Delhi     | 36                         | 119                        |
| Mumbai    | 48                         | 96                         |
| Chennai   | 48                         | 72                         |
| Hyderabad | 12                         | 36                         |
| Kolkata   | 48                         | 72                         |
| Bengaluru | 36                         | 48                         |

Note: Includes 72 hours free period both on Exports and Imports

Source: Airport websites, Industry research, Table extracted from Air Cargo Logistics in India Working Group Report, Ministry of Civil Aviation ( May 2012)

## Chhattisgarh : Potential for Cargo hub

Chhattisgarh has a huge potential for growth. The state has clocked on an average growth of about 8% in last 5 years. The fact that international airports of metros like Delhi and Mumbai have come to a saturation point in terms of air traffic and infrastructure, the companies are now looking at airports of Tier1/ Tier 2 cities to have it as their aircargo hubs.



### RECOMMENDATIONS

The advantage of making air cargo hub in Chhattisgarh state is in the fact that the State shares boundaries with seven other states which includes Andhra Pradesh, Madhya Pradesh, Telangana, Odisha, Jharkhand, Uttar Pradesh and Maharashtra. The investors would have direct access to 50.9 crore population (40% of country's population). Taking the advantage of the location, the below figure illustrates the regional connectivity from the state:

State Government is working hard to establish the airfreight industry in Chhattisgarh by providing adequate infrastructure and other facilities. The aviation sector in Raipur is working to boost the airfreight industry in Chhattisgarh. In the recent development, aviation sector has inaugurated the Common User Domestic Cargo Terminal (CUDCT) at old terminal building, Swami Vivekananda Airport. The CUT will help domestic carriers to handle cargo and process customs clearance, security clearance and other regulatory requirements inside a single building. Trials for domestic cargo have begun and two airlines- Indigo and Jet Airways have begun using the facility during the trial runs and Air India is likely to join soon.

With inauguration of CUDCT, state has already set its base for the air cargo industry. Now, to establish the logistics hub in the state, it has to overcome the following existing problems of the freight industry:

- o Infrastructure Development for the modernisation of airports and also to develop cargo terminals. It is necessary for the smooth functioning of the industry.
- o State Financial support is necessary to develop cargo terminals to the international standards. For such a standard, foreign companies need to be invited.
- o State custom authorities require easing the trade by simplifying the custom process which consequently will enhance the freight industry to grow.
- o Reduction in cost transaction is necessary for the growth of

### RECOMMENDATIONS



cargo industry and economy of the State.]

- o Reduction in dwell time is necessary for the speedy clearance of import/export goods and will help in cost transaction.
- o Digitization will increase the speed of custom process. It also helps to maintain the record of import/export goods.
- o Securitization is the important issue. Many import/export goods are very valuable which needs proper security.

It is true that to overcome the above said problems of the freight industry one needs a huge capital investment and it might be not possible for the state to do this all together. But the only reason should not hold us to be in the back seat. We can think of the alternative solutions by investing in a periodic manner

- First, let the domestic cargo terminal to grow up to the required standard.
- Now, invest in the infrastructure and invite the domestic airlines to set up a cargo hub here.
- After the achievements in the above two things, we can think of the International Cargo Hub in the Chhattisgarh.

The advantage of international cargo hubs in the state is actually limitless and we can easily infer it from the Case Study of Nagpur (most preferred for comparison because Nagpur is also not in the list of metro cities). Lastly, I would like to add that the industry will boost the Chhattisgarh's dream of setting up the IT hub and the electronic industry in the state.

### **13.3 ROAD DESIGN & SAFETY**

#### **13.3(a) PARKING - Automated Parking-Part of City Transport System**

- Public parking facility is required to be seen from a city perspective on holistic basis and not as a single facility at one location. Projects need to be taken up simultaneously at different locations. Identify such locations and make them part of City Master Plan/Smart City Development.
- In depth assessment of locations, so as to decide on which projects should be implemented on PPP (Premium) or PPP (Concession Period Criteria) or EPC. Cross subsidise such projects within the parking projects.
- Double entry accrual based system of accounting in ULB's will ease the process of this cross subsidisation.
- Consider other options of parking as well like conventional and

Semi Automatic parking facilities at different locations so as to reduce the financing burden on the public agencies and thereby making the cross subsidisation model a reality.

- Proper traffic circulation planning around the parking facility within the parking site should be given utmost importance.
- Use of advance construction methodologies like “Top-Down Construction” and “Prefab Construction” substantially reduces the construction time.

Identify parking location make it part of Master Plan.

- DDA in its MPD 2021 has recognized PPP approach for parking projects and identified the locations as well. Thus projects can be taken on fast track by ULB’s.
- Planning Authorities, ULB’s and Real Estate Developers has initiated projects.
- Most projects initiated by Public Agencies are on PPP.
- Office premises and high end housing complex too are keen on Semi-Automatic Parking Systems

### 13.3(b) Prevention of Accidents

In year 2015

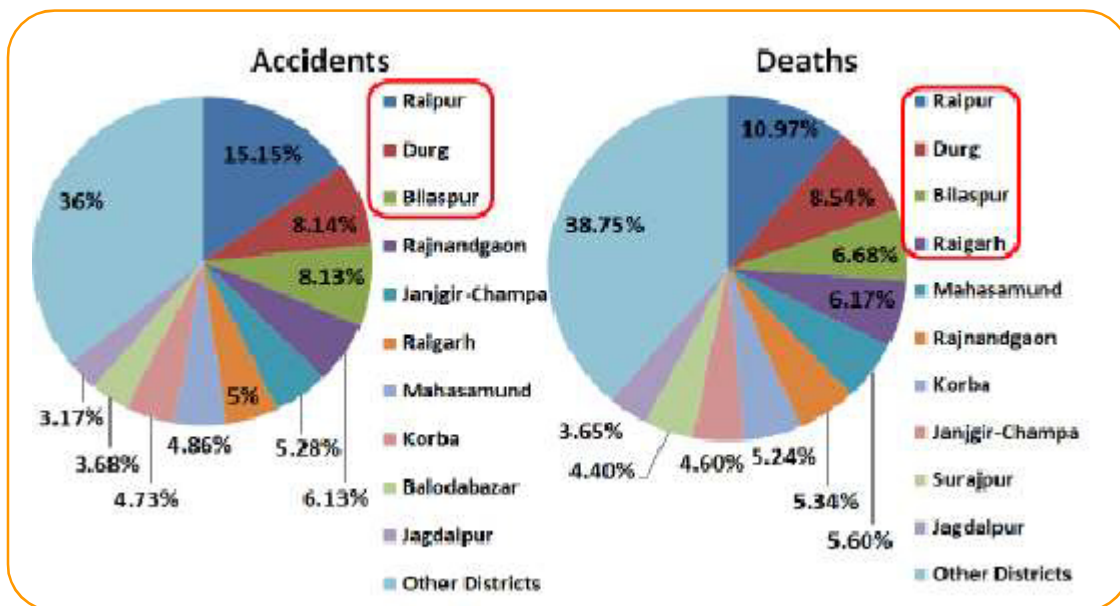
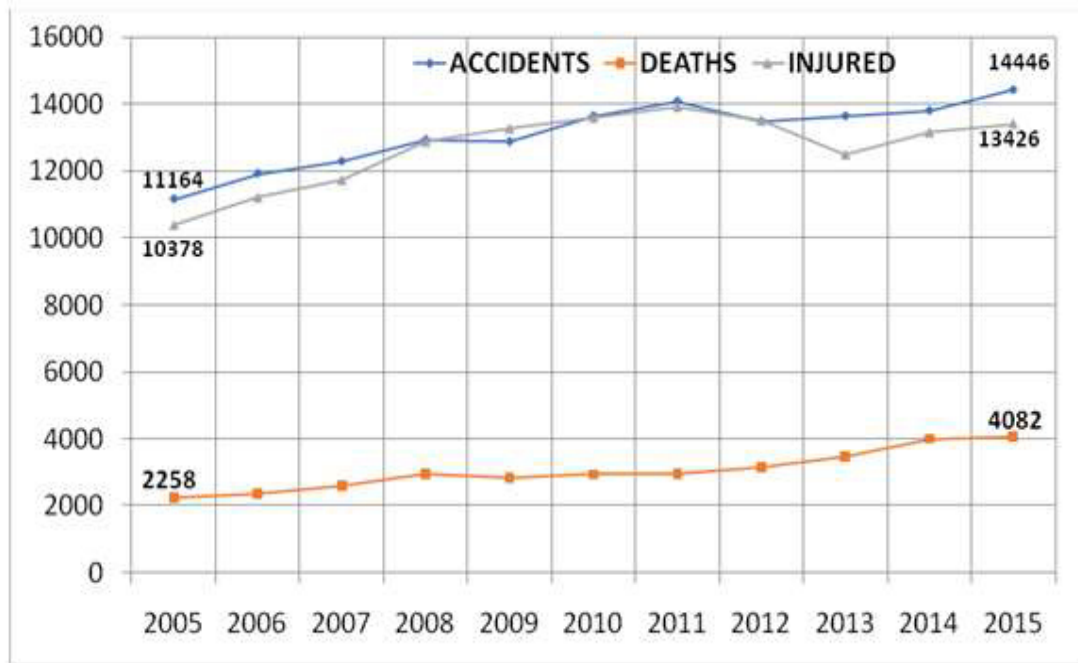
- 14.5 thousand cases of road accidents reported.
- Over 4000 deaths.
- Over 50% deaths were in the age group of 15-34.
- Raipur, Durg, Bilaspur and Raigarh contribute to 37% accidents and 35% deaths.
- Most accidents & deaths occurred in the time-slot 4-7 pm followed by 9-12 am.

**PRESENT SCENARIO**

|                   | <b>India</b>  | <b>Chhattisgarh</b> | <b>Ranking among the States</b> |
|-------------------|---------------|---------------------|---------------------------------|
| <b>Accidents</b>  | <b>501423</b> | <b>14446 (2.9%)</b> | <b>11</b>                       |
| <b>Fatalities</b> | <b>146133</b> | <b>4082 (2.8%)</b>  | <b>16</b>                       |
| <b>Injured</b>    | <b>500279</b> | <b>13426 (2.7%)</b> | <b>11</b>                       |

INTENSITY OF PROB EMINC ATTISGAR

|                |             | 1       | % increase |     |
|----------------|-------------|---------|------------|-----|
| e ic es        | 15 Lakh     | 48 Lakh | 220%       |     |
| P pu ati n     | 2.3 Cr      | 2.8 Cr  | 22%        |     |
| R ad et r ( m) |             | 2200    | 3100       | 40% |
|                | S           | 3200    | 4500       | 40% |
|                | Ot er r ads | 32000   | 52000      | 62% |
| Accidents      | 11164       | 14446   | 30%        |     |
| Deat s         | 2258        | 4082    | 80%        |     |
| Injured        | 10378       | 13426   | 30%        |     |



Chhattisgarh Police has embarked several initiatives to prevent road accidents and also has done some serious initiatives to prevent accidents by their Highway Patrolling across the state. In this regard to prevent cases of drunk driving, 350 **Breath-analysers** (alcometer) are procured. Also a mechanism of already CCTV's are have been procured to effectively monitor speed thrills but kills agenda and also speed radar guns have been used. However, as accidents takes place it is desirable to provide for emergency services so as to reduce the number of deaths

#### PREVENT ON OF ACC DENTS

- Design and structural change in Road construction
- Identification of Hot-spot
- Subway/Foot over Bridge
- Concurrent subjects (Accidents)
- Awareness in schools-colleges
- Strict Formulation and Implementation of law
- Traffic signal/peripheral plantation/Foot path/Regular Training
- Public Transportation-Safe/Secure/Reliable

#### 13.3(c) Post Accident Care: GOLDEN HOUR Software/x Apps "Mission to Save Lives – First Responder"x

Industrial Task Force Working Group Urban and Infra were keen to take forward the road safety mechanism to prevent road accidents and to provide post accidents care on priority. It was then decided that safety mechanism solutions may be explore National level. In this regard an official from Ministry of Defence Mr. Deepak Kumar has suggested this innovative Golden Hour Software App : Mission to Save Lives - First Responder as a Post accident emergency care.

#### What is Golden Hour Medical Services?

- Time period lasting for one **hour**, or less, following traumatic injury being sustained by a casualty or **medical** emergency/Trauma
- During which there is that prompt **medical** treatment would prevent death.

## How Golden Hour Software and Apps works?x

- When the accidents happened at any location, irrespective of remote or crowded place, either victim/relatives/friends or any common citizen can use **Golden Hour Software**.
- Once he/she uses this software, the information about the location of victims and Mobile Number automatically disseminated to nearest hospitals/ health centres/ Ambulance service provider and police stations
- Also it allows to access the information about the location/ contact details of the nearest accessible hospitals, PHC, CMC, Ambulance provider and nearest police stations.
- Accordingly the emergent medical facilities will be dispatched to victim with the mission to save life.

## Funding

- **Rs 0.10 @ safety surcharges** on Bus tickets, Railway tickets, Flight and Movie tickets
- Partial by Government & Partial by Individual
- Partial from private sector and private hospitals
- Instead of compensation amount, which can be utilized for treatment
- Insurance funding like accident insurance and relief funds
- Corporate Social Responsibility by creating non-profit umbrella organization to cover private Hospitals
- NGO, Society and Trust Involvement.
- **One India Accident Insurance Fund and Scheme**

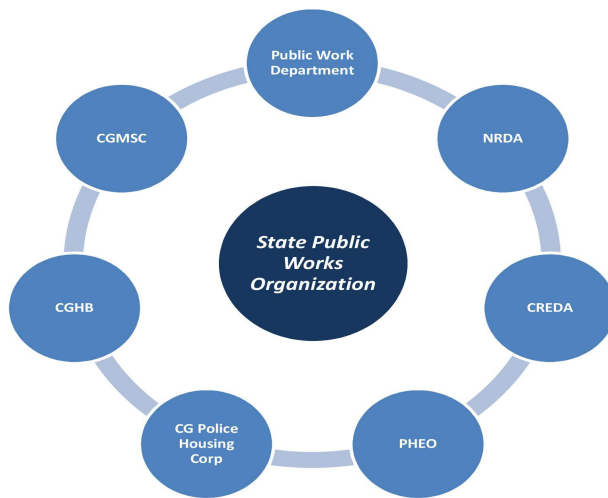
## Future Expansion

- This software/database can be integrated with National GRID (NATGRID), CCTNS and related management software available in the Government and Private Sector to have stop solution related to emergency ex Trauma, Disaster and .
- This software can further expanded to provide the emergency medical facilities to critical ill patients, pregnant women in the remote areas.

# 14 Smart logistics and Smart infrastructure

## 14.1 Setting up a Common State Public Work Organization

Government Public Work Dept, GHB, RD, GP, CH, G, P, GMS, RED, PHE, S, P, W, K, G, PW, C, K, JV, H, E, /S, E, P, S, U, F, B, E, P, C, V, W, K, C, B, E, E, PW, E, E, E, F, 3, P, P, E, V, (K, E, H, E, G, E, E), begve, eg, p, be, ee, e, g, e, k, f, b, g, he, e, ge, ce, h, he, p, c, p, c, b, g, f, ep, ff, e, e, pee, ech, f, e, ve, V, c, e, gh, ec, e, f, e, g, p, ec, gp, g, pe, v, ge



- Transparency/ Accountability
- Efficiency
- Effectiveness of Procedure
- Reduced Conflict
- Standardization of Work
- Better Performance
- Better Output

## 14.2 Developing Chhattisgarh as an Electric-Vehicle Hub of India

For over a century automobile sector has been largely based on the Internal Combustion Engine (ICE). However the emerging popularity of Electric Vehicle is predicted to challenge and overtake ICE technology. It is remarkable that the concept of Electric Vehicle can be seen as a “Competency Destroying Innovation”. In another words, the lead and competency developed by existing players is no longer as relevant as it used to be in the past. This facilitates an excellent opportunity for new players to make their place in the automobile sectors. Consequently new players and new leaders are emerging in automobile sector. For example, though China produces, consumers and imports huge number cars, its car export figures have been not impressive. At a global level, automobile export is dominated by Germany, Japan, USA, etc. China is missing from the list of top 15 exporters in automobile sector. According to the latest data available, for the year 2016, India’s car export is larger than that of China (worldstopexports.com). However when it comes to electric vehicle China is predicted to be a major global player, even stronger than USA, Germany and Japan. According to the McKinsey Quarterly report published in July 2017, China has emerged as a leader in both the supply of and demand for electric vehicles. Approximately 375,000 electric vehicles were manufactured by Chinese OEMs in 2016 which accounts for 43% of world production for the year. Similarly in context of domestic market in India, the major automobile clusters are NCR cluster, Mumbai-Pune Cluster, Bangalore-Chennai Cluster. The state of Gujrat, which otherwise is a minor player in traditional automobile sector, is predicted to become India’s first Electric Vehicle Hub (Live Mint, 2017). If this happens, Gujrat cluster will lead Electric Vehicle production in the country. Correspondingly the emerging concept of Electric Vehicle facilitates an excellent opportunity to the state of Chhattisgarh to become a major national business cluster for Electric Vehicle.

Electric Vehicle can be polluting free and less noisy. It can also minimize dependency on fossil fuel (petrol, diesel, petroleum gas, oil, coal etc). Thus it is regarded as green, environmental friendly, sustainable solution. In another words it does not contribute to Climate change or global warming. All these issues are pushing the demand of Electric Vehicle. Among these, the issue of Air quality is regarded as the most influential issue. With zero tailpipe emissions electric vehicles offers a clean alternative to vehicles with ICEs. It helps to reduce exposure to air pollution resulting from fuel combustion. Traditionally ICE cars emit nitrogen and sulfur compounds that contribute to acid rain and form tiny airborne particles that spoil air quality and contribute to strokes, heart disease, lung cancer and respiratory diseases, including asthma (The Guardian). Air pollution is one of the world’s most urgent environmental hazards, causing more than 3 million premature deaths annually, according to the World Health Organization. Various governments across the world are talking initiatives to tackle the issue of air pollution. For example the Chinese government has repeatedly announced its commitment to develop electric vehicles, partly because of air pollution concerns. It is reported that China is gearing up to ban petrol and

diesel cars, a move that would boost electric vehicles and shake up the auto industry in the world's biggest but pollution-plagued market. France and Britain have declared to outlaw the sale of petrol and diesel cars and vans from 2040 to clamp down on harmful emissions. Mexico City has declared to implement a diesel ban in the year 2025. Niti Ayog India has also recognized that, despite a very low number of vehicles per capita, traffic congestion and pollution are already serious issues in India. According to a 2016 World Health Organization study, India is home to 10 of the world's 20 most polluted cities (Niti Ayog, May 2017). Delhi's encouragement to e-rickshaws and experimentation with odd-even formula for private cars had been widely reported on media. In the year 2015, nearly a third of global electric car sales took place in just 14 cities and the reduction of air pollution and noise is well demonstrated by the cities experimented with deployment of electric vehicle (Hall et. al, 2017). Considering the growing concerns for air pollution and noise, commitment to climate change, environment and sustainability the market for Electric Vehicle is growing rapidly as illustrated in the graph, where BEV represents "battery electric vehicles" and PHEV represents plug-in hybrid electric vehicles.

The demand for Electric Vehicle depends on the degree to which a prospective customer perceives it is as a more attractive option compared to ICE vehicle, in both monetary and non-monetary terms. It depends on factors such as governmental regulations (e.g. subsidies) and technical progress (e.g. battery range, cost). Across the world Governmental regulations and support are becoming favorable to Electric Vehicle. This clubbed with the progress in technology development in the field is attracting increasing number of customers. For example, battery costs, which accounts for a large part of Bill of Material of Electric Vehicle is falling, at the same time the performance of the battery (range, durability and charging time) is improving. As a result the demand of for electric vehicle is predicted grow rapidly at global level. In context of India popularity of e-rickshaw is already evident in many cities across the country. Battery operated cycles and scooters are predicted to be the next popular product categories followed by the cars. Niti Ayog (May 2017) predicted that the country can save 64% of anticipated passenger road-based mobility-related energy demand and 37% of carbon emissions in 2030 by pursuing a electric, shared and connected mobility future. This would result in a reduction of 156 Mtoe in diesel and petrol consumption for that year. At USD 52/bbl of crude, this would imply a net savings of roughly Rs 3.9 lakh crore (approximately 60 billion USD) in 2030. Government policy in support of electric vehicle is likely to boost the market in India. This will result in emergence of electric vehicle clusters.

Automobiles brands do not manufacture auto parts they just assemble them. The backbone of an automobile industry is its ancillary units. There are over 6000 ancillary units in India to support about 28 automobile brands in India. The success and competitiveness of an automobile company is significantly affected by availability of its support industry. A stand alone automobile organization is highly unlikely to be competitive. Accordingly the concept of business eco-system or economic cluster is highly relevant to the automobile industry. Due its strong forward and backward linkages automobile industry also has a strong multiplier effect. Consequently it has significant contribution to the growth of economy. Accordingly a holistic approach based on the concept of economic cluster and business eco-system is recommended for development of this sector in the state, for fostering MSME, improving employment and achieving a comprehensive economic growth.



Electric Vehicle is based on electric motors (rather than ICE), whose energy is supplied by a battery (rather than petrol/diesel). The concept of battery operated electric vehicles are experimented across the world in various types of vehicles such as unicycles (one-wheeled self-balancing), bicycle, motorcycle, scooter, skateboards, rickshaw, Car, Van, SUV, Bus, Truck, boats, ferries, ships, Rail trolley, railcars, Special-purpose vehicles such as golf cart etc. To exemplify the concept one vehicle type is described here.

Auto rickshaws: Auto rickshaw is a small, three-wheeled vehicles extensively used in many developing countries, particularly in Asian, for transport of people and goods. In large cities Auto rickshaws are mainly used as a public transportation for the last mile connectivity, whereas in medium and smaller city it used as a primary mode of public transportation. India is estimated to have over 2.5 million auto rickshaws. Petrol fueled (traditional) Auto rickshaws are known cause pollution. To mitigate the problem of pollution recently auto rickshaw manufacturers have introduced alternate models such as Compressed Natural Gas (CNG) and Liquefied Petroleum Gas (LPG) rickshaws. However these new alternatives have their own disadvantages. (1) oil is still added to the chamber in the two stroke configurations, which adds to the pollution, and (2) LPG and CNG are nonrenewable energy sources. The appropriate approach would be power the auto rickshaws by renewable energy. Rickshaws are recognized to be an ideal candidate for electrification due to (1) the low speeds of the vehicle and (2) a relatively small distance covered in a day.

#### [A] Attracting Automobile Manufactures and Brands:

Attracting Reputed Automobile Brands to set up the manufacturing unit in the state is one important factor for the development of sector. Arrival of Suzuki Motors in NCR region is one of the major factor in development of automobile cluster in NCR region. Arrival of Tata Nano in Gurjat facilitated a great leap in the development of the sector. This is further strengthened by announcement of Suzuki Motor and SW Group to promote production of battery operated vehicles in the state Gurjat. If a National or Foreign Brand, reputed in the field of ICE or Electric Vehicle agree to set up a manufacturing unit in the state it would be a great progress. This may be achieved by means of financial, policy or regulatory support/incentives.

#### [B] Attracting Component Manufactures:

Critical components in context of Electric Vehicle are:

- (i) Battery: Batteries are a major part of bill of material of an electric vehicle. It is also one of the critical part of it. Lithium-ion batteries for Electric Vehicle are produced using Lithium-ion battery-cell. Japan leads in this technology, followed by South Korean. Recently China has started increasing presence by winning over market share from Japanese companies.

- (ii) Electric Motor: This is another critical part of electronic vehicles. Electric cars usually use a series wound (brushed) DC electric motor. Recent electric vehicles are experimented with a variety of AC motor, as these are simpler to build (no brushes thus lesser wear and tear). Usually induction motors or brushless AC electric motors (with permanent magnets) are used. There are several variations of the permanent magnet motor. The advantages are simpler drive schemes, lower cost & brushless design.
- (iii) Motor controllers: It regulates the power to the motor. It supplies variable pulse width DC or variable frequency AC or variable amplitude AC, depending on the type of motor used.
- (iv) Other components: It includes Body, Chassis, Steering, Suspension, Brake etc.

#### [C] Facilitating Battery swapping process:

The existing arrangement of fuel station is very convenient and well accepted. Changing of culture from Petrol/Diesel would require an alternate fuel disbursing system. Various scholars have applied their mind to this issue. For example Lukic et al. (2008) , suggested a centralized recharging station and battery swap process that is expected to be quick, efficient, effective and comparable to the petrol refueling in the eyes of the vehicle owners.

The batteries are charged at a central location allows for easy maintenance by trained staff, thus ensuring longevity of the packs. In addition, the placement of renewable sources at a centralized location ensures these resources will be operated in an efficient manner. This facilitates use of renewable energy, thus it is environmentally friendly and also it avoids addition of stress on electric power grid. It is also noted that electric power grid in India is either weak or non-existent in rural areas. These electricity grids are already stressed as demand exceeds the supply. Hence putting an additional stress for the purpose of transportation is not advisable.

Once the batteries are charged at a centralized location, they can be transported on trucks to “daughter” stations. These daughters are existing gas stations where the batteries can be stored until the rickshaw driver comes for a replacement. Finally, the charged battery pack is installed into the rickshaw, while the discharged pack is taken back to the mother recharging station.

#### [D] Facilitating Demand:

For any automaker availability of demand for electric vehicle is a great incentive. This is so because electric vehicle is a new concept; its adoption by consumer is a great risk. A place where there are consumers for this new type of vehicle is a mitigation of that risk. Government may facilitate demand in various ways such as (i) providing incentives or subsidies to consumer, (ii) providing policy/regulatory support (incentive for electric vehicle or disincentive for ICE vehicle or both), (iii) giving preference to electric vehicle for government purchase, etc.

#### [E] Facilitating Research and Development Support:

Development of technology and intellectual property rights are increasingly playing important role in the growth of the economy. Chhattisgarh has reputed institutes like IIT, IIIT, NIT, IIM

## 14.3 Slum Re-Developmentx

*Space, Light and order ... Those are things men need just as much as they need bread and place to sleep. – Le Corbusier*

- Chhattisgarh is undergoing transition from rural to semi urban society.
- Increasing migration from rural to urban areas.
- Mismatch of sites and services.
- Disparity between high land costs, cost of construction and lower incomes leading to non sustainable situation
- Construction sector provides employment to 16 % of work force.

The State Urban Development Authority (SUDA) is in the process of taking up a massive slum redevelopment project in eight clusters of Chhattisgarh using land as resource on a Public Private Partnership (PPP) basis.

The project is being taken up under Centre's Affordable Housing for Beneficiaries of Untenable Slum and Non-Slum Area for each cluster separately which covers 36 Urban Local Bodies (ULBs) under the Pradhan Mantri Awas Yojana –Housing For All Mission.

The clusters are in —Raipur, Bhilai, Rajnandgaon, Bilaspur, Raigarh, Ambikapur, Dhamtari, agdalpur.

Notably, nearly six lakh poor families in rural areas of Chhattisgarh will be provided housing facility under Pradhan Mantri Awas Yojana (PMAY) during the next three years.

These houses will be constructed at the total estimated cost of Rs 7219 crore.

In three years, nearly six lakh families in rural areas of the State will be benefitted under PMAY. Government has set the target of constructing nearly 5.76 lakh houses at the cost of 7219 crore. This includes construction of 1.74 lakh houses at the cost of nearly Rs 2200 crore in fiscal year 2016-17.

A total of 36 cities of Chhattisgarh have been selected for Pradhan Mantri Awas Yojana (PMAY) 'Housing for All' (HFA) Mission 2022, officials informed.

The Ministry of Corporate Affairs, Government of India in its circular, has stated that slum-redevelopment or housing for economically weaker sections should be covered under the eligible CSR category of 'measures taken for reducing inequalities faced by socially and economically backward groups'.

In view of this companies located around Raipur, Durg, Bilaspur zones may like to consider using their CSR funds for slum redevelopment in their surrounding areas along with capacity building of these slums so as to gear their activities in lieu of Swachha Bharat Abhiyan as per the Ministry of Corporate Affairs guidelines.

# Energy Efficiency and Renewable Energy

CONTEXT SETTING

Chhattisgarh gets 2nd highest solar surface radiation in the country. CREDA can develop mechanism to tap the benefit in PPP model. Larger colonies of Housing Board can be clubbed up to sum up all terraces to have one large and composite solar station within particular bearable locality. All roads can be topped by solar umbrellas, thus large amount of surface heat can also be reduced. Composite operation mechanism can be developed for generation, transmission and distribution of peak power generated from Solar. (  $ec \ v \ p \times 30\% \ \& \ e \ )$

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## 15.1 Green Buildings

As per various reports of the United Nations Environment Programme, buildings use about 40% of global energy, 25% of global water, 40% of global resources. Buildings emit approximately 1/3 of all GHG emissions and produces up to 40% of annual solid waste.

With this background, CII – IGBC defines “ G ee B g e hch e e e, p e e e g ge, c e ve e ce, ge e e e e p v e he h e p ce f cc p c p e c ve b g” IGBC certified buildings offer tremendous savings in terms of energy (up to 20 – 30% over baselines) and water consumption (up to 50% over baselines) and also numerous intangible benefits like fresher air quality with primary focus on the health and productivity of the occupants.

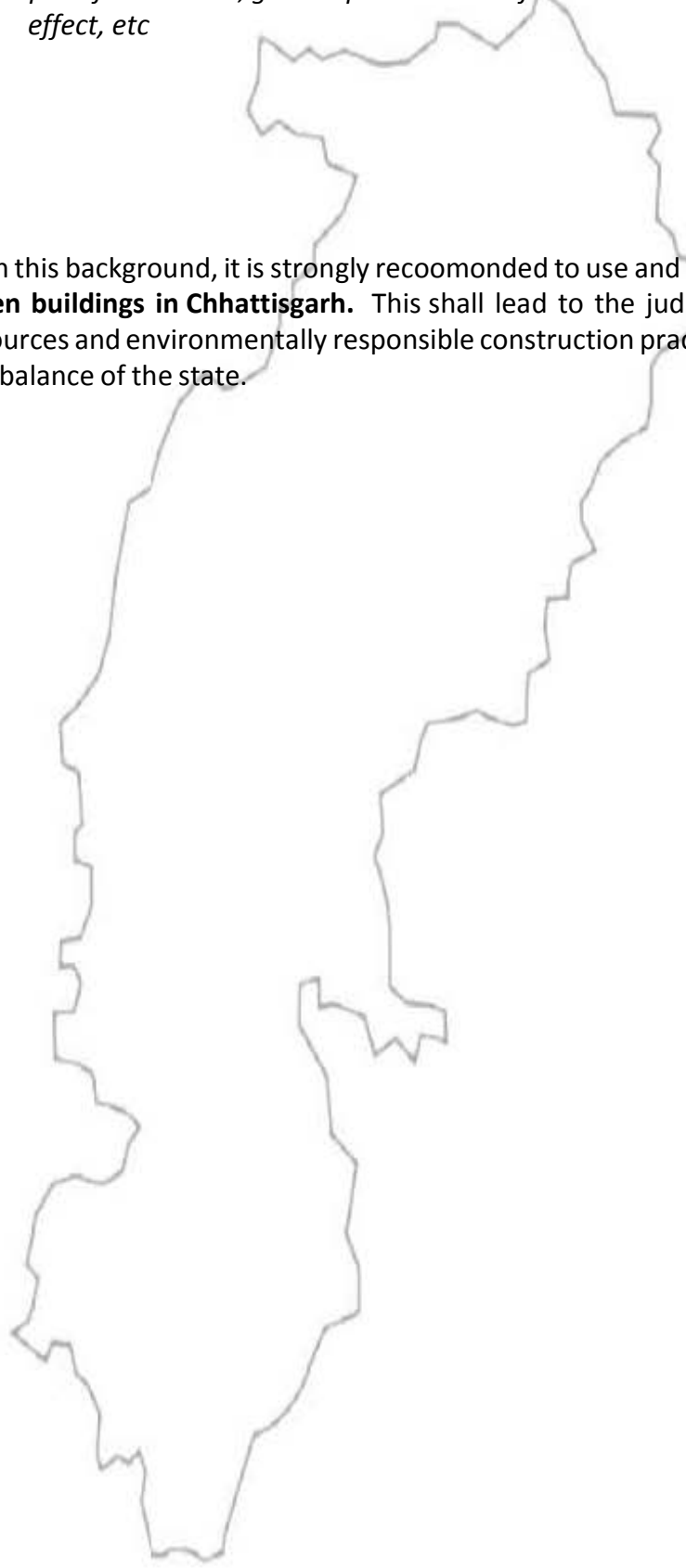
Today, **IGBC is the premier green building rating body in the country with 4,077 building projects equivalent to 4.53 billion sq ft going green with IGBC Ratings. More than 80% of all green building projects in the country have adopted IGBC Ratings.**

States like **Uttar Pradesh, Maharashtra, West Bengal, Punjab and Rajasthan** have **incentivized IGBC and GRIHA-rated green buildings with additional FAR**

and most of these states have witnessed multi-fold increase in their green building footprint which has resulted in *reduced pollution, emission, environmental impact, greater preservation of trees, reduced health effect, etc*

## RECOMMENDATIONS

With this background, it is strongly recommended to use and incentivise the use of **green buildings in Chhattisgarh**. This shall lead to the judicious use of natural resources and environmentally responsible construction practices and restore the eco balance of the state.



# 16 Health

## RECOMMENDATIONS

### 16.1 Proposal for SATELLITE HOSPITALS OF AIIMS IN CHHATTISGARH STATE

It is proposed to have super specialty hospitals at various strategic locations of state which will be satellite hospitals of AIIMS. It will be developed under PMSSY Govt of India which shall provide financial support for development of each Super Specialty hospital. The project cost usually covers infrastructure and equipments. Under special consideration, it can be taken up as AIIMS satellite hospital, where AIIMS shall recruit faculties with Para medical staff.

## KEY REQUIREMENTS

There will be 8 Departments in hospital Viz: Cardiology, Neurology, Nephrology, Gastroenterology, Neurosurgery, Oncology, Urology, Cardiac surgery. Besides Hospital shall have necessary non clinical facilities. There shall be minimum 40 beds for each Department, hence total number of beds will be about 320. Minimum land area requirement should be 10 Acres, which shall accommodate hospital and staff quarters. The site should be allocated within Medical college premises of state or at close vicinity.

Each Department should have faculty as follows -

- Professor /HOD
- Associate Professor
- Asst Professor
- Senior Residents
- Junior Residents

## SECTION OF LOCATION

Ideally each super specialty hospital, should be located at 100 KMs distance. However as pilot projects, those can be proposed at 4 strategic locations in North Chhattisgarh, South Chhattisgarh, East Chhattisgarh and West Chhattisgarh.

1. North Chhattisgarh: It covers as many districts like Balrampur, Surajpur, Ashpur, Baikunthpur, Koriya and Sarguja which are extremely backward with poor health care services. Central district is Sarguja with District Head Quarters at Ambikapur where train, road communication is available. Air connectivity is also possible. Hence proposed hospital can be proposed along with ongoing medical college campus at Ambikapur.

2. South Chhattisgarh - Jagdalpur in Bastar district can be ideal where existing medical college is available. It can cater to districts like Kondagaon, Narayanpur, Bijapur, Sukma, Dantewada & Bastar.

3. East Chhattisgarh - Strategy for areas like Raigarh or Mahasamund. Both are connected by train to the state capital. Raigarh has one Medical college, but

in case of Mahasamund, existing district headquarters hospital can be upgraded or optimized.

4. West Chhattisgarh - Focus can be on districts like Rajnandgaon or Kabirdham. Rajnandgaon is more preferred choice over Kabirdham, as it is connected by Rail and road from state capital and it is having one medical college. In case of kabirdham, existing district health hospital can be optimized.

### **16.2 Rural Training centers of AIIMS & all State Medical Colleges-**

As per Medical Council of India guidelines at least two Rural Training Centers have to be constructed by all Medical colleges and AIIMS in remote areas. This can be achieved through the utilization of the budget from Pradhan Mantri Swasthya Suraksha Yojna, which focuses on tertiary healthcare services so as to augment facilities for quality medical education in the country. Outreach mechanism for achieving training through this centres may be implemented by the state through the existing infrastructure like road connectivity, water supply, and power supply and all the amenities available at the districts.

### **16.3 Establishment of Sickle Cell Institute at Raipur.**

As sickle cell disease is very common in tribal areas of Chhattisgarh, an institute with 100 bedded hospitals is to be built at Raipur.

CREDA has already submitted one proposal to State Govt which should be taken up on priority by the government so as to provide exclusive facilities for the diagnosis, treatment, counseling of the sickle cell patients. Creating and enabling environment to spread public awareness of this genetic disorder, so as to ensure counselling of the effected persons and their families to cop-up with this genetic disorder.

## 16.4 Pharma Complex and Medicinal Device Park

### BACKGROUND

Pharma industry in the country is a sunrise industry with 30 billion output and the government is supporting the industry in taking up this output to 55 billion by 2020 as stated recently by Mr Ananth Kumar Hon Minister of Chemical and Fertilizers,

While government of India is as per [Katoch Committee](#) recommendations is planning to augment manufacturing capabilities of pharmaceutical industry. In view of this, the centre is planning to set up six pharma parks and two clusters for manufacturing [medical devices](#) in the country.

### ADVANTAGES

The key advantages will be to promote policy support, infrastructure, skill development, duty structure, policy for pricing, regularity framework and promoting research and development for three different verticals, mainly communicable diseases, non-communicable diseases, and bio-pharma, prophylactics and over the counter products.

### RECOMMENDATIONS

In the union budget 2015-16 central government announced the setting up one National Institute of Pharmaceuticals Education and Research (NIPER) in Chhattisgarh, Rajasthan, and Maharashtra.

Medical Services Department is the nodal department for it and will have to pursue it with the concerned central government department for its implementation.

As the six pharma parks and two medical devices parks has been approved by the centre, it is desirable, to explore the possibility of Pharma Park and Medicinal Device Park for Central India with its base at Chhattisgarh. This will help facilitate the identification of gaps in the production of drugs, vaccines, etc in various therapeutic categories and to suggest remedial action for future generations to come. The Pharma park as per recommendation of *Katoch Committee* can have common facilities such as effluent treatment plants, Testing facilities, Captive Power Plants/assured power supply by state system, common Utilities/ Services such as storage, testing laboratories, IPR managements, etc.

There could be a collaboration between scientists, industrialists, academia to promote research and development. This will help by promoting and establishing a data base of successful studies to generate a plethora of new advancement in this field.

In order to promote cluster based development it is opined that this parks can set up near mega industrial complexes, which will enable special incentive packages.

As stated by Hon PM without Pharma security, you cannot have health security. Pharma park may also include medical devices park also.



## Development of IT/Software Industry

### BACKGROUND

The State Government of Chhattisgarh, has unveiled an ambitious Electronics & IT/ITeS Policy in 2014 that will set the tone of the growth using technology and innovation as a platform for the period of next five years. The key goal of the policy is “To develop the ecosystem for a knowledge economy in Chhattisgarh and make the State of Chhattisgarh as the destination of choice for FDI. This as the guiding framework, Government of Chhattisgarh in Building a Game-Changing Strategy.

What strategy will make Chhattisgarh different? The state is driven by an explicit and concrete underlying mission: “To create a better future for the residents of Chhattisgarh.” This is possible when the state excels at commercializing innovation, its technology platform and operations.

To achieve the mission of creation of a strong eco-system, creating an academic system that will help put the right talent in the right roles at the right time for the investing corporates is one of the differentiators that keep Chhattisgarh out in front. Its talent management policies and practices need to be guided by the future skills required by its global investors. The existence of such policies sends a powerful message that talent is not only a strategic and scarce resource but a matter of critical accountability for the state.

### OVERVIEW OF T E SOFTWARE INDUSTRY H

- The business service industry profit pool is estimated at 14% of revenue and hardware support at 20%. Business service segment operating profit margins range from 22.5% (business consulting) to 7% (help desk outsourcing and data center outsourcing).
- Automation, cloud and digital business are the technology trends most influencing future opportunities in IT services, bringing leverage to the traditional service business model through higher revenue per professional, as well as transaction- and outcome-based revenue.
- Commoditization of services related to Mode 1 operations, technology budgets shifting to business buyers and a waning incumbent advantage will keep pricing under pressure through 2019.

- State to consolidate or exit fragmented share in lower-growth support markets, lower-margin markets to free funds and resources for growth opportunities, as portfolio management is critical to long-term relevance.
- State to invest in R&D, joint ventures, and co-innovation with clients in productisation and automation of services to be more cost-competitive, maintain high innovation levels and potentially increase profitability of engagements.
- Help to create a best-in-breed customer experience to drive higher win rates, greater expansion of client share of wallet and more opportunities to engage in sole-sourced selection.
- Help specialize in domain or vertical-industry solutions as a basis for expanding addressable markets using consultative expertise and/or IP. Integrate these capabilities with other services and delivery to maintain discussions with the decision makers within the client organization.
- Help enterprises drive a world-class execution that delivers a predictable, quality experience for the customer to reduce instances of cost overruns or SLA penalties, and offer the opportunity to drive margins higher than industry averages.
- The software industry has come of age. The signs are everywhere: maturing business models, gains through operational performance rather than technology innovations, and growth through mergers or acquisitions rather than organic development. Through it all, revenue recognition continues to be a major issue in this industry.

**GOVERNMENT ROLE AS DIGITAL WORKPLACE LEADERS:**

- Establish a process for evaluating and provisioning emerging tools that fuel the development of the digital workplace, particularly from SaaS providers.
- Create a digital workplace program that ensures that IT, HR, facilities management, communications, business leadership and compliance groups have a forum for cooperating on digital work initiatives.
- Strive to create an organizational culture that encourages and rewards employees to increase their digital dexterity.

**DIGITAL OPPORTUNITY** - Seizing the digital opportunity requires flipping long-held practices:

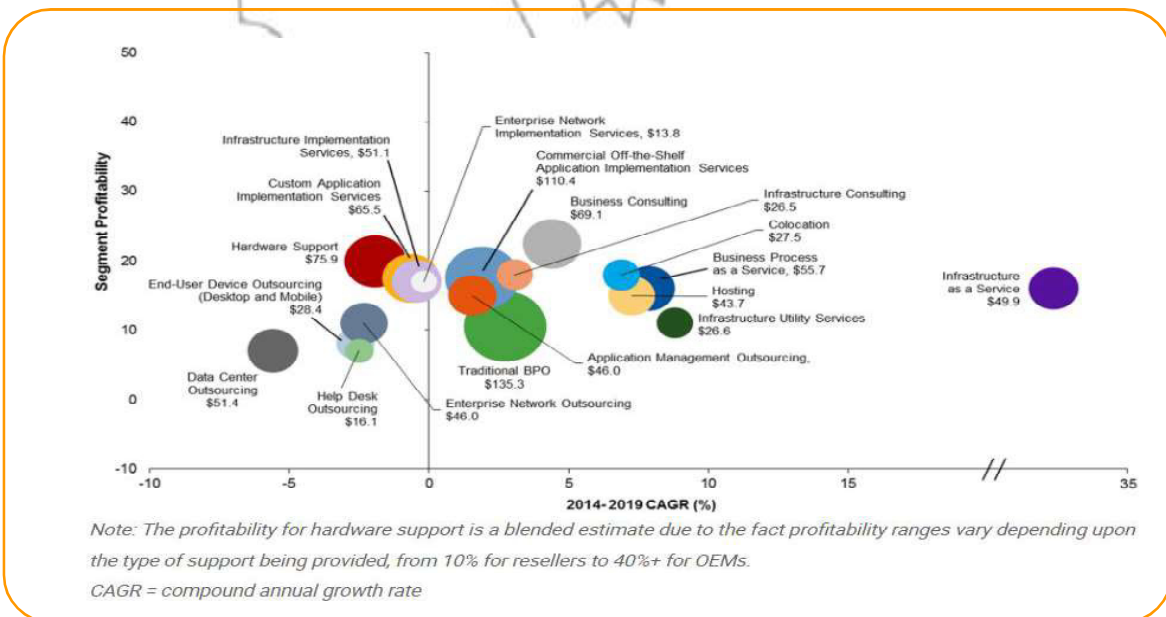
- Flip from “legacy first” to “digital first” — Digital business success requires starting with a digital information and technology mindset, and working backward.
- Flip from “visible” to “valuable” — Digital business success requires building platforms that may not immediately generate ROI, but can deal with rapid change and uncertainty, and manage value dynamically.
- Flip from “control” to “vision” — When doing something new or uncertain, vision is the only roadmap, and inspiration is the only fuel.

In addition to the evolving Nexus of Forces and digital business trends, we see new impacts from forces/trends such as:

- Automation
- Robotics
- Hybrid IT
- IoT

These emerge as the new prioritization of values and expectations for IT. Cost still matters. However, speed, agility, time to market, relevance and focus — as well as innovation and business outcome in shortened time frames — are the prime expectations.

Through 2019, 48% of the IT Services Market Growth Will Be Directly Attributable to Digital Technologies



**IT SERVICES MARKET OPPORTUNITIES**, Worldwide, 2014-2019 (Billions of U.S. Dollars)

The global IT services market is forecast to increase by 219 billion, from 970 billion in 2014 to 1.19 trillion in 2019. The Nexus of Forces (cloud, mobility, analytics and social) and digitalization will be the key factors driving this growth. Cloud IaaS and BPaaS will contribute 56 billion, digital consulting and implementation a further 36 billion, and digital business consulting 13 billion more. Needless to say, the winners will be service providers that seize the opportunity of actively participating in organizations’ “exploit the new” digital-business ventures. But not just that, “renovate the core” will also yield opportunities. Initial digital projects have the potential to pull through eight to 20 times more revenue for providers.

This is possible when Chhattisgarh has required talent pool to support the growth vision. An integrated approach to ICT skills acquisition and practitioner training, both in core ICT skills and in sector-specific ICT skills, complemented by business domain knowledge required by different sectors of the economy. Thus, T-shaped professionals to better sector needs across the economy. In fact, a significant 51% of ICT professionals work in non-ICT sectors who needs to be better equipped beyond core.

Employability outcomes through place and train programmes, and career advisory services.



**MANPOWER DEVELOPMENT** - State Policies for Manpower Development may be structured in the following Manner:

- **PLANNING AND MAPPING** – Policy Makers will identify job opportunities and skills requirements, close vocational skills gap through training, and driving hiring outcomes.
- **ECO-SYSTEM DEVELOPMENT** – Policy Makers will develop an ecosystem of partner providers to better match demand and supply for ICT

professionals, with specialised training partner clusters for different sectors of the economy.

- **ENABLER** – Policy Makers will develop industry-recognised skills standard and certification programmes for T-shaped ICT professionals, accredit partner providers and provide career advisory services.

When state of Chhattisgarh look at the distribution of skills, there are ICT skills that are core to the profession across the economy, regardless of which sector an ICT professional may serve in. Core important skills today are for example in software development, data analytics, network engineering and cyber-security. We group these tech skills as Core.











Increasingly, as different sectors of the economy adopt technology, many sector-specific ICT products and solutions are also developed. The latter then required skilled manpower in these sector-specific IT software and systems. Key employers generally also prefer to hire experienced professionals. Therefore, domain specific business knowledge and acumen, and sector-specific IT skills, will be needed to enhance the employability of ICT professionals in different sectors of the economy such as Finance and Healthcare, and many other sectors. We group these domain skills and knowledge acquisition as Sector.

The courses that may be considered are:

- Cyber Security Courses
- Data Analytics Courses
- Network and Infrastructure Courses
- Software Development Courses

Other Areas include:

We have divided the top trends into three categories:

|   |                               |   |   |                                    |  |
|---|-------------------------------|---|---|------------------------------------|--|
|  | <b>Ambient Knowledge</b>      | Data, information and expertise discovery   |  | <b>Personal Cloud</b>              | Optimized work tools                               |
|  | <b>Embedded Analytics</b>     | Better decisions through data               |  | <b>Virtual Personal Assistants</b> | Delegate simple and complex tasks                  |
|  | <b>Production Studio</b>      | More effective communication and persuasion |  | <b>Silo-Busters</b>                | Cross-company innovation                           |
|  | <b>Immersive Technologies</b> | More effective real-time experiences        |  | <b>Process Hacking</b>             | Process automation                                 |
|  | <b>Bürolandschaft</b>         | Effective working environments              |  | <b>Microlearning</b>               | Contextual acquisition of digital dexterity skills |

Source: Gartner (July 2016)

- Exploiting information, which looks at how information can be shared, analyzed and displayed
- Mobile productivity, which gathers the top trends that will boost the mobile workforce's agility
- Citizen enablement, which looks at how employee's digital work skills can be boosted

## Top 10 skills

### in 2020

1. Complex Problem Solving
2. Critical Thinking
3. Creativity
4. People Management
5. Coordinating with Others
6. Emotional Intelligence
7. Judgment and Decision Making
8. Service Orientation
9. Negotiation
10. Cognitive Flexibility

### in 2015

1. Complex Problem Solving
2. Coordinating with Others
3. People Management
4. Critical Thinking
5. Negotiation
6. Quality Control
7. Service Orientation
8. Judgment and Decision Making
9. Active Listening
10. Creativity



Source: Future of Jobs Report, World Economic Forum

What do we know with some clarity about the future?

Based on what is emerging and changing now, it can be said that:

- Our lives and work lives will be swept by regular waves of change
- More work will involve international connections and citizenship will gain a more global focus
- More work will be multidisciplinary, involving new kinds of collaboration
- Far more jobs will mean working intimately with digital machines and intelligent systems
- More elements of work and life will use visual communications
- The world will be battling sustainability issues in ways that will

affect most workers]

- Citizenship responsibilities will only grow more complicated as societies confront new issues.



## TALENT MANAGEMENT

The best talent policies respond to changing conditions on the ground and to cultural differences across the globe and addresses two of the highest priorities among young people: career mobility and social responsibility. We found that a sense of purpose is an overwhelming differentiator in attracting top talent to take up future looking courses. With this as the background, the focus on plans and deliverables are:

### TALENT MANAGEMENT:

It is proposed that local academic institutions have a tie up with universities having capabilities and doing research in these area like Razorthink University which is an advanced research program institute that has its headquarters in Livermore, CA and Research Labs in Bangalore, India. As per a dip study conducted by this university it found that the key challenges faced by the industry is the availability of qualified well-trained resources in the areas of Advanced Data Science, Artificial Intelligence, Design, Quality, Operations and Software Product Management. This program will be intended to address the gap, as well as fit well flat organization models necessary to fully utilize such creative talent.

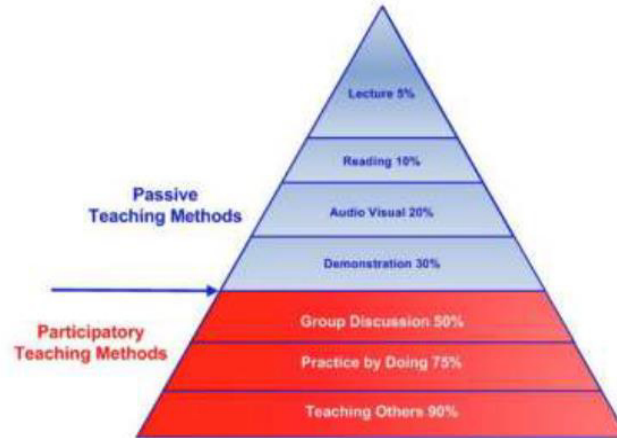
The current proposed program has a 2-year duration with a common first year that teaches how to build production-quality software, and second year allows the student to choose a specialization out of several that are offered by the university.

What we expect from this program are as follows:

1. Graduates of the program should have the following skills:
  - a. Solid practical development skills, and a full understanding and experience of the Software Development Lifecycle.

## KEY FEATURES OF THE PROGRAM METODOLOGY USED

- b. Strong Computer Science knowledge especially in algorithms, architecture and design thinking.
  - c. Strong communication and customer management skills. e. Strong entrepreneurial skills with practical experience in discovery, product management and product launch.
  - d. Deep practical expertise in the area of their choice
2. Graduates of the program should compare favorably with graduates of the top programs in the world such as MIT or Stanford.
  3. The pedagogical methodology should be heavily experiential and MOOC-based, making it independent of faculty on a full time basis.
  4. There will be a deep focus on Mastery and Mentorship methodologies rather than traditional classroom delivery of content.



The following are key features of the program that we envisage:

1. Instead of grades by courses, students will be measured on skill levels on an ongoing basis. These skills and their operationalization will be carefully designed so that a hiring organization can quickly assess the ability of the student to fit in their organization.
2. Content and learning will be delivered by module managers rather than teaching staff –mimicking to the extent possible a realistic corporate environment for the students.
3. Most learning will be delivered through specially crafted assignments that allow the learning of a range of skills to solve problems.
4. Students will use office hours to learn particularly hard problems – these will be delivered by top professionals or academics in the sub-



ject area.J

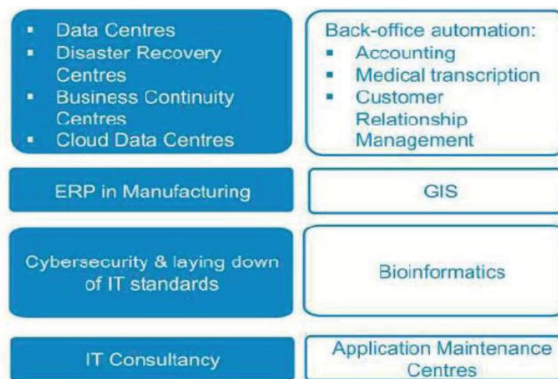
- Students will be in a part-time apprenticeship program throughout the duration of the coursework, allowing them to gather useful work experience.

**Data Sciences:**

- Flexible Length of Program (360 hours of work)
- Core Areas are run in mastery mode
- Mathematical Foundations (Linear Algebra, Statistics)
- How to Code (Coding Standards, Best Practices, Process)
- Tools of the Trade (Git, R, Scala, Spark/HDFS)
- Complete 3 projects that covers application areas (with 1-on-1 mentoring)J
- Data Scraping and AcquisitionJ
- Data Preparation (using Google Refine or similar tool)J
- Modeling and Analysis (using R)J
- Presentation of ResultsJ

**Artificial Intelligence:**

- Flexible Length of Program (360 hours of work)
- Pre-requisite : Data Science program
- Core Areas are run in mastery mode
- Neural Networks (Back-propagation, Unsupervised Learning, Deep Learning)
- Text and Unstructured Data (NLP, Word2Vec)
- Modeling Intelligent Systems
- Complete 3 projects that covers all basic areas (with 1-on-1 mentoring)
- Using Augmented Learning to teach a system to think like a human
- Recognizing images
- Sentiment analysis from Amazon reviews
- Special electives in the space of BLOCK CHAIN



Academic and institutional science and research hubs can be crucial to the commercial strength and growth expectations of Chhattisgarh. The innovative power, human-resource development and training, supporting infrastructures, and opportunities for incumbents and start-ups alike that such research clusters provide can form a stable bedrock for regional competitiveness and economic developments.

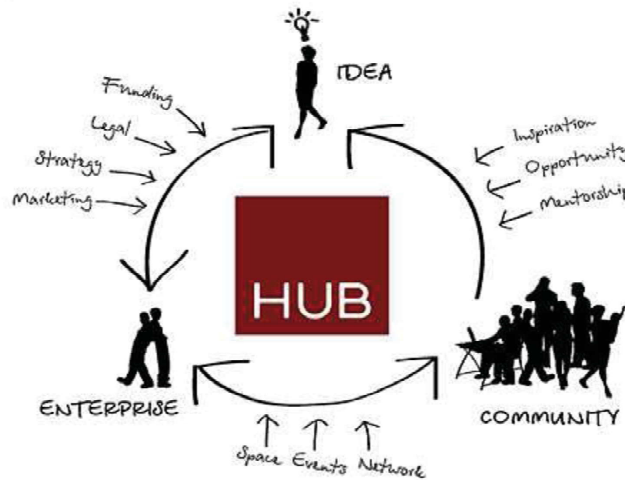
Nevertheless, the example of Silicon Valley in California’s San Francisco Bay Area—with its multiple tiers of academic institutions, various research centers of companies from all over the globe, and sound foundation of start-up culture and funding possibilities—highlights the potential such areas can have. The efforts of Global Research Board is to help State of Chhattisgarh to emulate Silicon Valley’s success, and potentially setting the stage for substantial changes in the global innovation landscape.

The primary purpose of the Chhattisgarh Innovation Center is to concentrate economic and intellectual resources to drive innovation in the state. The Forward Accelerator of Silicon Valley may be tapped to develop a network with other research hubs as well as encourage local businessmen to serve as the Chhattisgarh Innovation Center’s co-chairs. Chhattisgarh innovation center will also establish training programs for technology entrepreneurs.

Chhattisgarh innovation facilities will be open to every talented pioneer, whether they are from the state, from India, or any other nation around the globe. The aim is to attract the best minds to develop tools, create content, conduct research and develop applications.

The objective is to connect them with opportunity in the smartest innovation environment in the world. We are encouraging the government to create new fund that would be used to “support youth, for small business innovation and the creation of technical clusters” that would make RAIPUR an “innovation capital”.

**Structure of Chhattisgarh Innovation HUB**



## INNOVATION ACADEMY @ CHHATTISGARH:

The Innovation Academy (IA@Chhattisgarh) is a groundbreaking living/ learning community that pulls unique entrepreneurs from various disciplines into a cohort filled with energy, collisions that become ideas, and one common minor: Innovation. The Innovation Academy allows participants to attend workshops and source for knowledge as well as mentors for their start-ups.

The Innovation Academy will be one of the state’s most forward-looking entrepreneurship programs – that motivates budding innovators who are focused on innovation, creativity, entrepreneurship, ethics and leadership on a unique planned schedule. Some possible programs:

**Startup Workshops:** A series of program leading up to the next installation of Startup Weekend CHIPS Forum. The topics that will be covered in the workshop are based on the elements that go in building an innovation DNA.

List of Workshops:

- Business Model CanvasJ
- Ideation and Market ValidationJ
- Pitching To VCJ
- Design SprintJ

An illustration of the workshop:

“Investors don’t invest in business. They invest in stories about business”. The act of convincing others to do something with your ideas is called ‘pitch’. Learn how to convince others that your idea is amazing.

Who should attend?

- Students of all backgrounds interested in entrepreneurship
- Aspiring entrepreneurs
- People with ideas but don’t know what to do with it

## ILLUSTRATION OF SOME OF THE WORKSHOPS:

### DESIGN THINKING WORKSHOP:

Design Thinking is indeed revolutionizing the way we work, by providing actionable methods and tools for innovation. The basic idea of Design Thinking is quite simple: Businesses can learn to innovate from designers, who combine the needs of human beings with the possibilities of technology and the requirements of business. Creativity and innovation are learnable skills, not innate talents. There are four main skills in design thinking:

- Create interdisciplinary teams with perspectives on business, technology, and human opportunities for innovation
- Observe and engage with customers and other stakeholders to be inspired

- Use your inspiration in synthesis and brainstorming sessions
- Create low-fidelity prototypes to advance the innovation process quickly

#### **IDEATION & MARKET VALIDATION WORKSHOP:**

Why is Validation important? This workshop will help to quickly tackle a startup idea from the “hope” stage through ideation, and how to achieve market validation. The workshop will be using Customer Development approaches about Validation.

#### **BUSINESS MODEL CANVAS WORKSHOP**

BMC is one tool that start-ups can use to help bring clarity to “How will we make money?” Ideas are fun to talk about, but even the best ideas will fail if they are not sustainable businesses. Workshop will be going over how can Startups best use BMC. Learn what each part covers.

**PAN INDIA STARTUP TRACK:** A program to accelerate 50 startups to be investment-ready in 4 months, and to build a strong PAN INDIA startup community

**SOCIAL ENTERPRISE TRACK:** India’s first social enterprise accelerator for bold new ideas to improve lives and build a sustainable world

**INDUSTRY MAPPING:** A 10-week program led by Forward Accelerator, brings experts in customer acquisition, ‘growth hacking’ and distribution to work with Global growth-stage startups to exceed their customer / user growth goals.

#### **GLOBAL & REGIONAL PROGRAMS**

Build a Tie-Up for top professional development programmes by top global ranking university like Stanford University’s Center for Professional Development:

This program can be named as *e-Chhattisgarh Stanford* or the specific university. The Stanford Center for Professional Development collaborates with state to design a custom learning experience that achieves the learning goals and objectives of Chhattisgarh Innovation HUB. State will work with the faculty at Stanford to create content, and materials for custom programs and courses draw from Stanford research and teaching in management, leadership, entrepreneurship and innovation. The model used is:

#### **Discovery, Design, Debrief, Delivery**

**Discovery** - Determine educational goals, needs, and challenges through exploratory meetings

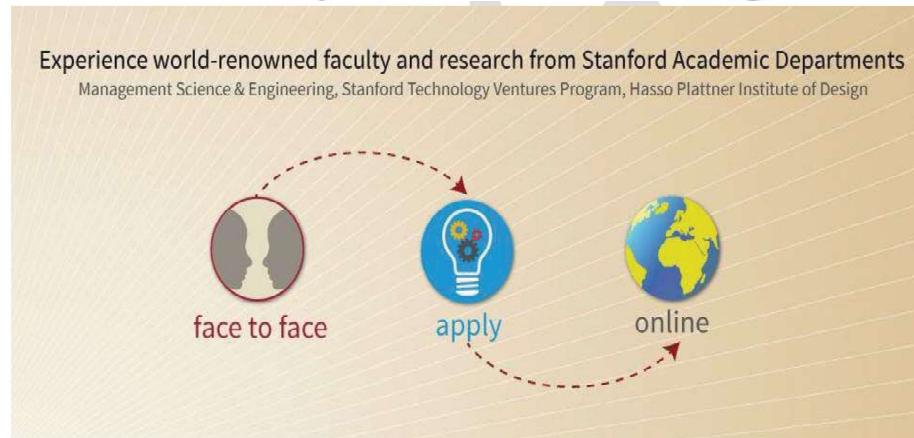
**Design** - Work with Stanford faculty to design a curriculum that can include learning modules, case studies, speakers and site visits.

**Delivery** - Teaching methodology and techniques, and course delivery for working professionals. Custom programs or courses are delivered at the Stanford campus, at work locations, online, or a combination of these delivery modes.

**Debrief** - Thorough review and evaluation of the program implementation and achievements, and participant feedback. Adjust the program design based on the debrief.

## Entrepreneurship and Innovation - Sample Program Overview

RECOMMENDED MODE



### WEEKLONG WORKSHOP:

|           |   |       |   |   |
|-----------|---|-------|---|---|
| Monday    | The Entrepreneurial Ecosystem                             | Lunch | Innovation and the Future                             | Opening Dinner                          |
| Tuesday   | Design Thinking:<br>Building a Culture of Innovation      | Lunch | Entrepreneurial Team Performance:<br>Panel Discussion | Group Work:<br>Pitch Preparation        |
| Wednesday | Creating the Product:<br>What Works and What Doesn't      | Lunch | Crossing the Chasm:<br>Go-to-Market Strategy          | Site Visit to Silicon Valley<br>Company |
| Thursday  | Startup Finance 101                                       | Lunch | Understanding Your Company's<br>Development Strategy  | Group Work:<br>Pitch Preparation        |
| Friday    | Entrepreneurial Pitching, Relationships<br>and Adventures | Lunch | Wrap Up and Business Pitch<br>Presentations           | Closing Dinner                          |

Here's a sample agenda of an Entrepreneurship and Innovation Program that can be held at Stanford University.

**CHHATTISGARH CENTRAL:** Chhattisgarh Central to provide advisory and information on entrepreneurship as well as facilitation with collaborating agencies. It will be a useful platform for those undertaking entrepreneurship path and seeking answer for their enquiries

**SOCIAL ENTREPRENEURSHIP:** To unleash the potential of social entrepreneurship to drive long-term benefit for the society and environment

**STATE AWARDS:** The proposed State Awards will be providing cash rewards to Chhattisgarh's top social enterprises to help them increase their impact through new business capabilities and improved operations. Build a collaboration model between CHIPS and ASEAN CENTRE OF ENTREPRENEURSHIP Objective is to Support Startups Going Regional and Global



# 18

## Development of Micro Small Medium Enterprises

### 18.1 Developing an Eco-System of Forest Products in Chhattisgarh to Foster a Business Cluster of Micro, Small and Medium Industries

#### OBJECTIVES

This concept notes concerns economic development of the state of Chhattisgarh based on a cluster approach that facilitates economic opportunities to industries ranging from medium sized enterprises to a home/micro enterprises. The approach aims for high impact inclusive growth by facilitating economic opportunities to a large section of society, particularly from rural area by means of self employment at their own home-enterprises.

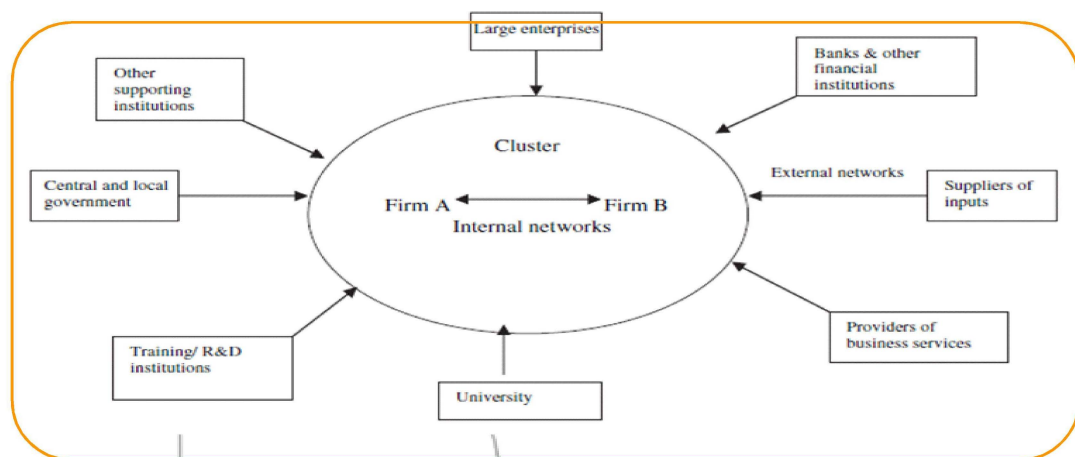
#### CLUSTER AND ECOSYSTEM

Concept of clusters as a mechanism for economic growth is becoming popular among policy makers (Aziz and Norhashim, 2008). Cluster approach is used to drive the growth of Small and Medium Enterprises industries by various Governments around the world, including Government of India (Tambunan, 2005). The Ministry of Micro, Small and Medium Enterprises (MSME) adopted the cluster approach as a **key strategy** for enhancing the productivity, competitiveness and capacity building of small enterprises and their collectives in the country (Twelfth Five Year Plan 2012–2017, Economic Sectors, Volume II, page 83). The plan recognizes that Clusters play a critical role in propagating technological depth by facilitating technological learning and manufacturing through the presence of the entire ecosystem in the same geographical location. In this context the National Manufacturing Policy (NMP), which outlines creation of National Investment and Manufacturing Zone (NIMZs) ensures that business is provided with the ecosystem required for growth, not only in manufacturing, but also for investments in research and development. It is emphasized that the new high-technology industries will benefit from the localised presence of the entire value chain of participants.

The United Nation Industrial Development Organization (UNIDO) defines a cluster as a local agglomeration of enterprises producing and selling a range of related or complementary products within a particular industrial sector or subsector (Richard 1996 as cited in Tambunan, 2005). The term cluster, network and ecosystem are sometimes used interchangeably (Hwang, 2014). Porter defines (1998) cluster as a geographic concentrations of interconnected companies, specialised suppliers, service providers, firms in related industries, and associated institutions in particular fields that compete but also co-operate (Aziz and Norhashim, 2008). Under this definition, a cluster may include suppliers of inputs, or extend downstream to regular buyers or exporters. It also includes government institutions, business associations,

providers of business services, and agencies that support clustered enterprises in such fields as product development, production process improvement, technology, marketing information (for example, on new market and designs), vocational training, and so on (Tambunan, 2005). This is shown in Figure 1.

When firms related to a particular sector cluster together (agglomeration), they may become significantly more competitive compared to other firms that are not agglomerated. Their costs of production may decline considerably because such cluster tends to attract competing multiple suppliers and labours. It also attracts relatively larger number of customers compared to isolated firms. Their technological competency strengthens because of accumulation of greater specialization. Of course on the negative side additional competition drives the prices down, but it is well compensated by advantages mentioned above i.e. lower cost of production and larger turn over. Chances of success of an entrepreneurship in a relevant business cluster are higher than that of in isolation.



An Illustration of Networks of a Cluster Adopted from (Tambunan, 2005).

Enterprises cluster in particular spaces of the ecosystem (Mercan and Goktas, 2011). According to Mason and Brown (2014) the term ecosystem was originally coined by James Moore in an influential article in Harvard Business Review published during the 1990s. He claimed that businesses don't evolve in a 'vacuum' and noted the relationally embedded nature of how firms interact with suppliers, customers and financiers. Supporting the role ecosystem Daniel Isenberg writes in his article published in the Harvard Business Review, July 2010, entrepreneurs are most successful when they have access to the human, financial and professional resources they need, and operate in an environment in which government policies encourage and safeguard entrepreneurs. It is argued that in dynamic ecosystems new firms have better opportunities to grow, and create employment, compared with firms created in other locations (Rosted 2012).

The concept of entrepreneurial ecosystems draws upon a long and rich lineage of intellectual inquiry by scholars from economic geography, economics and other disciplines, all seeking to explain why firms cluster together in geographical space and benefits that arise from this clustering for individual businesses. Mason and Brown (2014) argues that the concept of ecosystem has merits as follows. First it



offers a holistic understanding how clusters of economic activity come into being and specifically to offer a new perspective on firm growth which emphasizes the firm's external environment rather than its internal characteristics and operations. Second, it shifts the unit of analysis away from the 'firm' to the entirety of the ecosystem where it is situated. This is important because often these externalized and relational aspects strongly mediate firm performance. Third, it emphasises the importance of viewing the wider ecological environment in which firms operate. Specifically, it emphasizes that firm growth occurs in specific types of environments.

According to Mason and Brown (2014) Policy makers are now beginning to recognise the merit of a more systems-based form of support for entrepreneurship growth. The emerging approach focused on 'entrepreneurial ecosystems' represents a shift away from company specific interventions towards more holistic activities which focus on developing networks, aligning priorities, building new institutional capabilities and fostering synergies between different stakeholders. Ecosystem is defined as a set of interconnected entrepreneurial actors (both potential and existing), entrepreneurial organisations (e.g. firms, venture capitalists, business angels, banks), institutions (universities, public sector agencies, financial bodies) and entrepreneurial processes (e.g. the business birth rate, numbers of high growth firms, levels of 'blockbuster entrepreneurship', number of serial entrepreneurs, degree of sell-out mentality within firms and levels of entrepreneurial ambition) which formally and informally coalesce to connect, mediate and govern the performance within the local entrepreneurial environment (Mason and Brown, 2014). Daniel Isenberg (2011) argues, that entrepreneurship ecosystem strategy for economic development constitutes a novel and cost-effective strategy for stimulating economic prosperity. He identifies six domains within the entrepreneurial system: a conducive culture, enabling policies and leadership, availability of appropriate finance, quality human capital, venture friendly markets for products, and a range of institutional supports. These generic domains comprise hundreds of elements interacting in highly complex and idiosyncratic ways. Identifying generic causal paths is therefore of limited value. He therefore emphasises the importance of context: each ecosystem emerges under a unique set of conditions and circumstances. The context in this case is: to achieve high impact inclusive growth by facilitating economic opportunities to a large section of society, particularly from rural area by developing/planning an ecosystem for Forest Products to foster a Business Cluster of MSMEs in Chhattisgarh.

Micro, Small and Medium Enterprises (MSME) sector has emerged as a highly vibrant and dynamic sector of the Indian economy over the last five decades. MSMEs not only play crucial role in providing large employment opportunities at comparatively lower capital cost than large industries but also help in industrialization of rural & backward areas, thereby, reducing regional imbalances, assuring more equitable distribution of national income and wealth. MSMEs are complementary to large industries as ancillary units and this sector contributes enormously to the socio-economic development of the country.

The Sector consisting of 36 million units, as of today, provides employment to over 80 million persons. The Sector through more than 6,000 products contributes about 8% to GDP besides 45% to the total manufacturing output and 40% to the exports from the country. The MSME sector has the potential to spread industrial growth across the country and can be a major partner in the process of inclusive growth.

The role of the Ministry of MSME and its organisations is to assist in encouraging

entrepreneurship, employment and livelihood opportunities and enhance the competitiveness of MSMEs in the changed economic scenario. The schemes/programmes undertaken by the Ministry and its organizations seek to facilitate/provide: adequate flow of credit from financial institutions/banks; support for technology upgradation and modernization; integrated infrastructural facilities; modern testing facilities and quality certification; access to modern management practices; entrepreneurship development and skill upgradation through appropriate training facilities; support for product development, design intervention and packaging; (viii) welfare of artisans and workers; assistance for better access to domestic and export markets; cluster-wise measures to promote capacity-building and empowerment of the units and their collectives. Some of the PSUs relevant to MSME are National Small Industries Corporation (NSIC) Ltd; National Institute for Micro, Small and Medium Enterprises; National Board for Micro, Small and Medium Enterprises (NB MSME). Some of the schemes supported by the Ministry are Marketing Assistance Scheme; International Cooperation (IC) Scheme; Assistance to Training Institutions Scheme; Survey, Studies and Policy Research; Scheme of fund for Regeneration of Traditional Industries (SFURTI); Market Promotion and Development Assistance (MPDA); Lean Manufacturing Competitiveness Scheme for MSMEs [NMCP Scheme]; Technology Upgradation and Quality Certification Support to MSMEs [NMCP Scheme]; Support for Entrepreneurial and Managerial Development of SMEs through Incubators [NMCP Scheme]; Enabling Manufacturing Sector to be Competitive through Quality Management Standards (QMS) and Quality Technology Tools (QTT) [NMCP Scheme]; ASPIRE: A Scheme for Promoting Innovation and Rural Entrepreneurship; Credit Guarantee Scheme (CGTMSE); Credit Linked Capital Subsidy Scheme (CLCSS); Micro and Small Enterprises Cluster Development Programme (MSE-CDP) etc. The above support from the Government of India is regarded as supplements to the efforts of the State Governments. The primary responsibility of promotion and development of MSMEs is of the State Governments.

Chhattisgarh is India's one of the youngest and fastest-growing state, came into being on 15th November, 2000. The state is bestowed with natural resources like forests, minerals and surface water. The State has undergone a radical change and is thriving with industrial activities. Chhattisgarh produces 100% of Tin and 15% of the Cement in the country. Over 30 per cent of sponge iron, 30 per cent of Aluminum also comes from the State. Many Government of India Undertakings like Bhilai Steel Plant, National Mineral Development Corporation, South-Eastern Coal Field Limited, NTPC have presence in the state. A number of large cement plants by groups like ACC, Ambuja, Grasim, Ultratech, Jaypee and Lafarge of France are in the State. There are approximately 130 steel re-rolling mills and a number of mini steel plants. The state also boasts of 17 Ferro alloy units, steel/cast iron casting units, engineering and fabrication units apart from large number of agro-based and food processing, chemical, plastic, construction material, forest produce based units. Strategically located in Central India, Chhattisgarh is able to supply uninterrupted power. About 21% of the country's coal reserves in the state, offering cheap pithead power generation opportunities.

Micro, Small and Medium Enterprises sector occupies an important position in the State's industrial economy and continues to contribute to industrial production, export, creation of employment opportunities, etc. As per 4th Census of MSME there were Micro 22402, Small 356 and Medium 10, thus Total 22768 MSMEs were operation as on 31<sup>st</sup> March 2007.

Chhattisgarh being endowed with abundant natural resources VIZ. mineral deposits including

precious metals and forests, is one of the States of India having immense potential of industrial development. The state is an agriculturally developed State renowned as “Bowl of Rice”. It is estimated that 44% of forest area of Chhattisgarh is store more than 88 species of rich, valuable, forest medicinal plants which is 12% of forest area of India as a whole. The investment opportunities offered by the state in the context of agriculture and forest includes: Industries based on Herbal, Forest medicine and Minor Forest produce; Industries based on food processing and Agriculture as defined by Govt. of India (Except Rice mill, Paddy parboiling and cleaning, Huller mill, Murmura Mill and Rice Bran Solvent Extraction Plant and Refining of edible oil (Independent unit)/refinery); 8. Branded dairy product (Including milk chilling); 9. Pharmaceutical industry; 10. Production of Anti-snake venom, Anti-rabies medicine; 13. Product covered under Bio-Technology and Nano-Technology; Bamboo based industry (Wherein Bamboo has to be used as the main raw material and investment on account of plant & machinery, more than Rs. 25 Lakh); Shellac based industry (Wherein Shellac has to be used as the main raw material and investment more than Rs. 25 Lakh on account of plant & machinery.); Village industry (Gramodyog) units like - Dona leaf plate manufacturing, Animal feed, Soap etc. Production of cosmetics items (with a minimum investment of Rs. 10 Lakh on account of plant and machinery); Wooden Seasoning and Chemical Treatment Plant (with a minimum investment of Rs. 25 Lakh in plant and machinery); Poha; Agro based and food processing industries such as Fruit Canning, Mango R.T.S. & Soft drinks, Pickles, Jam, Jellies & Squashes, Vinegar from fruit waste, Banana Powder, Flour Mills, Instant Noodles, Curry Powder, Cashew Nut Shell Liquid, Ground & Processed Spices, Mustard rapeseed Oil, Soya Based Food Products, Papaya based products, Tuti Futti, Tamarind Powder, 16 Special Oil & oleoresin, Mango Pulp, Fruit Juice Concentrate, Dehydrate Tomato & Tomato Sauce, Frozen Vegetables, Citric acid from lemon, Bakery / Baking products, Rice flakes, Herbal extraction, Pappad making, Maize flakes, Mushroom Cultivation & Processing, Mineral Water, Ginger & Garlic dehydration, Power oleoresin, Onion dehydration/Powder, etc.; Wooden products such as, Wooden accessories, Wooden toys, Wooden carts, Carrom boards, coins, strikers, Chess boards, coins, Table tennis bats, Wooden furniture, Black board, Packing cases, Building materials, Plywood and veneer sheets, Cork and cork products, Wooden agriculture implements, etc.; Paper products such as Paper Cups & Plates, Envelopes, Paper tubes, Paper board from waste paper, Decorative paper, Gummed paper tapes, Sand paper, Duplex cartons, Corrugated paper cartons, Straw Board, Dolls with paper pulp, File cover, file board, etc.; Herbal and ayurvedic products such as Herbal cosmetic products, Herbal Hair Oil, Herbal tooth paste & tooth powder, Herbal shampoo, Ayurvedic Medicines, etc. As evident there is tremendous opportunity for agro and forest based industries. Next section discusses the forest products in global, national and state perspective.

Forests are most valuable resource for the sustenance of life on the mother earth. It provides timber for homes, firewood, food, medicines, etc. Roughly 30% of earth's total land area is covered by forest accounting for nearly 4 billions hectares of surface area. India is one of the ten most forest-rich countries of the world.

Food and Agriculture Organisation of the United Nations estimates India's forest cover to be about 68 million hectares. This accounts for 20.64% of the total land area. About 60% of the Indian people are dependent on the forests for energy resources, grazing of cattle and construction materials. A forest product is any material derived from a forestry for direct consumption or commercial use. According to Indian Forest Act, 1927 the term forest-produce includes— (a) the following whether found in, or brought from, a forest or not, that is to say timber, charcoal, caoutchouc, catechu, wood-oil, resin, natural varnish, bark, lac, mahua flowers, mahua seeds, [kuth] and myrabolams, and (b) the following when found in, or brought from a forest, that is to say (i) trees and leaves, flowers and fruits, and all other parts or produce not

herein before mentioned, of trees, (ii) plants not being trees (including grass, creepers, reeds and moss), and all parts or produce of such plants, (iii) wild animals and skins, tusks, horns, bones, silk, cocoons, honey and wax, and all other parts or produce of animals, and (iv) peat, surface soil, rock and minerals (including lime-stone, laterite, mineral oils, and all products of mines or quarries).

Forest products can be divided into two categories (a) timber or wood (b) non-timber or non-wood forest products. Non-timber forest products are known also as minor forest produce. India produces a range of processed, wood and non-wood, forest products ranging from wood panel products and wood pulp to make bronze, rattazikistan ware and pern resin. Despite this India imports roughly about over \$1.2 billion worth of forest produce mostly comprising wood and wood products. This indicates significant demand-supply gap in India's domestic market. Consumption of forest produce in the country is huge. Domestic demand thus consumption in the country is huge. India's wood-based processing industries consumed about 30 million cubic metres of industrial wood in 2002. India annually consumes an additional 270 million tonnes of fuelwood, 2800 million tonnes of fodder, and about 102 million cubic meter of forest products - valued at about US 4.1 billion a year. Forestry in India is more than just about wood and fuel. India has a thriving non-wood forest products industry, which produces latex, gums, resins, essential oils, flavours, fragrances and aroma chemicals, incense sticks, handicrafts, thatching materials and medicinal plants. About 60% of non-wood forest products production is consumed locally. About 50% of the total revenue from the forestry industry in India is in non-wood forest products category. In 2002, non-wood forest products were a source of significant supplemental income to over 400 million people in India, mostly rural.

In the state of Chhattisgarh dimly less than half of the geographical vicinity of is enclosed by forests. It has forest cover of approximately 44% and is home to diverse tropical flora and fauna. With an average annual rainfall of 125 cm, the state produces some of the best rice varieties and it is known as the "Rice Bowl" of the country. The state, with forest cover of 44% of its surface area, has higher average forest cover compared to National (20.64%) as well as Global (30%) average forest cover. It is the third largest forest-rich state within the country with forest cover to be about 5.6 million hectares accounting for 8.23% of total forest cover in India. Chhattisgarh has 3 major national parks, Sarguja, Kanger Valley National Park in Bastar, Indrawati National park in Dantewara and Guru Ghasidas National Park in Koriya. There are eleven wildlife sanctuaries. Chhattisgarh is richly endowed with minerals, forests and freshwater sources. Practically 10,000 industrial units rely on forests for their raw material support.

The state is significantly rich in endemism with respect to many herbs, shrubs and tree species having timber, spices, fibre, fodder and medicinal values. There are three forest types in Chhattisgarh — Tropical Moist Deciduous, Tropical Dry Deciduous and Subtropical Broad-leaved Hill Forests (FSI 2000). The forests have been classified as sal (*Shorea robusta*), teak (*Tectona grandis*) and miscellaneous. This miscellaneous category constitute a significant chunk of middle canopy of the state forests and includes other notable wood species such as Bija (*Pterocarpus marsupium*), Saja (*Terminalia tomentosa*), Dhawra (*Anogeissus latifolia*), Mahua (*Madhuca indica*), Tendu (*Diospyros melanoxylon*) etc. Amla (*Emblica officinalis*), Karra (*Cleistanthus collinus*) and bamboo (*Dendrocalamus strictus*). Some of the best sal forests in the country are found in this state. Timber adds about 40 % of the total forest proceeds. Apart from timber, these forests provide many non-wood forest products (NWFPs) including tendu (*Diosporous melaxylon*) leaves, sal seeds, mahua (*Madhuca latifolia*) flowers and seeds, amla (*Emblica officinalis*), harra (*Terminalia chebula*), gum, lac (Indian shellac), tamarind and mahul (*Bauhinia spp.*) leaves, Achar, Chironji and numerous medicinal plants. These NWFPs are important sources of income and serve as supplementary food sources during periods of famine

and food scarcity, which are quite frequent. More than 50 percent of the people living in and around the forests depend on them for their livelihoods. The forests serve as a rich backdrop to the rural economy of the state.

It is evident that the state of Chhattisgarh has prospective to swarm a number of forest produce base units. A significant portion of forest produce of the state at present is supplied in raw form. If they are processed within the state its economic contribution will considerably increase. This is likely to benefit all the constituents of the supply chain ranging from individual collector of forest produce, preliminary processing home-enterprises, rural-urban traders, medium sized processing industry, interstate traders and exporters. The same applies agricultural products. To actualize this prospect as cluster approach is suggested.

The Ministry of Micro, Small and Medium Enterprises (MSME), Government of India (GoI) has adopted the cluster development approach as a key strategy for enhancing the productivity and competitiveness as well as capacity building of Micro and Small Enterprises (MSEs) and their collectives in the country. Normally, clusters, especially for MSMEs, develop on their own and Government may play a facilitating role to accelerate their growth. However, going forward the State Governments should have devolved powers to create clusters while the Central Government's role should be to stimulate learning across the system. Hence, the CSC Cluster Stimulation Cell/Common Services Centre (CSC) is envisaged as knowledge partner to these agencies. The roles of CSC will complete a crucial missing link in the cluster support ecosystem.

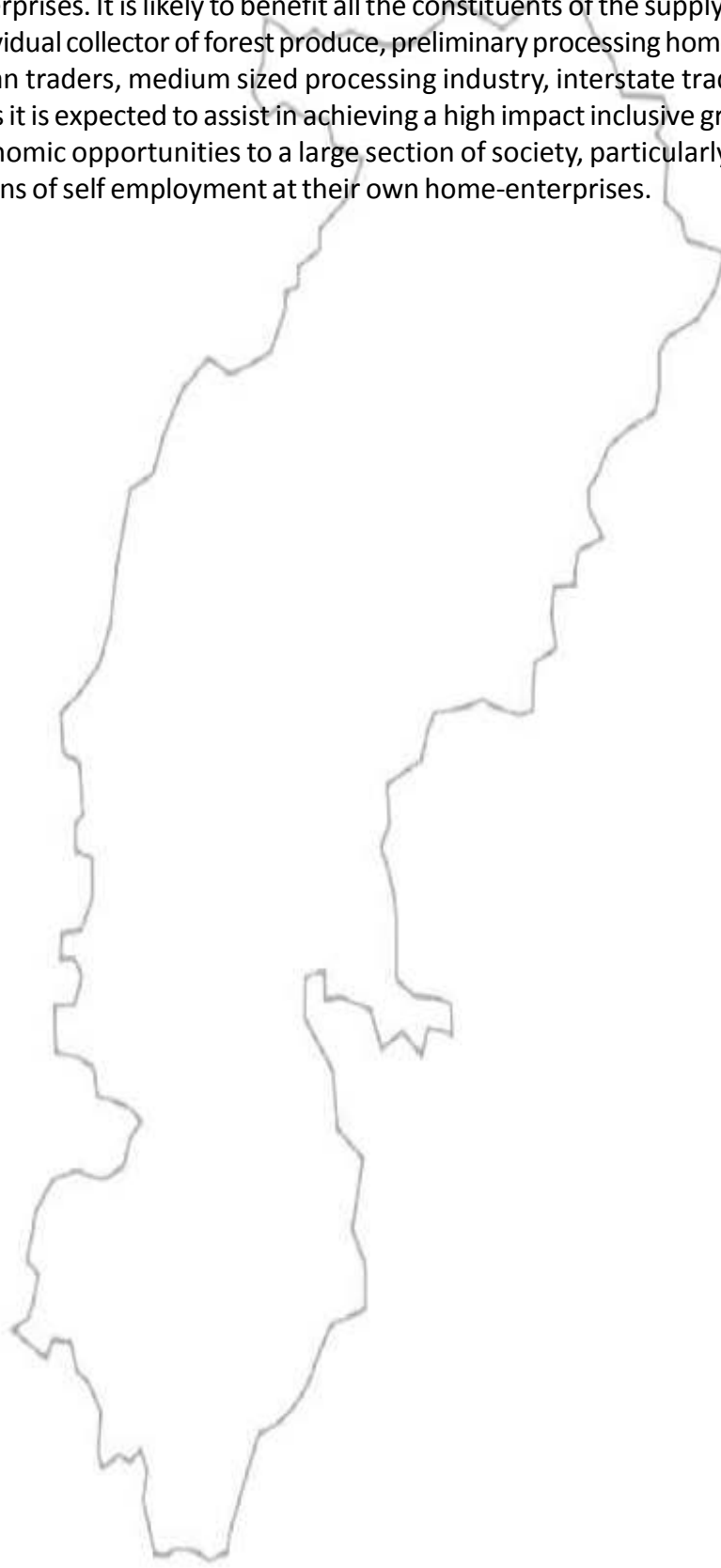
The Ministries have been administering hard and soft interventions to help the cluster participants. While hard interventions will include investments in infrastructure like common facilities, common testing centres, roads, the soft intervention will include training, capacity building, skill improvement, marketing inputs, product design and development and so on. The scope of soft interventions should be expanded to include capacity building of Cluster associations, initiatives aimed at improving market linkages, improving product quality, improving access to credit, encouraging innovation, skill development and so on. For MSME participants, clusters play an important role in their inclusiveness, technology absorption, efficiency improvement and availability of common resources. Innovation and Technology play a very important role in enabling success of a new business cluster. One of the innovation relevant the subject is described here as an example.

### **An innovation for forest and agricultural products:**

An appropriate preservation technique holds the key to solving many a problem in Minor Forest produce (including herbal medicine) and agriculture products. Mr. Meisheri of (Company/Organization name) has developed a new technique for Dehydration Process which works at room temperature, preserves the full nutritional content and medicine efficacy of herbal medicines. This new innovation can be a great enabler as it prevent spoilage, cut transportation cost, facilitate right price for forest produce collectors and farmers (by solving the problem of glut in the market) and assist in controlling supply.

## EXPECTED OUTCOME

Developing an Eco-System of Forest Products in Chhattisgarh to Foster a Business Cluster of Micro, Small and Medium Industries is likely to facilitate economic opportunities to industries ranging from medium sized enterprises to a home/micro enterprises. It is likely to benefit all the constituents of the supply chain ranging from individual collector of forest produce, preliminary processing home-enterprises, rural-urban traders, medium sized processing industry, interstate traders and exporters. Thus it is expected to assist in achieving a high impact inclusive growth by facilitating economic opportunities to a large section of society, particularly from rural area by means of self employment at their own home-enterprises.



## Development of Mineral Based Industries

### 19.1 PRODUCING AMMONIA FROM COAL (SYNGAS Production from Coal)<sup>1</sup>

#### BACKGROUND

The demand for fertilizer is on a constant demand due to rapid population growth across India. As it is a known fact, Nitrogen fertilizer is produced from Ammonia. However there has always been a shortage of Natural gas which is the key material for the production of Ammonia and is sparingly used due to it being phased out for industrial use. Recent schemes of government of India like the U Jwala promote healthy style of cooking. As Natural gas may not be used a substitute raw material is required for Ammonia production eventually.

#### RECOMMENDATIONS

Coal, our richest fossil energy resource hugely available in Chhattisgarh can make a strong bid to replace natural gas used to derive nitrogen from Ammonia through the syngas replacement.

Coal gasification as per the the process and technology literature available at ETSAP ( Energy Technologies System Programme , May 2010)\* is further elaborated by way of information which may be further research upon.

The virtual gasification of other carbon-based resources such as biomass or refinery residues - is a versatile conversion technology adding flexibility to the energy systems. In the gasification reactors, the feedstock is converted into a synthesis gas (syngas), a mixture of H<sub>2</sub>, CO and CO<sub>2</sub>, which enables the production a variety of downstream energy carriers. A large experience exists on coal gasification worldwide as the so-called town-gas was produced from coal as early as 1792, a high-temperature fluidized bed gasifier was patented in 1921 by Winkler, and syngas production from coal was common practice in Germany during world war II. According to the Gasification Technologies Council, in 2007, some 144 gasification plants and 427 gasifiers were in operation worldwide, adding up to an equivalent thermal capacity of 56 GWth, of which coal gasification accounted for approximately 31 GWth.

Performance and costs of coal gasification plants depend largely on the plant design and on the final production objectives. A gasification system that is part of an integrated chemical plant producing methanol, ammonia and electricity differs substantially from a system whose only purpose is feeding an IGCC plant with carbon capture and storage (CCS). Coal quality is also very important for coal gasification output. The overnight capital cost of coal gasification plants is given per GJ of syngas output and ranges from \$13/GJ for bituminous coal to \$17.2/GJ for subbituminous coal (US 2005). Similarly, the syngas production cost decreases with increasing coal quality and ranges from \$15.6/G to \$19.3/G. The production cost is dominated by the investment cost. However, costs may significantly depend on location. Chinese plants may cost 60%-65% of the US and European installations. Syngas may be further upgraded to meet specific demands. Co-production of a 20% of H<sub>2</sub> using a H<sub>2</sub> separation unit is only slightly more costly than the basic process, resulting in 5% higher capital and 4% higher product costs. The conversion into synthetic natural gas (SNG), i.e. pipeline quality gas, requires additional processes and costs. If the syngas is converted into SNG, the capital cost increases by approximately 25% and the cost of the final product increases by 40%, while the conversion efficiency of the process decreases by some 14 percentage points, reaching about 60%.

There is a huge potential for coal gasification worldwide, as the technology allows fuels production for many applications such as transport, chemicals, heat and power production. High natural gas prices and limited availability at regional level are driving factors for investments in coal gasification. Based upon planned projects, the Gasification Technologies Council, a non-profit organization promoting technological advances and surveying the market, does expect further market growth to reach a global equivalent thermal capacity of 73 GWth by 2010. Other projections indicate up to 155 GWth by 2014..

As coal is the most abundant fossil resource available on earth and even low-grade coal can be used for gasification, the technology is of primary interest in many regions. Increasing gas prices and limited availability of natural gas in regional consumer markets are driving factors for investments in coal gasification technology. The Gasification Technologies Council, a non-profit organization promoting technological advances



# 20

## Environment Conservation and Protection

### 20.1 Bio remediation of rivers/ water bodies around industry clusters

Presently there are 8 Notified industrial areas, 4 Large industrial areas and 7 Industrial parks in the State. The details which are as below

#### Large Industrial Areas -

- Dagori (Bilaspur)J
- Tilda (Raipur)J
- Lara (Raigarh)J
- Silphari (Bilaspur) J

#### Key Industrial Parks

- Metal Park (Raipur)J
- Engineering Park (Bhilai)J
- Aluminium Park (Korba)J

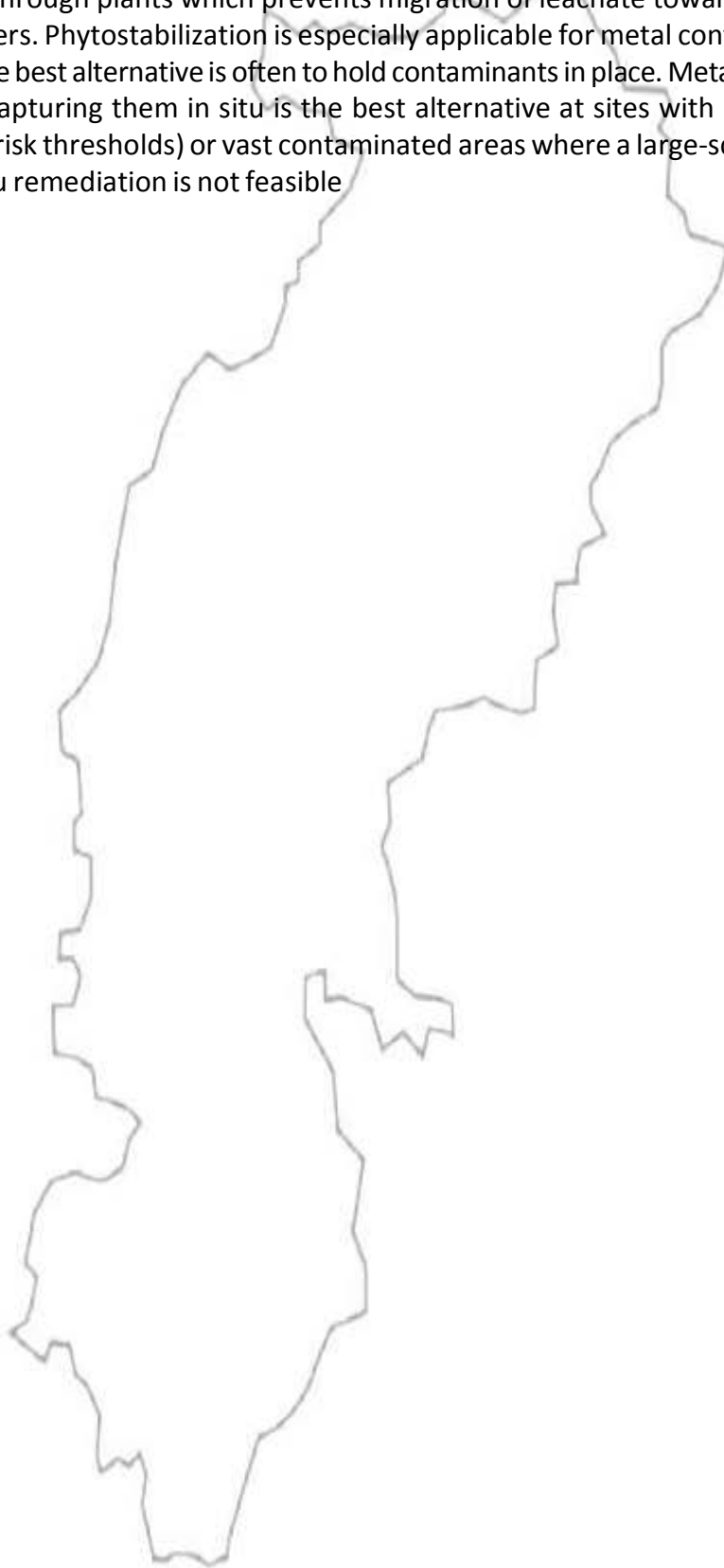
Hence Bioremediation of effluents from the various industrial settlements around these zones will be essential, considering the significant amount of heavy metal pollutants discharge into the river water ecosystems.

Prolonged exposure and accumulation at concentration more than threshold value of such heavy metals can have deleterious health effects on human life and aquatic biota.

A study was conducted by Ms Rajshree Singh<sup>1</sup> of Shri Agrasen Grils College was an attempt to estimate the concentration of various heavy metal pollutants in 10 different location of Korba ( ogiya dera, Jhora Ghat, Donga Ghat, Navagaon, Ayodhya Puri, Dandhpara, Kalmi dugu, Pump House, Sarvmangla nagar and Uрга). The metal concentration recorded was Cd (0.02 to 0.39 mg/l), Cu (0.04 to 0.46 mg/l), Pb (0.01 to 0.05 mg/l), Fe (0.55 to 1.5 mg/l), Zn (0.15mg/l to 0.5mg/l) and the use of microbes present in the river water system as a tool for bioremediation of this pollutant. Also the sequence analysis of the most effective microorganisms were done, so that, with the help of genetic engineering we can obtain most effective heavy metal removing bacteria as a cost effective tools for safe removal of metal contaminant from various other water resources. The micro-organisms that were found to be most effective for heavy metal remediation were Pseudomonas sps. for heavy metals like, Ca, Zn, Cd, Pb and Bacillus sps. for Cd, Fe and Cu.

Phytostabilization<sup>2</sup> refers to the holding of contaminated soils and sediments in

place by vegetation, and to immobilizing toxic contaminants in soils . Establishment of rootedJ vegetation prevents windblown dust, an important pathway for human exposure at hazardous waste sites. Hydraulic control is possible, in some cases, due to the large volume of water that is transpired through plants which prevents migration of leachate towards groundwater or receiving waters. Phytostabilization is especially applicable for metal contaminants at waste sites where the best alternative is often to hold contaminants in place. Metals do not ultimately degrade, so capturing them in situ is the best alternative at sites with low contamination levels (below risk thresholds) or vast contaminated areas where a large-scale removal action or other in situ remediation is not feasible



## 20.2 Utilization of FLY ASH - NO MORE A WASTE\*x

### BACKGROUND

As per the report from the Chhattisgarh Environment Conservation Board, it was found out that nearly 75% of India's total power generation capacity is thermal, of which coal based power generation is nearly 90% and diesel, wind, gas and steam adding to about 10%. High ash content in the range of 30 to 50% in Indian coal is the major cause for large voluminous quantities of coal ash. India's dependence on coal as a major source of energy had been of prime importance in the past and shall continue in this millennium, and therefore fly ash management would remain an important area of national concern.

There are 4 major thermal power plants in Korba district generates about 24000 metric tons per day or 8.7 million tons of fly ash annually. This is nearly 90% of the total ash generated in the State.

Due to increasing environmental concern and growing magnitude of the problem it has become imperative to manage fly ash. More importantly because fly ash has tremendous potential to be utilized. Keeping in view this versatility of fly ash, several Government and NGOs are involved in fly ash utilization and safe disposal efforts in the country.

### TYPES OF COA AS

Coal ash is the residue of the coal combustion process involved in the thermal power plants. The types of coal ash from coal based thermal power plants are :

- (i) Fly Ash - Collected from different rows of electrostatic precipitators
- (ii) Bottom Ash - Collected at the bottom of boiler furnace
- (iii) Pond Ash - Mixture of bottom ash and fly ash as available in ash disposal ponds.

Of the total fly ash generated from the thermal power plants nearly 20% is the bottom ash and nearly 80% is the fly ash. Bottom ash and fly ash are sluiced together with water as ash slurry to the ash ponds.

Fly ash as a material is siliceous or aluminous with pozzolanic properties. It is refractory and alkaline in nature, having fineness in the range of 3000-6000 sq.cm./gm. The fine particles of fly ash by virtue of their lightness become air borne.

Fly ash can be used for multifarious applications. Some of the major areas of fly ash utilization are stated below as which are not being currently used in the following forms-

**FLY ASH BRICKS -**

- DurableJ
- Low water absorptionJ
- Less consumption of mortarJ
- Economical and eco-friendly.J
- Low energy consumptionJ
- No emission of green house gases.J

**CELLULAR LIGHT WEIGHT CONCRETE -**

- Light in weight ( density ranges from 400-1600 kg/m3)
- Better insulation
- Fire resistant, better acoustic behavior
- Better workability.

**FLY ASH CEMENT -**

- ROADS, FILLS & EMBANKMENTSJ
- Light in weight than earth.J
- Advantageous in weak/clayey sub-soilJ
- Lower transportation cost than earthJ
- Faster rate of consolidation.J
- Better compaction characteristicsJ
- High permeability.J
- Cost effective & eco-friendly.J

**BACK FILLING IN OPEN CAST MINES STOWING IN UNDERGROUND MINES AGRICULTURE APPLICATIONS**

- FIELDS CROPSJ
- FORESTRYJ
- FLORICULTUREJ
- RECLAMATION OF WASTE LANDJ
- Improves permeability status of soil.J
- Improves fertility status of soilJ
- Enhances root proliferationJ
- Improves soil textureJ
- Reduces bulk density of soilJ
- Improves water holding capacityJ
- Optimizes pH valueJ
- Improve soil erosionJ
- Reduces crust formationJ

Provides micro nutrients - Fe, Zn, Cu, Mo, B, etc.  
Provides macro nutrients - K, P, Ca, etc.

### **FLY ASH BASED COMPONENTS FOR CONSTRUCTION INDUSTRY**

**PAVEMENT BLOCK** - Durable, Economic, Faster & easy construction, Self interactive, Aesthetic

**SINTERED AGGREGATE** - Substitute for clinker & natural aggregates

**WOOD SUBSTITUTE (DOORS & PANELS)** - 100% wood free, 5-7 times stronger than wood, Resistant to weather, termite, fungus & fire

**GRANITE SUBSTITUTE**- Good finish, Properties comparable to natural granite

**CERAMIC TILES** - Less water absorption & firing shrinkage, Less energy intensive

**PAINTS & ENAMELS**- Less oil absorption, Corrosion & abrasion resistant, Durable

### **RECLAMATION OF ASH PONDS FOR HUMAN SETTLEMENT**

Friendly to flora & fauna  
Abandoned ash ponds can support buildings.  
No significant radioactivity.  
Economic use of ash filled land.

## **RECOMMENDATIONS**

Govt of Chhattisgarh is using fly ash mostly in the form of fly ash bricks but is not using their by product effectively in areas of forestry, floriculture , soil production, road and embankments. As fly ash material can be produced in various forms such as ceramic tiles, paints, enamels, granite subsitutes and ash ponds, a greater focus is required in this direction.

As per the National Conference held in Raipur in 2014, which dealt with the theme of usage of fly ash was organised by Corporate Social Services India. (CSRINDIA). This conference largely dealt with different dimensions of fly ash including its use in pollution control was deleberated by experts.



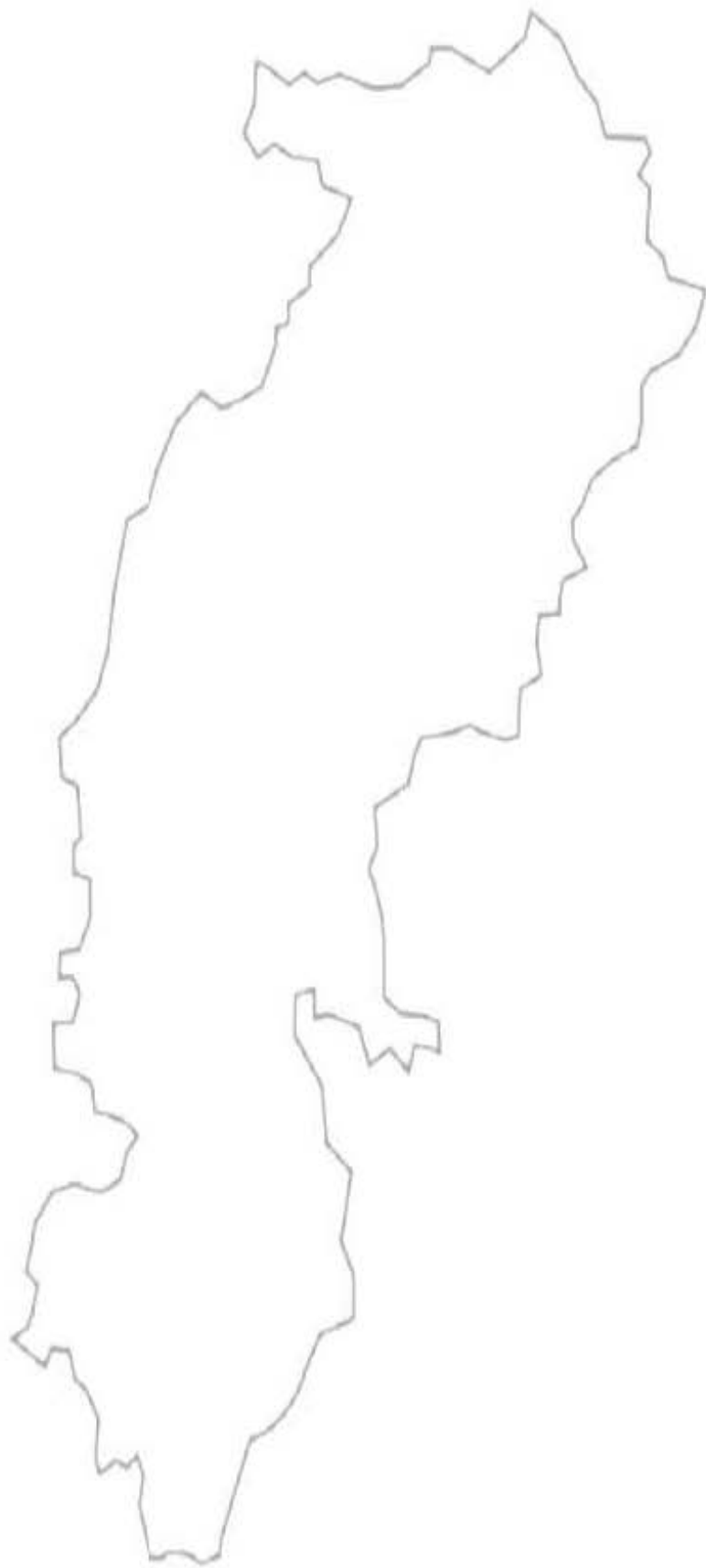
## Part B

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### Educato n

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State onsultation for  
Development of Education  
in hhattisgarh- 201



# From the Corridors of State Planning Commission, Chhattisgarh....

*Education is the manifestation of the perfection already in man.*

*—Swami Vivekananda*

Education is a tool for transformation to restrain the vices and tap the potential for any form of reconstruction. It is a supersonic missile that can ignite, illuminate and usher new thinking and mobilize an era gearing towards Sustainable Development.

While in India, we still think of this as a potent instrument, a privilege for rare few, and there are unrelenting efforts to enable quality assessment and honour the enriching outcomes.

State Planning Commission, Government of Chhattisgarh has essentially developed a platform of opinions with experts from across India through its Task forces and several Standing Working Groups essentially catering to the needs of the State with a holistic view to connect the dots. As a culmination of this, yearlong reflection process resulted in formation of a Sub Committee of Experts from the Standing Working Groups and Educationists in the sector to initiate dialogue through a one day "State Consultation for Development of Education in the State of Chhattisgarh."

The objectives of the consultation were

1. To deepen the understanding about the Status of Education in the state of Chhattisgarh with primary focus on the themes assigned under for the Primary, Higher and Technical Education
2. To create an opportunity for dialogue and discussion amongst the stakeholders /real imparters who create the impetus and enable the wheel to role.
3. To identify approaches and strategies for advancing quality education by exploring tangible methods for overall advancement of the sector.



# INTRODUCTION

## **Welcome Address by Shri Sunil Kumar (Hon'ble Vice Chairman, State Planning Commission).**

Shri Sunil Kumar remarked that after 1990s, all of us are involved in the education sphere in one way or the other. Involvement of all the people in this sector leads to the oversimplification of Education Sector. Despite all the efforts, we seem to be lagging somewhere whether it is academic infrastructure or quality of teachers. The starting point of it was when we accepted the World Bank proposal of District Primary Education Programme in 1990s.

He further added that poor academic infrastructure and quality teachers is a matter of concern. Increasing B.ed Colleges do not bring quality teachers. We need to emphasize on the ways to attract the best talents to be a teacher. We failed across country in attracting people due to the lack of spark. For many people, teaching has been the last priority.

He asked to contribute on each other findings because Problems & Solutions both are known, but manner of doing is not known.

He urged to motivate children in 1st or 2nd year itself to write papers to create interest in the avenue of Research.

**Mr. Damodar Acharya (Chairman, Task force Industry of State Planning Commission and Adviser Committee, SOA University)** stated that Capacity is a big issue and education is the only way for it. Education must be linked with employment in addition to research and quality teachers.

He asked to look for perspective of students and parents. Good input has to come from school.

He showed the concern for the quality education and cited few examples from Bhubaneswar city.

90,000 people got 1st class in 10th class while only 15,000 people got 1st class in 12th class. What happens to the rest of the 75000?

He said there are no encouragement in asking questions at all levels. Child should be inquisitive and creative. He requested delegates to find out ways for the same..

He cited that by the commercialization of education, providing good quality education has suffered and also asked to use technology at all levels.

He urged to create atmosphere to encourage research and added that whether the research is good or bad is not important.

At last, he requested all the members to come up with some recommendations feasible for this state and address some of the issues cited above.

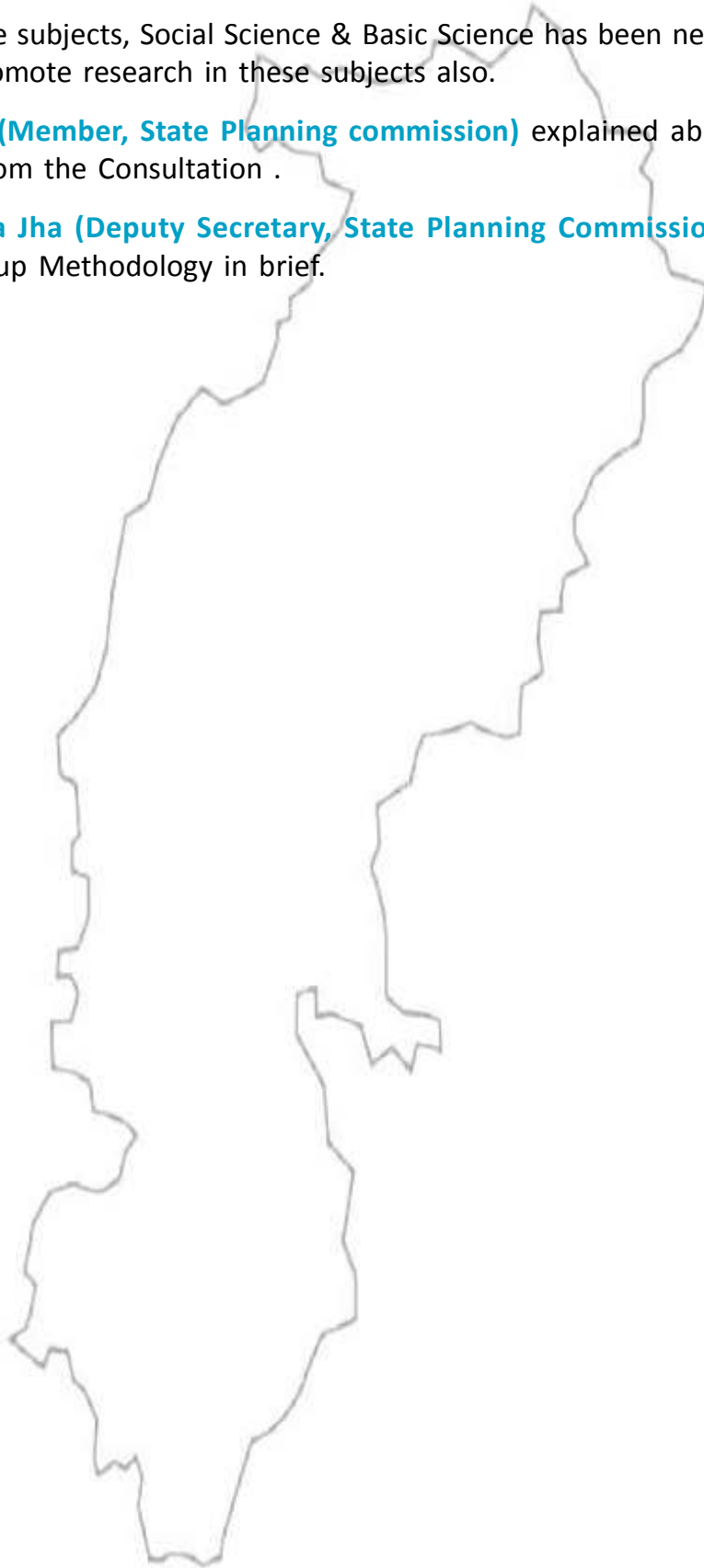
**Mr. Amitabha Panda (Member Secretary, State Planning Commission)** stated that

the enrolment in our state has reached to 93-94%. But Quality is still a matter of concern. He further added that the Transition rate in higher classes is low.

Out of all the subjects, Social Science & Basic Science has been neglected the most. We must promote research in these subjects also.

**Mr. PP Soti (Member, State Planning commission)** explained about the expected outcomes from the Consultation .

**Ms. Nimisha Jha (Deputy Secretary, State Planning Commission)** explained the Working group Methodology in brief.



# Sustainable Development Goals and Education

2030 Sustainable Development Agenda: **Rebalancing and Integration of the three dimensions of sustainable development.**



The SDGs follow, and expand on, the Millennium Development Goals (MDGs), which were agreed by governments in 2000 (to be achieved by 2015). On Comparing SDG with MDG, the figure below shows that the SDG is the larger version of MDG and is more inclusive in nature.



The **new Sustainable Development Goal 4** talks about the quality in education. Aims to be achieved under the Goal 4 are as follows:

- 4.1 By 2030, ensure that all girls and boys complete free, equitable and quality primary and secondary education leading to relevant and effective learning outcomes.
- 4.2 By 2030, ensure that all girls and boys have access to quality early childhood development, care and pre-primary education so that they are ready for primary education.
- 4.3 By 2030, ensure equal access for all women and men to affordable and quality technical, vocational and tertiary education, including university.
- 4.4 By 2030, substantially increase the number of youth and adults who have relevant skills, including technical and vocational skills, for employment, decent jobs and entrepreneurship.



4.5 By 2030, eliminate gender disparities in education and ensure equal access to all levels of education and vocational training for the vulnerable, including persons with disabilities, indigenous peoples and children in vulnerable situations.

4.6 By 2030, ensure that all youth and a substantial proportion of adults, both men and women, achieve literacy and numeracy.

4.7 By 2030, ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a of peace and non-violence, global citizenship and appreciation of cultural diversity and of culture's contribution to sustainable development.

- 4.a Build and upgrade education facilities that are child, disability and gender sensitive and provide safe, non-violent, inclusive and effective learning environments for all.
- 4.b By 2020, substantially expand and globally the number of scholarships available to developing countries, in particular least developed countries, small island developing States and African countries, for enrolment in higher education, including vocational training and information and communications technology, technical, engineering and scientific programmes, in developed countries and other developing countries.
- 4.c By 2030, substantially increase the supply of qualified teachers, including through international cooperation for teacher training in developing countries, especially least developed countries and small island developing States.

## 5 Ps of Sustainable Development



Source: SDG Booklet

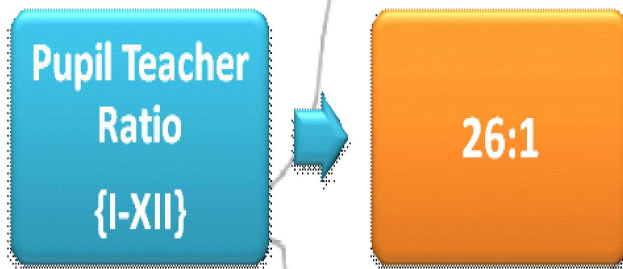
# Status of Education in Chhattisgarh

**Mr. Rishi Raj Sharma**  
(Lead Consultant, CGSPC)

The presentation has been discussed in 3 parts: **School Education, Higher Education, and Technical Education.**

## School Education-

In Chhattisgarh, there are 58.46 lakh students enrolled in 56,621 schools. Total teachers at all levels (I-XII) are 2,43,827 out of which approximately 70% are trained. The dropout rates at primary and upper primary are 0.85% and 1.13% respectively. At present there are 36,511 out of school children in the State.



Teacher shortage is a problem persisting in both rural and urban areas. We are not able to lure good scholars in the teaching profession. To cope up with the problem, there is a need for outsourcing. Private schools can mentor govt. schools as a social responsibility. Also, JNV & KV can also contribute. Engineering students can also be sent in a teaching profession as their education can be valuable for the students.

| Enrolment Indicators | Primary (%) | Upper Primary (%) |
|----------------------|-------------|-------------------|
| GER                  | 105.03      | 100.34            |
| NER                  | 96.34       | 91.40             |
| Dropout Rate         | 0.85        | 1.13              |

With the aim to provide Equity and Quality Education, Chhattisgarh has undertaken many initiatives. Some of it are Saraswati Cycle Yojana, 'Prayas' Residential Schools, 60 'Pota Cabins' with approx. 30,000 students, *APJ Abdul Kalam Shiksha Guvatta Abhiyaan*, Re-appropriation

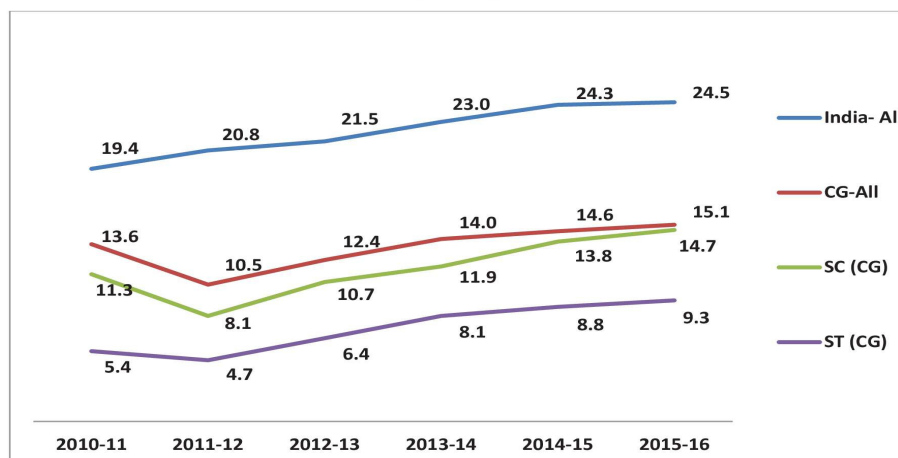
of 2864 schools and 28,000 teachers, 1663 *Vidya Mitans* are now serving in tribal districts of Bastar and Surguja Divisions

| All Schools                                  | C.G.  | All India  |
|--|---|--|
| <b>Average Number of Classrooms</b>          | <b>3</b><br><i>(Lowest- along with Assam and Meghalaya)</i>         | 5<br><i>(Kerala-10; Gujarat-7; Bihar-6; Jharkhand-5)</i>           |
| <b>Average Number of Teachers per School</b> | <b>3.7</b><br><i>(with Jharkhand- 3.4; Meghalaya-3.1; M.P.-3.0)</i> | 4.8<br><i>(Kerala-13.8; Gujarat-6.4; Bihar-5.6; Rajasthan-5.4)</i> |
| <b>Schools with Electricity Connection</b>   | <b>66.88</b>  | 60.01  |
| <b>Schools with Computer</b>                 | <b>11.88</b>  | 26.42  |

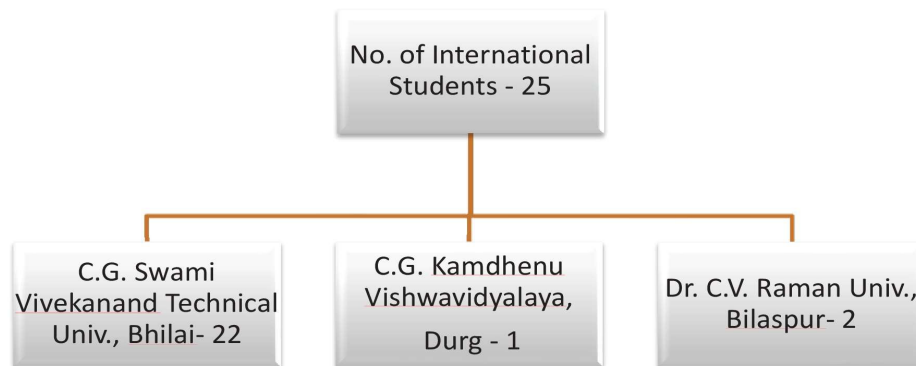
## Higher Education-

Government Colleges in terms of numbers have almost doubled in the span of a decade from 116 in 2003-04 to 216 in 2015-16. Similarly, the number of private colleges has also grown to 218 in 2015-16. The number of Universities in the State

**Gross Enrolment Ratio in Higher Education  
(18-23)**



## Status of International Students in the State



In the NIRF Ranking, there is no institute/college from Chhattisgarh in the overall category. But the state stood under Top 50 in Management and Pharmacy. In the recent years, IIM Raipur has attracted many international students. One third of class is under Student Exchange Programme. More than 25% students sent to exchange programme. There are 18 international partners for it.

The government has taken initiatives in the recent years to promote higher education in the state. Some of it are:

NAAC accreditation: 2 Govt. Universities, 1 Private University, 32 Govt. Colleges and 21 Private Colleges; Promoting online admissions through 'Student Empowerment Through Technology- SETU' (80,000 admissions in 2016-17 session); Performance Based Appraisal System (PBAS) initiated to evaluate performance of Govt. College Teachers; Mukhyamantri Yuva Ivan Kaushal Vikas Yojana; Constitution of 'Rajya Uchh Shiksha Parishad' under Rashtriya Ucchar Shiksha Abhiyan (RUSA).

### Technical Education-

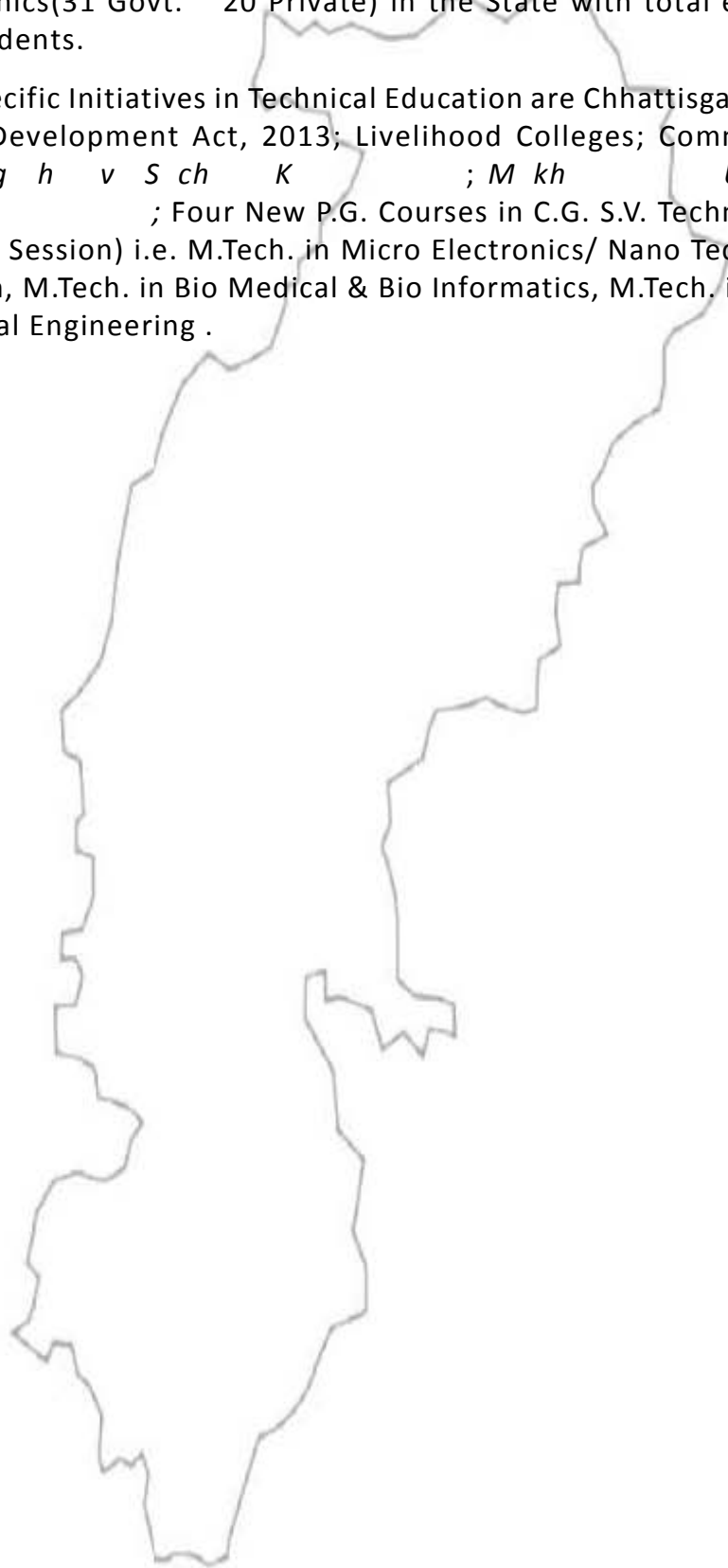
The technical education in the State is being imparted through Engineering colleges (UG and PG levels) and also through three year Diploma courses being run by Polytechnics. At present, there are 48 Engineering colleges (out of





which 3 are Govt. Engineering colleges) in the State with total 16,896 entry capacity. They provide technical education in the field of Engineering, Technology, Management, Architecture and Pharmacy. Additionally, there are 51 Polytechnics(31 Govt. 20 Private) in the State with total entry capacity of 8199 students.

State Specific Initiatives in Technical Education are Chhattisgarh Right of Youth to Skill Development Act, 2013; Livelihood Colleges; Community Colleges; *hh g h v S ch K ; M kh Ucchh S k h R B*; Four New P.G. Courses in C.G. S.V. Technical Univ., Bilai (2016-17 Session) i.e. M.Tech. in Micro Electronics/ Nano Technology, Master of Design, M.Tech. in Bio Medical & Bio Informatics, M.Tech. in Energy & Environmental Engineering .



# Recommendations of Working Groups

There are three working groups present respectively on School Education, Higher Education and Technical Education. Based on the discussion of the working groups, the following recommendations were made:

## School Education

### Key areas for Recommendations

1. Orient the system toward Outcomes: Introduce an independent state of the art sample based outcomes measurement system.
2. Provide evidence based ICT tools to teacher & students to enhance effective learning.
3. Explore role of Private Players in improving existing Governance mechanism.
4. Teacher management
  - Teachers motivation
  - Teachers absenteeism

In India, the formal school education system is the largest means of providing education to the children. Vastness in the school system also brings with it many problems. The problems do not have any single origin; it arises with the contribution from all of its stakeholders which include Teacher, Community and the Government. To improve the system at policy level, we need to take the views of different people involved in the system so as to come up with a solution addressing the problems and hence will make way towards the excellence. With the aim in mind, sub themes have been designed to address the current issues in the school education. For the purpose, many educational experts from leading government and private schools have been invited for the discussion to come up with a strong recommendations based on the sub themes as mentioned in the agenda.

- ***Virtual classes should be developed in local dialects.***

The idea behind this is that in most of the inner tribal areas children do not understand even simple Hindi. Video lectures present in the markets are prepared in the language popular in urban areas. Making video lectures in the local dialects will help these students to understand the concepts and simultaneously Hindi can also be taught so that they can transit to Hindi as a medium of instruction when in higher classes.

- ***Use of Solar powered instruments.***

Solar powered instruments will cover those schools also which are having the electrification problem. As per U-DISE data, Chhattisgarh has only 66.88% schools having electric facilities and 11.88% schools having computer.

- ***Interaction of government teachers must be made with private schools.***

Training of govt. teachers by master trainers from the school education dept. is not very effective. Many teachers attend it just for the sake of formality. Involving private players will enable them to share ideas and techniques of teaching. They could also find a new approach to cover the diversity of students.

- ***Academic Audit to check whether the teachers are applying those skills in their regular teaching.***

It has been found that teachers are not using the skills taught during training programmes and continue teaching with their own approach. It leads to waste of resources. The academic audit will enable the authorities to check whether the teachers are using the skills from the training or not.

- ***Visit of govt. school students and faculties in private schools and it should be vice-versa.***

The idea of visit by private players to government schools is that they will learn how to use the limited resources efficiently.

- ***Training of Anganwadi Workers in every 6 months to provide skills on how to deal with pre primary children.***

Participation of private players must be made in training programme and training should be regular so that trainer can assess their retainability from the earlier training.

- ***Incentives and Disincentives both should be present based on Teachers' performance.***

When it comes to Teachers' Motivation, rewarding for the good work comes first in our mind. The point is different that many schools don't even reward their teachers for the good work. But the one who left unidentified were the non-performing teachers. The idea of incentives and disincentives will increase the accountability and motivate teachers.

- ***Govt. should bring Regional Institute of Education (RIE) to bring quality teachers in the education sector.***

The idea behind this is to have proper devoted college for making teachers. The duration of the course will be of 3-4 years depending on the curriculum. This will bring only those people in the teaching cadre who have the genuine interest in the teaching. They will be required to have proper internship in both the govt. and private schools. Teachers' recruitment can be done directly from the college in the last year in the same way as happened in the engineering colleges.

- ***Teachers in the block should have monthly educational training and meetings in the Development Department of District.***

The meeting will enable teachers to exchange ideas and good practices. In addition to this, it will also enable them to solve queries among the peers. Different teaching skills can be included in the training programme.

- ***Training should be done in vacations rather than in regular days.***

Training during academic days interrupts the regular studies of the children. The situation becomes worse in those schools having very less number of teachers.

- ***Autonomy should be given to govt. schools to recruit subject teachers for few months during shortage by Collector's permission.***

The idea will follow the Kendriya Vidyalaya model of recruitment during shortage of teachers.

- ***School sites should be near to habitation to have proper community participation.***

Long distance of school from the habitation restricts the parents to take part in the school activities because being the daily wage workers they go to nearby town for the work.

- ***Proper residential facilities for outsourced teachers should be arranged near to the schools.***

Teachers find it difficult to travel long distances daily. Providing residential facility at the subsidized price near the school could solve the problem of teachers' absenteeism and attract more teachers.

- ***Bring Vocational Programmes to school.***

The idea came out from the discussion that livelihood for parents are more important than education in rural areas. The school must respect the community as they are also right from their point of view. Bringing vocational programmes to school will increase their

chances of employability and then the parents will find the school education important.

- ***Courses for some daily activities should be incorporated in the curriculum.***

When the student is able to apply the school education in their day to day activities, then it would motivate both parents and children to attend the school daily. Parents in rural areas seek short term benefit and it is very difficult to explain the long term benefit of education to them. Thus, the move will at least motivate them to send children school.

- ***Flexible Timings based on both season and work timings of daily labourers.***

During Harvesting both parents and children are busy in the fields during day time. Flexibility in the school timings can make the children to come to school and the interested parents could also take part in the school meetings.

Also, rainy season is the main hurdle in education of rural areas. Due to non-availability of all weather roads in villages, it is difficult to reach the school during rainy seasons. Vacations could be shifted in some areas from summer to rainy where there is no availability of all weather roads.

## Higher Educationx

### Key areas for Recommendations

1. Focus on Vocational & Professional led education.
2. Student & teacher participation in enhancing learning process.
3. Improving the availability/adequacy of teachers across the state .
4. Learning: Combination of Practical & theoretical knowledge.

- ***Vocational Education***

In order to promote vocational education among students and to develop expertise through specialization, an option of choosing at least one paper at Under Graduation (UG) level should be promoted. Further, for decent livelihood, vocational education should be aligned, linked to Industries and Professions having greater employability opportunities.

Introduction of Choice Based Credit System (CBCS) at Undergraduate level should be encouraged and promoted for developing / enhancing interest of students leading to their specialization in a particular vocation. In addition to it, a paper on Soft skills, Information Communication and Technology (ICT) skills of the students can be introduced.

At least a Model college at Post Graduate (PG) level, in each district of the State with all necessary teaching-learning facilities should be encouraged and developed. This will motivate other colleges of the district and thus enhance their overall academic outcomes. Therefore, for effective teaching-learning process and developing competencies in student's use of internet, online based resources should be encouraged through enhancing accessibility of internet.

- ***Student teacher participation in enhancing learning process***

Evaluation of student's academic performance should also be on internal and continuous basis and internal assessment marks / grades should be a part of final assessment. The semester system of examination must be followed at UG as well as PG studies across colleges / Universities of the state and necessary arrangements should made for conducting exams. Further the expert committee recommended that the academic calendar should be non-negotiable. In order to enhance the teaching-learning process, the expert committee recommended for adopting / encouraging seminar & projects works as an integral part of studies. In addition to it, the focus of teaching-learning process at UG as well as PG studies

should be more on enhancing / developing the practical exposure / understanding of the subjects among the students and thus for that one unit (out of five) of syllabus of each subject should be applied in nature. In addition to it, applied courses such as English, Hindi and Environment etc. should be developed and taught. Also integrated programmes (after class 12th ) should be encouraged and promoted.

Mentoring and counselling facilities to the students should also be provided by colleges / faculties for overall development of students. For developing better understanding of subject's knowledge, students and faculties should be encouraged for utilizing freely available online resources such as YouTube lectures of Khan Academy etc. Also online course should also be promoted by the Universities of the State.

Further the expert committee also recommended that the MHRDs, Govt. of India's scheme of '**Pandit Madan Mohan Malaviya National Mission on Teacher and Teaching<sup>1</sup>**' can be tapped in for effectively enhancing teaching-learning process.

- ***Teacher Student Ratio: Improving equity across all districts of CG***

In order to fulfil the scarcity of required faculties / teachers / professors in the colleges located in remote areas of the state, the expert committee recommended that the retired professors of the state should be reappointed as a guest faculty or faculty on contract basis.

- ***Learning: Combination of practical theoretical knowledge***

For practical understanding / exposure of the concerned subjects, research activities should be promoted at UG studies through motivating students for undertaking project work as an integral part of studies.

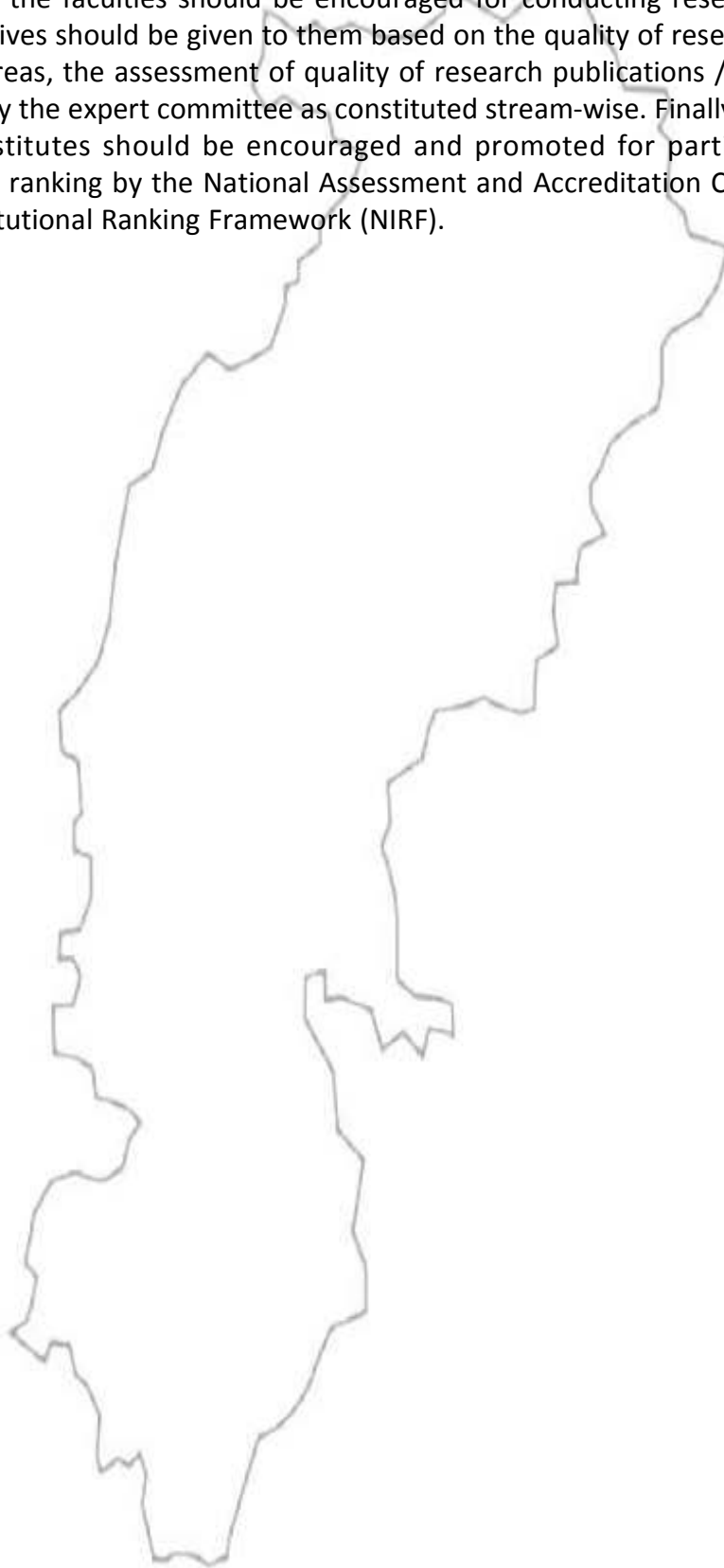
Since students are facilitated with modern equipments of communications such as laptops and tablets for enhanced learning and connectivity with peer groups at global level thus, students of PG studies should be encouraged for submitting their assignments in electronic / soft copy form to the faculties / professors / teachers.

The expert committee also felt the need of faculty development and thus recommended for focusing on organizing Faculty Development Programmes (FDPs) by the Universities of the state and Higher Education department at regular interval of time. Therefore, for enhancing the qualitative deliverables / outcomes of the faculties / professors / teachers

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<sup>1</sup> Pandit Madan Mohan Malaviya National Mission on Teachers and Teaching (PMMMNMTT) is a Central sector Scheme with All- India coverage. This scheme commenced in 2014-15 for a period of three years i.e. from 2014-15 to 2016-17 during II Plan. Mission is envisaged to address comprehensively all issues related to teachers, teaching, teacher preparation and professional development. The Mission would address, on the one hand, current and urgent issues such as supply of qualified teachers, attracting talent into teaching profession and raising the quality of teaching in schools and colleges. On the other, it is also envisaged that the Teacher Mission would pursue long term goal of building a strong professional cadre of teachers by setting performance standards and creating top class institutional facilities for innovative teaching and professional development of teachers. More details available at [http://mhrd.gov.in/sites/upload\\_files/mhrd/files/document-reports/PMMMNMTT\\_Guidelines.pdf](http://mhrd.gov.in/sites/upload_files/mhrd/files/document-reports/PMMMNMTT_Guidelines.pdf)

along with keeping them updated with latest prevailing teaching-learning pedagogy, the capacity building programmes for faculties and administrators should be organized. Further, towards enhancing the quality teaching-learning process and making classes more ground reality based, the faculties should be encouraged for conducting research activities and proper incentives should be given to them based on the quality of research publications / studies. Whereas, the assessment of quality of research publications / studies should be determined by the expert committee as constituted stream-wise. Finally it was stated that colleges / institutes should be encouraged and promoted for participating in taking accreditation, ranking by the National Assessment and Accreditation Council (NAAC) and National Institutional Ranking Framework (NIRF).





## Technical and Medical Educationx

### Key areas for Recommendations.

1. Strategy for designation of CG universities as World class universities.
2. Establish system of project / researcher specific research grants.
3. Enhancing employability for students in technical institutions of Chhattisgarh

With respect to technical and medical education, Group 3 deliberated on sub- themes v strategy for designation of CG universities as World Class Universities; establishing system of project/ researcher specific research grants; and, enhancing employability for students in technical institutions of Chhattisgarh. Group was of the view that if sufficient efforts are taken for sub-theme regarding world class universities then the other sub-themes would also be pushed forward as across the globe attributes with respect to world class universities covers research, employability and other such criteria. The group agreed that to rank amongst the world class universities, the universities of Chhattisgarh should strive to achieve the the following attributes:-

- Academic excellence (teaching) and high quality research: Quality of Students and Teachers
- Governance structure
- Academia- Industry Partnership
- Alumni relationship
- Quality of placement
- International and Local Networking: Student- Faculty Exchange, Collaborative Research, oint Organization of Short Term Training Programmes (STTP), Conference
- Infrastructure
- Visionary Leadership

With regard to above attributes, the group made the following recommendations:-

- **Academic excellence (teaching) and High quality research: Quality of Students and Teachers**

Instead of redoing the things at higher education institutes, the skills regarding communication, critical thinking, good knowledge of Mathematics etc. should be taken care at school level itself. Schools should focus on the personality development of the students and should also guide them to identify appropriate fields. Schools should also collaborate with national/ international institutes for better exposure to students. At the technical education level, the faculty recruitment should be a continuous process and it should be left with the Institutes. The 'Ban' on faculty appointment should be removed. Further, there is a need to dissociate faculty recruitment from Public Service Commission. The faculty should also be encouraged in terms of travel grants to present papers in National/ International Conferences and for Quality Publications in Indexed Journals like "Web of Science", SCI, e c. An **Academy for Teachers** is, hence, proposed by the group for continuous faculty development with focus on Teaching Pedagogy, Refreshers, Short Term Training Programmes (STTP).

- **Governance structure**

The group agreed that there should be complete administrative, academic and financial autonomy with regard to the governance of Institutes of technical education. In this regard, the **governance structure as prevalent in the Central Autonomous Academic Institutes can be followed.**

- **Academia- Industry Partnership**

To strengthen the academia-industry partnership, the **Board of Governors must have few members from Industry.** There need to have collaborative research (may be small projects) with local industries addressing to their problems. Expert lectures and seminars from the eminent personalities of the industry should be held regularly. There should be industry representation in the **BoG** for framing of syllabus etc.

- **Alumni relationship**

Alumni relationship needs to be strengthened for which there should be a system for keeping track of alumni of the institute. The alumni could facilitate in career guidance to the students and their placements; sponsor facilities like lab/ equipments. In lieu of this, there should be a mechanism to honour achievements of the alumni.

- **Quality of placement**

Every technical institute must have a well equipped, well manned training and placement cell to facilitate training / internship of the students in industries/ institutes of higher learning etc., quality placement of the students, and arrangement of required training in the area of specific skills to crack placement process.

- ***International Local Networking: Student- Faculty Exchange, Collaborative Research, Joint Organization of STTP, Conference***

The group recommended the use of technology for both teaching and learning such as virtual classrooms/ labs, availability and accessibility of MOOCs and other course material available on the web, free internet facilities 24X7 to the students and faculty, encouragement to the faculty to prepare video lectures and MOOCs.

- ***Infrastructure and other facilities***

There was consensus regarding mandatory accreditation from NBA, e c. The institutes should participate in 'Ranking' activities by NIRF, QS University and World University Ranking. There need to be a proper continuous review mechanism to monitor and maintain the accreditation standards. There could also be **Annual Academic Audits** by persons from higher institute and industry.

#### ***Few Major Recommendations specific to Medical Education***

***(submitted in writing by Dr. V. Nagarajan):***

- ***Constitution of Medical Services Recruitment Board***

This could be headed by a Senior retired Medical personal from outside the state; and may comprise 3 Members viz. one DME, DHS, and an Administrative personal from the Dept. of Health, in the rank of Addl. Secretary. This Board will ensure the placement of Medical, Paramedical, and non- Medical staff of the Medical Institutions. There is also a need for post graduate medical education and training board.

- ***Research in Medical Education***

Research in medical education requires being decision-linked and should contribute in significant ways to accelerate and intensify the decision-making process of the reorientation process. The information and evaluation that is required at successive steps in the decision-making processes for reorientation of medical education should, if not already existing be provided through relevant research.

# LIST OF PARTICIPANTS

## S.N. Name

## Designation

### State Planning Commission

|    |                       |  |
|----|-----------------------|--|
| 1  | Shri Sunil kumar      | Vice- Chairman, State Planning Commission                    |
| 2  | Mr. D. S. Mishra      | Special Invitee, Ex, ACS Finance, Government of Chhattisgarh |
| 3  | Shri Amitabha Panda   | Member Secretary, State Planning Commission                  |
| 4  | Shri P. P. Soti       | Member , State Planning Commission                           |
| 5  | Ms. Nimisha Jha       | Deputy Secretary, State Planning Commission                  |
| 6  | Ms. Vatsala Mishra    | Joint Director, State Planning Commission                    |
| 7  | Dr. D. K. Masta       | Joint Director, State Planning Commission                    |
| 8  | Shri . S. Virdi       | oint Director, State Planning Commission                     |
| 9  | Shri Rishi Raj Sharma | Lead Consultant, State Planning Commission                   |
| 10 | Shri Nilesh Tiwari    | Consultant, State Planning Commission                        |
| 11 | Mr. Udit Kumar        | Intern, NIT Raipur   |

### SWG Member

|   |                          |  |
|---|--------------------------|--|
| 1 | Dr. Damodar acharya      | Chairman, adviser committee, SOA University                                |
| 2 | Dr. Kripa Shankar        | Prof. Emeritus , Ex. Vice Chancellor , UP Technical University, IIT Kanpur |
| 3 | Dr. Nagrajan Venkatraman | Prof. , Govt. Dr.MGR Medical University, Chennai, Tamil Nadu               |
| 4 | Prof. B. S. Sahay        | Director, IIM, Raipur  |
| 5 | Dr. N. M. Nagarkar       | Director, AIIMS  |
| 6 | Mr. Shrish Verma         | Professor and Dean Academics, NIT Raipur                                   |
| 7 | Dr. P.K. Sinha           | Director, IIIT   |
| 8 | Mr. Sunil K. Shah        | Azim Premji Foundation   |

### Technical Education

|   |                          |  |
|---|--------------------------|--|
| 1 | Dr.(col.) Sajay K. Patil | Vice-Chancellor, Indira Gandhi Agriculture University , C.G.Raipur   |
| 2 | Dr. P.K.Sinha            | Vice-Chancellor, IIIT, Raipur.                                       |
| 3 | Dr. M.K. Verma           | Vice-Chancellor, CG. Swami Vivekanand Technical University , Bhilai. |
| 4 | Dr. Shailendra Kumar     | Director In Charge , GGU , Bilaspur                                  |
| 5 | Dr. Piyush Kant Pandey   | Principal, Bhilai Institute of Technology Raipur                     |

### Higher Education

|   |                     |  |
|---|---------------------|--|
| 1 | Dr. A. K. Pati      | Pt. Ravi Shankar Shukla University C.G. Raipur           |
| 2 | Ms. Aruna Palta     | Principal ,Radhabai Naveen Kanya Mahavidhyalaya, Raipur  |
| 3 | Dr. . C. Ajawani    | HoD Psychology Devendra Nagar college                    |
| 4 | Ms. Radha Pandey    | Principal, Govt. PG College, Bhilai-3                    |
| 5 | Dr. Arvind Girolkar | Principal, Govt. D. B. Girls PG College Raipur           |
| 6 | Dr. Preeta lall     | Asst.Prof. Dr. radhabai Govt. Naveen Kanya Mahavidhyalay |

### School Education

|   |                         |  |
|---|-------------------------|--|
| 1 | Mr. M.R. Sawant         | Principal, Pt. .N. Pandey Govt. Multi HSS Raipur           |
| 2 | Mr. Raghunath Mukharjee | Principal, Delhi Public School Raipur                      |
| 3 | Mr. Prasant Kumar       | Principal , DAV Public School Bhilai                       |
| 4 | Mr. Parshant Vashishta  | Principal ,Delhi Public School, Bhilai                     |
| 5 | Mr. Rakesh Gupta        | Principal, Govt. School, Trimurti Nagar, Raipur            |
| 6 | Mr. M. P. Yadav         | Ex. Principal DPS Bhilai                                   |
| 7 | Ms. A.L.Gauraha         | Principal ,Govt. Higher Sec. School Changora bhata, Raipur |

## GLIMPSES FROM THE EVENT....

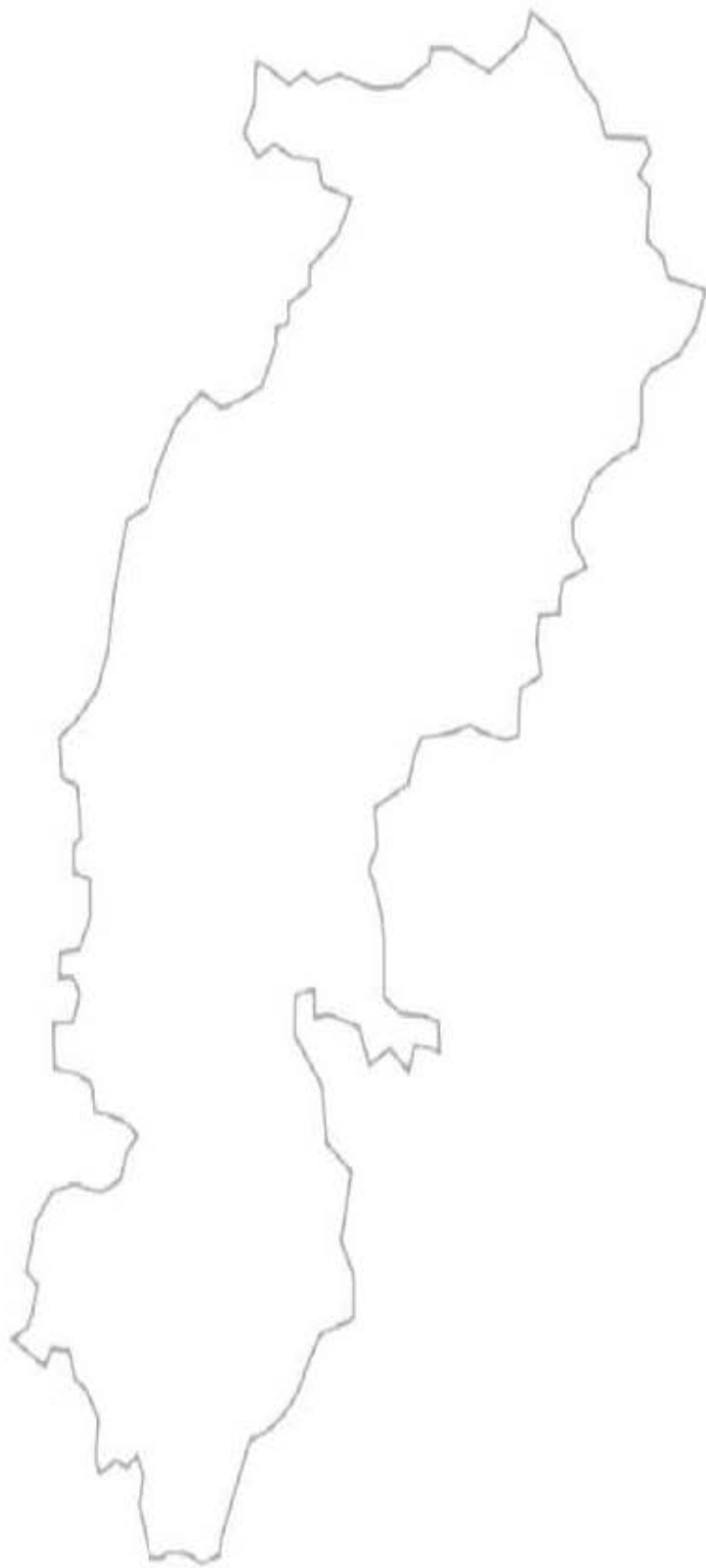


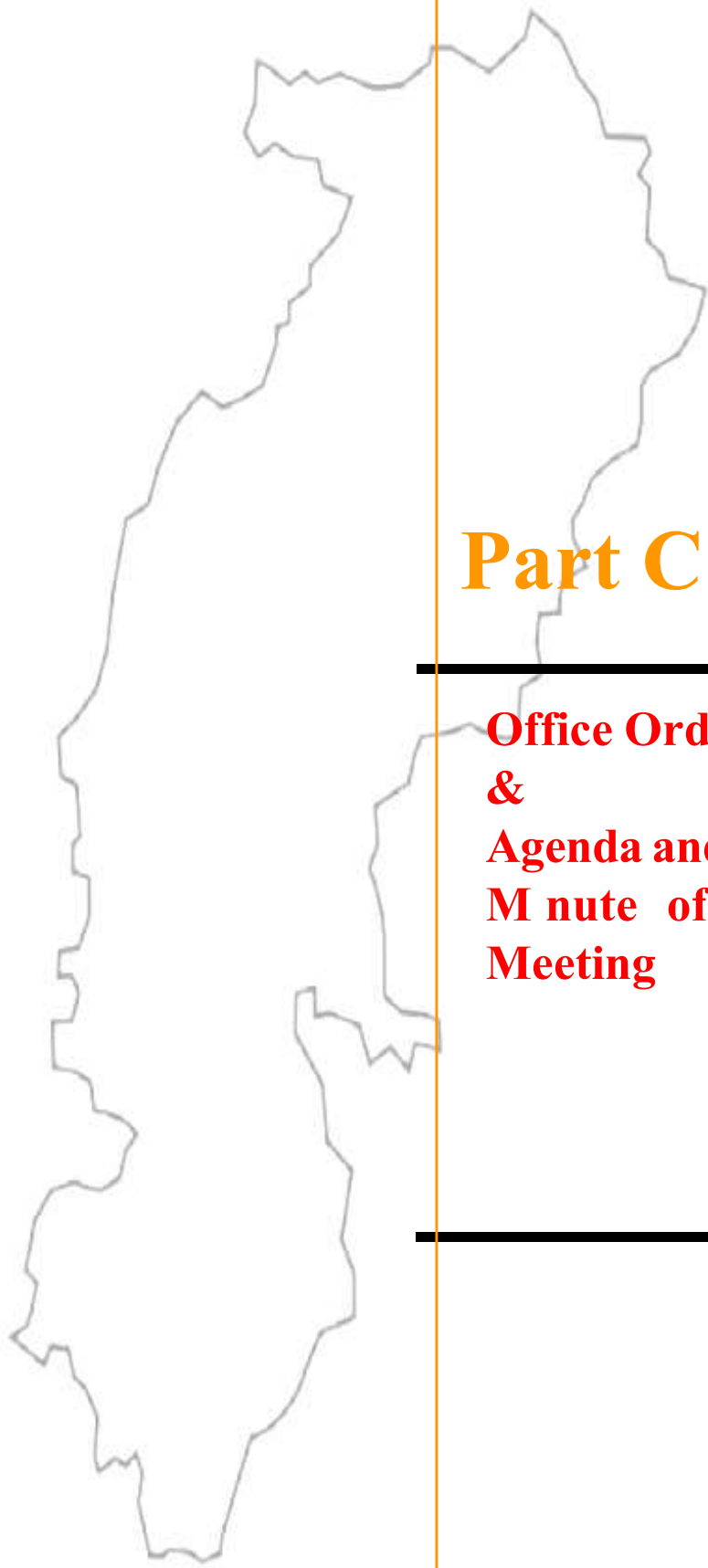










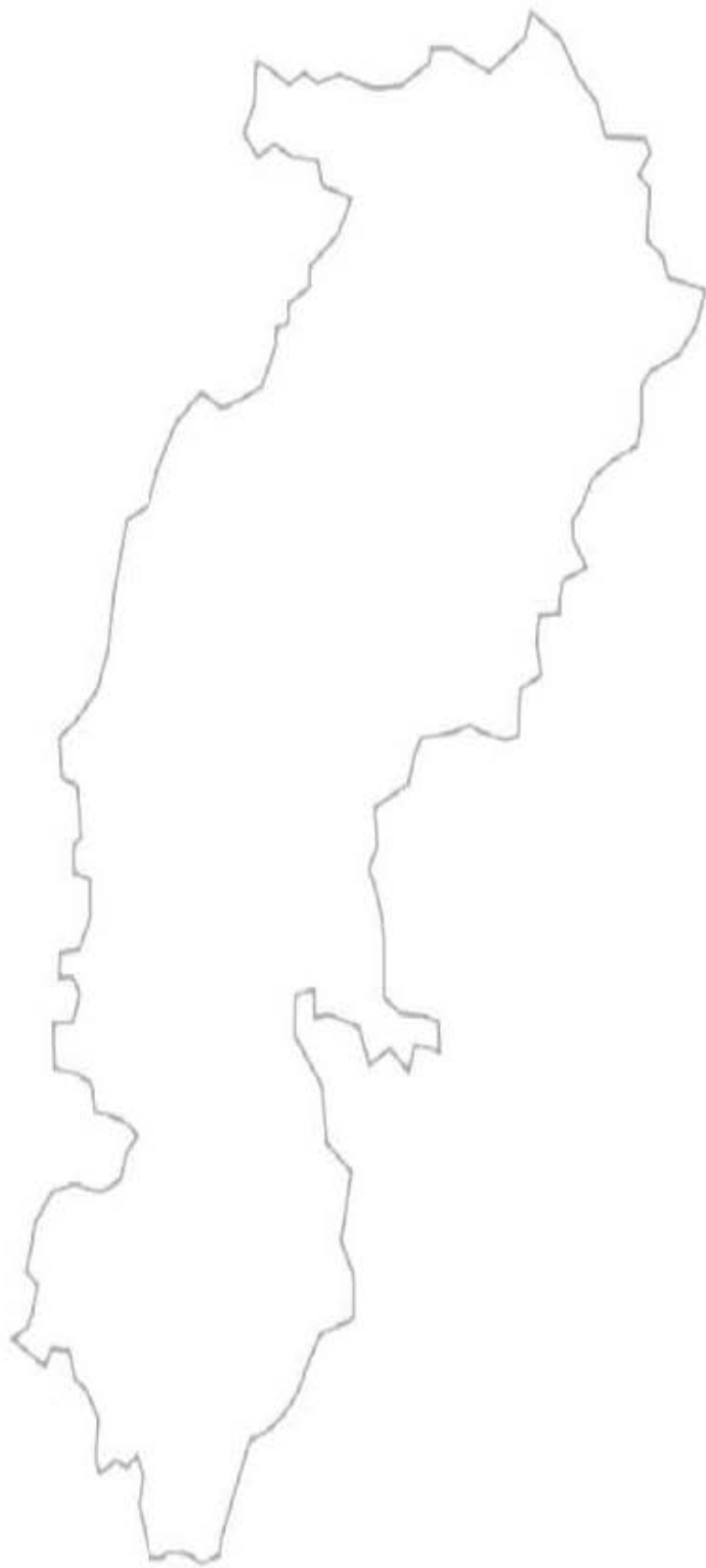


## **Part C**

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**Office Order  
&  
Agenda and  
Minute of  
Meeting**

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## राज्य योजना आयोग छत्तीसगढ़

एए 1/11 मंत्रालय, महानदी भवन, नया रायपुर

टैलीफैक्स: 2234230, 2222362

### आदेश

नया रायपुर दिनांक 13 जून, 2016

क्रमांक 7.1.5.../एफ 6-10/रायोआ/संस/औद्यो.टा.फो/2016:: राज्य योजना आयोग छत्तीसगढ़ द्वारा उद्योग, कौशल विकास, तकनीकी एवं उच्च शिक्षा तथा रोजगार क्षेत्र के विकास हेतु गठित टास्क फोर्स के अंतर्गत क्षेत्र विशेष के अध्ययन तथा मूल्यांकन हेतु निम्नानुसार स्थायी कार्यसमूहों का गठन किया जाता है:-

#### 1. खनिज रासायनिक एवं वृहद् उद्योग (Mineral Chemical and Heavy Industry)

|   |  |         |
|---|--|---------|
| 1 | डॉ. बी. के. मिश्रा,<br>निदेशक, आई.एम.एम.टी भुवनेश्वर, एवं सदस्य, टास्क फोर्स, उद्योग,<br>कौशल विकास, तकनीकी एवं उच्च शिक्षा तथा रोजगार<br>ईमेल: <a href="mailto:bkm@immt.res.in">bkm@immt.res.in</a><br>फो.: 0674-2567126 मो. 0943755157                                       | अध्यक्ष |
| 2 | श्री बी. आर. रेड्डी,<br>अध्यक्ष एवं प्रबंध संचालक एस. ई. सी. एल. लिमिटेड, बिलासपुर<br>छत्तीसगढ़<br>मो. 94255-33008   | सदस्य   |
| 3 | डॉ. पी. के. सेन,<br>प्रोफेसर, धातुकर्म एवं पदार्थ अभियांत्रिकी विभाग (Department of<br>Metallurgy and Material Engineering) भारतीय प्रौद्योगिक संस्थान<br>(IIT) खड़गपुर<br>ईमेल: <a href="mailto:pkse@metal.iitkgp.ernet.in">pkse@metal.iitkgp.ernet.in</a><br>मो. 09932755187 | सदस्य   |
| 4 | श्री डी. पी. मिश्रा,<br>स्वतंत्र सलाहकार,<br>C/1104 रॉयल क्लासिक टॉवर, सिटी गॉल के पास, नया लिंक रोड<br>अंधेरी पश्चिम, मुंबई- 400053<br>मो. 09820049581  | सदस्य   |
| 5 | श्री महेश्वर साहू,<br>अध्यक्ष, गुजरात कार्पोरेट सामाजिक दायित्व (CSR) प्राधिकरण तीसरी<br>मंजिल, जी. एस. एफ. सी. बिल्डिंग, ड्राईव इन सिनेमा के सामने,<br>रिज्ञायंस मार्ट के पीछे, बोदकदेव, अहमदाबाद- 380054<br>मो. 09978406417  | सदस्य   |

### संदर्भ शर्तें (Terms of Reference- ToR)

1. प्रदेश में खनिकर्म, खनिज, धातुकर्म, रसायनिक एवं वृहद् उद्योगों की संभावनाओं तक पहुंच बनाना।  
To access the potential of the mining, mineral, metallurgical, chemical and major industries in the state.
2. ऐसे उद्योगों में विनियोग आकर्षित करने, प्रोत्साहन देने एवं स्थापित करने के लिये रूपरेखा तैयार करना।  
To prepare blueprint for attracting investment, promotion and establishment of such industries.
3. उपरोक्त प्रत्येक उद्योग की स्थापना के संभावित स्थल की पहचान करना।  
Identification of potential sites for each of these industries.

### 2. इलेक्ट्रॉनिक्स निर्माण (Electronic Manufacturing)

|   |   |         |
|---|---|---------|
| 1 | पद्मश्री डॉ. किरण कार्णिक,<br>पूर्व अध्यक्ष, नेशकॉम (NASSCOM) एवं सदस्य, टास्क फोर्स,<br>उद्योग, कौशल विकास, तकनीकी एवं उच्च शिक्षा तथा रोजगार<br>ईमेल: <a href="mailto:kiran@karnik.netin">kiran@karnik.netin</a><br>मो: 09810100350   | अध्यक्ष |
| 2 | डॉ. चिन्मय कुमार मैटी,<br>प्रो. इलेक्ट्रॉनिक्स एवं कम्यूनिक्शन इंजीनियरिंग विभाग (ECE)<br>जगमरा खडगिरी, भुवनेश्वर एव विशेष आमंत्रित सदस्य, टास्क<br>फोर्स, उद्योग, कौशल विकास, तकनीकी एवं उच्च शिक्षा तथा<br>रोजगार<br>ईमेल: <a href="mailto:ckmaiti@outlook.com">ckmaiti@outlook.com</a><br>मो 09735444215 | सदस्य   |
| 3 | श्री आलोक कुमार सेन,<br>निदेशक,<br>पश्चिम बंगाल इलेक्ट्रॉनिक्स लिमिटेड<br>51/B एस एन रॉय रोड, कोलकाता 700038<br>मो. 09432070354   | सदस्य   |
| 4 | श्री अजय चौधरी<br>संस्थापक, एच सी एल<br>अध्यक्ष, भारतीय सूचना प्रौद्योगिकी संस्थान बोर्ड, रायपुर  | सदस्य   |

### संदर्भ शर्तें (Terms of Reference- ToR)

1. प्रदेश में अर्धचालक (Semiconductor), अवयवों (Component) एवं उपभोक्ता इलेक्ट्रॉनिक्स संबंधी उद्योगों तथा विनियोग के अवसर की संभावना की पहचान करना।

Identifying the potentiality for industries and investment opportunity for semiconductor, component and consumer electronics industry in the State.

2. इन क्षेत्रों में उद्योगों के विकास के लिये, राज्य से आवश्यक सहायता को सम्मिलित करते हुए कार्य नीति (Strategy) तैयार करना।  
Strategy for the development of the industries in these sectors including the support needed from the State.

### 3. शिक्षा एवं नियोजनीयता का विस्तार (Extension of Education and Employability)

|   |  |         |
|---|--|---------|
| 1 | डॉ. दामोदर आचार्य,<br>अध्यक्ष, सलाहकार समिति, एस. ए. ओ विश्वविद्यालय, खड़गिरी<br>चौराहा, भुवनेश्वर -751030<br>सदस्य (अशासकीय), राज्य योजना आयोग, अध्यक्ष, टास्क फोर्स,<br>उद्योग, कौशल विकास, तकनीकी एवं उच्च शिक्षा तथा रोजगार<br>ईमेल: acharyadamodar94@gmail.com<br>फो: 0674-2350885, मो. 09437499485 | अध्यक्ष |
| 2 | श्री रघुनाथ पाण्डा,<br>सेवानिवृत्त प्राचार्य, बी जे. बी. महाविद्यालय भुवनेश्वर एच. यू. जी.<br>165, धर्मविहार, भुवनेश्वर 751030<br>ईमेल: principalihse@gmail.com<br>मो. 09437008484   | सदस्य   |
| 3 | डॉ. कृपा शंकर,<br>प्रो. एमिरेट्स, पूर्व कुलपति, उत्तर प्रदेश तकनीकी विश्वविद्यालय,<br>भारतीय प्रौद्योगिकी संस्थान, कानपुर-280016<br>मो. 09415042484  | सदस्य   |
| 4 | प्रो. क्षिती भूषण दास,<br>पूर्व अध्यक्ष, स्नातकोत्तर परिषद्, उत्कल विश्वविद्यालय,<br>प्लॉट नं. 1674, महादेव रोड, बारामुंडा-751003<br>ईमेल: kshitivhusan.das@rediffmail.com<br>मो. 04437937663  | सदस्य   |
| 5 | डॉ. नागराजन वेंकटरमण,<br>प्रोफेसर, एमिरेट्स, शासकीय डॉ. एम. जी. आर. चिकित्सा<br>विश्वविद्यालय चेन्नई, तमिलनाडु<br>वी एन न्यूरो केथर सेंटर 72 वाकिल्स, नई सड़क, मद्रुरई-625001<br>मो. 09843052029   | सदस्य   |
| 6 | प्रो. बी. एस. सहाय,<br>निदेशक, भारतीय प्रबंध संस्थान, रायपुर<br>जीईसी कैम्पस, सेजबहार, रायपुर 492015<br>फो: 771-2474602<br>ईमेल: director@iimraipur.ac.in  | सदस्य   |

### संदर्भ शर्तें (Terms of Reference- ToR)

1. प्रदेश में स्कूल (प्राथमिक, माध्यमिक एवं उच्चतर) महाविद्यालयीन, विश्वविद्यालयीन, तकनीकी एवं चिकित्सा शिक्षा की वस्तुस्थिति का आंकलन करना।  
Asses the status of school (Primary, Secondary and Higher Secondary) Collegiate, University, Technical and Medical Education in the state.
2. समानता एवं गुणवत्तापूर्ण शिक्षा तक पहुंच का विस्तार करना।  
Enhancing access with equity and quality of education.
3. उपर्युक्त प्रत्येक क्षेत्र में सुधार के लिये रूपरेखा तैयार करना।  
Blueprint preparation for the improvement in each of the sectors.
4. स्नातकों से उच्च शैक्षिक परिणाम प्राप्त करने, कौशल एवं रोजगार क्षमता में वृद्धि करने के लिये शिक्षा की गुणवत्ता को बढ़ाना।  
Enhancing the quality of education to achieve higher educational outcome, skill and employability of the graduates.

### 4. कौशल तथा सूक्ष्म, लघु एवं मध्यम उद्योगों का विकास (Skill, Micro, Small and Medium Industry Department)

|   |  |         |
|---|--|---------|
| 1 | श्री संदीपन चक्रवर्ती,<br>पूर्व अध्यक्ष, बंगाल चेम्बर ऑफ़ कामर्स एवं इंडस्ट्रीज, सी आई आई (पूर्वी क्षेत्र) एवं अध्यक्ष एवं प्रबंध संचालक, टाटा स्टील प्रासोसिंग एवं डिस्ट्रीब्यूशन लिमिटेड<br>9 सीडी अशोका अपार्टमेंट III साउदर्न एवेन्यू (लेक कालीबाडी के पास) कोलकाता- 700029<br>ईमेल: <a href="mailto:Sandipan230949@gmail.com">Sandipan230949@gmail.com</a><br>मो. 09831092201 | अध्यक्ष |
| 2 | श्री रमेश नायर,<br>मुख्य कार्यपालन अधिकारी,<br>भारत एल्यूमिनियम कम्पनी लिमिटेड, कोरबा  | सदस्य   |
| 3 | श्री एम रवि,<br>मनोनीत,<br>मुख्य कार्यपालन अधिकारी,<br>मिलाई स्टील प्लान्ट, मिलाई<br>फोन: 0788-271668<br>ईमेल: <a href="mailto:edvisl@rediffmail.com">edvisl@rediffmail.com</a>  | सदस्य   |
| 4 | श्री जैकान्त सिंह,<br>अध्यक्ष, पार्टनरशिप एंड स्टेट एलायंस एन. एस. डी. सी.,<br>नई दिल्ली<br>ईमेल: <a href="mailto:jaikat.Singh@nsdcindia.org.in">jaikat.Singh@nsdcindia.org.in</a>   | सदस्य   |

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|---|--|-------|
| 5 | श्री पंचानन दास,<br>उप महानिदेशक, कम्प्यूटर सेन्टर,<br>सांख्यिकी एवं कार्यक्रम कार्यान्वयन मंत्रालय, नई दिल्ली<br>ईमेल: <a href="mailto:ddg.cc-mospi@gov.in">ddg.cc-mospi@gov.in</a> | सदस्य |
| 6 | डॉ./श्रीमती वर्षा वरवंडकर,<br>आजीविका परामर्शदाता (Career Counseller), रायपुर<br>रायपुर मो: 98261-32982  | सदस्य |
| 7 | श्री लोकेश कावडिया,<br>विशेषज्ञ, उद्यामिता एवं कौशल विकास, रायपुर<br>मो: 09425206699<br>ईमेल: <a href="mailto:lokeshkawadva@yahoo.com">lokeshkawadva@yahoo.com</a>                   | सदस्य |

### संदर्भ शर्तें (Terms of Reference- ToR)

1. प्रदेश में सूक्ष्म, लघु एवं मध्यम उद्योगों (MSME) के विकास की संभावनाओं का आंकलन करना।  
Assessing the potential of MSME (Micro. Small and Medium Industries) development in the State.
  2. सूक्ष्म, लघु, मध्यम एवं बृहद् उद्योगों को सहारा देने के लिये प्रदेश के कौशल समूहों की आवश्यकता का आंकलन करना।  
Assessing skill set needs of the State to support MSME and large industries.
  3. सूक्ष्म, लघु एवं मध्यम उद्योगों के विकास एवं कौशल समूह निर्माण की रणनीति।  
Strategy for MSME development and skill set formulation.
  4. सूक्ष्म, लघु एवं मध्यम उद्योग समूहों की पहचान एवं उनके विकास की रणनीति।  
Identification of MSME clusters and strategy for their development.
5. सूचना प्रौद्योगिकी एवं सॉफ्टवेयर उद्योग ( Information Technology and Software Industry)

|   |  |         |
|---|--|---------|
| 1 | पद्मश्री डॉ. किरण कार्णिक,<br>पूर्व अध्यक्ष, नेशकॉम (NASSCOM) एवं सदस्य, टास्क फोर्स,<br>उद्योग, कौशल विकास, तकनीकी एवं उच्च शिक्षा तथा रोजगार<br>ईमेल: <a href="mailto:kiran@karnik.netin">kiran@karnik.netin</a><br>मो: 09810100350      | अध्यक्ष |
| 2 | डॉ. देबब्रत दास,<br>प्रो. एंड डीन (अकादमिक एवं शोध एवं विकास) अन्तर्राष्ट्रीय सूचना<br>प्रौद्योगिकी संस्थान (IIT) बैंगलोर<br>फ्लैट जी-2, अनीशा मीडोस् वेंकट रेड्डी ले-आउट ब्लॉक-6<br>कोरो मंगला, बैंगलोर कर्नाटक-560095<br>मो. 09632795795 | सदस्य   |



|   |   |       |
|---|---|-------|
| 3 | पद्मश्री डॉ. दीपक पाठक,<br>प्रो. भारतीय प्रौद्योगिकी संस्थान मुंबई,<br>ईमेल: dbp@it.iitb.ac.in 2. dbp@ese.iitb.ac.in<br>फोन. 022-25767747 (O) 25768747 (R) 25720022(Fax)<br>मो. 09820017052 | सदस्य |
| 4 | श्री ए. एम. परियल,<br>उपाध्यक्ष, डिप्स, रायपुर<br>ईमेल: am_parial@yahoo.co.in   | सदस्य |
| 5 | श्री गणेश नटराजन<br>उपाध्यक्ष, जेनसर एवं अध्यक्ष, नेशकॉम एवं जीटीटी<br>ईमेल: GaneshN@zensar.com   | सदस्य |

### संदर्भ शर्त (Terms of Reference- ToR)

1. प्रदेश में सूचना प्रौद्योगिकी सक्षम शिक्षा को समिलित करते हुए सूचना प्रौद्योगिकी एवं सॉफ्टवेयर उद्योग के लिये संभावनाओं की पहचान।  
Identifying the potential for the IT and software Industries in the State including IT enabled education.
  2. क्षेत्र के लिये जन-शक्ति विकास की रणनीति का विकास।  
Developing a strategy for the manpower development for the sector.
6. मैकनिकल, ऑटोमोबाइल एवं ऑटो कम्पोनेंट उद्योग (Mechanical, Automobile and Auto Component Industry)

|   |  |         |
|---|--|---------|
| 1 | श्री संदीपन चक्रवर्ती,<br>पूर्व अध्यक्ष, बंगाल चेम्बर ऑफ कॉमर्स एवं इंडस्ट्रीज, सी. आई. आई. (पूर्वी क्षेत्र) एवं अध्यक्ष एवं प्रबंध संचालक, टाटा स्टील प्रासेसिंग एवं डिस्ट्रीब्यूशन लिमिटेड<br>9 सीडी अशोका अपार्टमेंट III साउदर्न एवेन्यू (लेक कालीबाडी के पास) कोलकाता- 700029<br>ईमेल: Sandipan230949@gmail.com<br>मो. 09831092201 | अध्यक्ष |
| 2 | श्री आर. के. बेहरा,<br>अध्यक्ष, आर. एस. बी. ट्रांसमिशन (I) लिमिटेड उबले नगर, नगर रोड वाघेली पुणे- 412207<br>फो. 91-20-30642100 फैक्स: 91-20-30642101   | सदस्य   |
| 3 | श्री आर. आई. मोदी,<br>प्रबंध संचालक, कैडिला फार्मास्युटिकल्स लि. कैडिला कार्पोरेट कैम्पस, सरखेज डोलका रोड, भट्ट अहमदाबाद-382210<br>ईमेल: rimodi@cadilapharma.co.in<br>फो. 02218-225001   | सदस्य   |

# राज्य योजना आयोग

## छत्तीसगढ़

एए 1/11 मंत्रालय, महानदी भवन, नया रायपुर

टैलीफैक्स: 2234230, 2222362

### आदेश

नया रायपुर दिनांक 14 जुलाई, 2016

क्रमांक 849/एफ 6-10/रायोआ/संसां/औद्यो.टा.फो/2016: राज्य योजना आयोग छत्तीसगढ़ द्वारा उद्योग, कौशल विकास, तकनीकी एवं उच्च शिक्षा तथा रोजगार क्षेत्र के विकास हेतु गठित टास्क फोर्स के अंतर्गत क्षेत्र विशेष के अध्ययन तथा मूल्यांकन हेतु निम्नानुसार स्थायी कार्यसमूहों का गठन किया जाता है:-

### नगरीय एवं आधारभूत संरचना (Urban and Infrastructure)

|    |   |         |
|----|---|---------|
| 1. | श्री मनीष गुप्ता,<br>पूर्व अध्यक्ष, सी आई आई,<br>भिलाई, छत्तीसगढ़<br>मो. 09302842486 ईमेल: mgupta@bsbklltd.com  | अध्यक्ष |
| 2  | श्री सी. एस. पिल्लीवार,<br>सिविल इंजीनियर कन्सलटेन्ट, पूर्व प्राध्यापक, सिविल इंजीनियरिंग<br>शासकीय अभियांत्रिकी महाविद्यालय, रायपुर छत्तीसगढ़<br>मो.: 99810-13210 ईमेल: manishpillivar@yahoo.com                                   | सदस्य   |
| 3  | श्री तारा प्रसाद ढाल,<br>वास्तुकार,<br>ऊर्जा कुशल भवन (Energy Efficient Building)<br>भुवनेश्वर, उड़ीसा<br>मो. 94370-10931 ईमेल: taradh@yaho.com   | सदस्य   |
| 4  | श्री दिलीप विष्णुपंत शिकदर,<br>वास्तुकार, शहर योजनाकार (Urban Planner)<br>302, C-3, रूतु पार्क ए आर. डब्ल्यू. सावंत मॉडर्न वृंदावन सोसायटी के पास<br>मजिवाड़े, थाने, महाराष्ट्र 400601<br>मो.: 9821891961 ईमेल: shekdardv@gmail.com | सदस्य   |
| 5  | श्री संजोग बवाने,<br>स्वतंत्र सलाहकार,<br>फ्लैट नं. 505 एकजॉटिका रॉयल अपार्टमेंट, टीवी टॉवर के<br>सामने, शंकर नगर, रायपुर<br>मो: 96445-81877 ईमेल: sanjogb@rediffmail.com   | सदस्य   |
| 6  | श्री लोकेश कावडिया<br>विशेषज्ञ, उद्योगिता एवं कौशल विकास, रायपुर<br>छत्तीसगढ़<br>मो: 98110-66771 ईमेल: lokeshkawadya@yahoo.in   | सदस्य   |

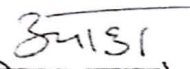
### संदर्भ शर्तें (Terms of Reference- ToR)

1. विकास के अनुरूप आधारभूत संरचना की आवश्यकता का आंकलन  
Assessment of the need of Infrastructure, in accordance with the development.
2. आधारभूत संरचना के विकास में क्षेत्रीय विषमताओं का अध्ययन तथा न्यायसंगत विकास के उपाय सुझाना।  
Study the regional imbalance in the development of infrastructure and suggest measures to equitable development.
3. लघु, मध्यम एवं दीर्घकालीन आधार पर आवश्यकताओं का अध्ययन  
Study the requirements on a short, medium and long term basis.
4. राज्य की प्रगति पर इसके प्रभाव का निर्धारण  
Determine its impact on the growth of the State.
5. पूर्ति अंतर को समय पर पूर्ण करने के लिये समर्थकारी आवश्यकताओं/नीतियों का निर्धारण।  
Do determine the enabling requirement/ policies to timely meet the gape on the supply side.

### स्थायी कार्य-समूहों हेतु तकनीकी एवं प्रशासनिक आवश्यकताएँ:-

1. स्थायी कार्य-समूह के अध्यक्ष को स्वतंत्रता होगी कि वे अपनी सहायता हेतु अतिरिक्त विशेषज्ञों को नामांकित/सहयोगित कर सकेंगे।
2. राज्य सरकार के सभी संबंधित विभाग-प्रमुख स्थायी कार्य-समूहों की बैठकों में आमंत्रित सदस्य होंगे।
3. स्थायी कार्य-समूह को विभिन्न क्षेत्रों में विशेष अध्ययन हेतु छोटे सलाहकार उप समूह बनाने का अधिकार होगा जो उस क्षेत्र विशेष के लिये स्थायी कार्य-समूह को अपने सुझाव देंगे। संबंधित राज्य शासन के विभागों के अधिकारियों, शैक्षणिक एवं अनुसंधान संस्था के वैज्ञानिकों एवं अशासकीय संस्थाओं के प्रतिनिधियों को भी आवश्यकता होने पर आमंत्रित कर परामर्श किया जा सकेगा।
4. कार्य-समूह विभिन्न नीतिगत विषयों पर Policy Paper/Brief, Seminar, Studies, एवं Workshop आयोजन करने का सुझाव समय-समय पर राज्य योजना आयोग को देंगे एवं उनका आयोजन योजना आयोग करेगा। इस हेतु आवश्यक वित्तीय व्यवस्था राज्य योजना आयोग द्वारा की जायेगी। स्थायी कार्य-समूह द्वारा तैयार किये गये दस्तावेजों का प्रकाशन एवं प्रसारण आयोग द्वारा किया जायेगा।
5. विशेष विषय पर अध्ययन के लिये कार्य-समूह के अध्यक्ष एवं सदस्यों से राज्य योजना आयोग समय समय पर आग्रह कर सकता है जिसका वित्तीय प्रावधान आयोग द्वारा पूर्ण किया जायेगा।

6. शासकीय एवं अशासकीय सदस्यों को प्रति बैठक मानदेय क्रमशः रु. 2500 एवं रु. 4500 देय होगा
7. समस्त स्थायी कार्य-समूह अपने कार्यक्रमों के क्रियान्वयन डॉ. दामोदर आचार्य, सदस्य (अशासकीय), राज्य योजना आयोग के माध्यम से करेंगे।
8. सभी स्थायी कार्य-समूहों का कार्यकाल आगामी आदेश तक रहेगा।
9. स्थायी कार्य-समूहों की समस्त प्रशासनिक कार्यवाही डॉ. जे. एस. विरदी, संयुक्त संचालक, राज्य योजना आयोग छत्तीसगढ़ करेंगे।

  
 (अमिताभ पाण्डा)  
 सदस्य सचिव

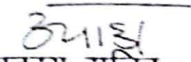
राज्य योजना आयोग छत्तीसगढ़

पृ. क्र. 850/संसं/ रायोआ / 2016

नया रायपुर, दिनांक 14/7/2016

प्रतिलिपि:-

1. प्रमुख सचिव, माननीय मुख्यमंत्री एवं अध्यक्ष, राज्य योजना आयोग छत्तीसगढ़
2. निज सचिव, मान. उपाध्यक्ष, राज्य योजना आयोग छत्तीसगढ़, मंत्रालय, नया रायपुर
3. निज सहायक, सदस्य, राज्य योजना आयोग छत्तीसगढ़, मंत्रालय, नया रायपुर
4. श्री तेजेन्दर सिंह लास्कर, सदस्य (अंशकालीन) राज्य योजना आयोग छत्तीसगढ़, मंत्रालय, नया रायपुर
5. डॉ. दामोदर आचार्य, सदस्य (अशासकीय), राज्य योजना आयोग छत्तीसगढ़ एवं अध्यक्ष, टास्क फोर्स उद्योग, कौशल विकास, तकनीकी एवं उच्च शिक्षा तथा रोजगार क्षेत्र
6. संबंधित श्री/ श्रीमती .....  
को सूचनार्थ एवं आवश्यक कार्यवाही हेतु।

  
 सदस्य सचिव  
 राज्य योजना आयोग छत्तीसगढ़

**State Planning Commission, Chhattisgarh**  
**Industrial Task Force Combined Working Group Meeting**

Date: 1<sup>st</sup> of August, 2016

Combined Standing Working Groups, Meeting of Industrial Task Force is held on 1<sup>st</sup> August, 2016 at Police Officers Mess, Raipur under the Chairmanship of Dr. Damodar Acharya, Member (Non Government), State Planning Commission Chhattisgarh and Chairman Task Force on Industry, Skill Development, Higher and Technical Education and Employment and in the presence of Shri Sunil Kumar, Vice Chairman, State Planning Commission Chhattisgarh.

At the outset, Shri Amithabh Panda, Member Secretary, State planning Commission Chhattisgarh welcomes the esteemed members of the Standing Working Group of Industrial Task Force. While explaining the TOR of the group he also expresses that fruitful discussion will take place and the SWG would be able to contribute something positive towards development of the State.

Sri Sunil Kumar, Vice Chairman of State planning Commission Chhattisgarh in his opening remark observes that this newly created state has immense opportunity of development in the field of Industry and Mining Sector and developing skill and increasing the overall education standard, youths of the states can be made employable and provided opportunity for livelihood. He points out that the youths of the state are not getting enough opportunity in heavy and medium industry sector due to lack of adequate skill. He urges to deliberate how youths of the state can be trained and groomed for the sector as per the industries expectations.

He further informs that, since working groups are of standing nature, these are expected to recommend periodically, first recommendation of the Industrial Task Force Working Groups may be made within three months, thereafter, and further recommendation may be made every six month or yearly depending upon the necessity. The recommendations of individual SWG may be made as and when ready without waiting all to be clubbed.

Dy. Chairman urges the members to contribute occasional paper in their respective fields of expertise concerning Chhattisgarh. These papers shall be shared with the department and posted on commission's website.

In his key note address, Dr. Damodar Acharya, Member (Non Government), State Planning Commission, Chhattisgarh observes that in education sector, Chhattisgarh is lacking good faculty, which is however applicable to not only to this state but also to the entire country. It is due to lack of training management in Higher Education where ICT (Information and Communicative Technology-ICT) based education is required. He further opines that unless standard of primary and secondary education is addressed properly, one cannot think of improving Higher Education.

He reiterates that to improve worldwide employability for the people of Chhattisgarh, one should think of imparting education of global standard. It would be possible, when youths and students of the state are good in English. Therefore, it is urgent need of the State to make a policy towards improving English skill of the students, right from the primary classes. Simultaneously, measures can be taken in higher classes especially in technical education.

He narrates that in Taiwan, Philippines and Indonesia, electronic component manufacturing industry has been flourishing as household industry and exporting it throughout the world. On the line of these countries Chhattisgarh can also come forward to establish household electronic manufacturing industry. Lastly, Dr. Acharya explains ToR of each Standing Working Group of Industrial Task Force.

Padma Shree Dr. Deepak Pathak, Member, Standing Working Group on Information Technology and software industry informs that education sector mainly focused on content, delivery and assessment but learning and application of learning are ignored. Supporting Dr. Archarya's views he also stresses the need of imparting and importance of providing education in English. He narrates that in an experiment conducted; those that had difficulty in answering in English were allowed to answer in mother tongue. The results showed that those poor in English are also poor in their mother tongue. Therefore, imparting higher education in English and English education in primary level is need of the hour. India has got large population if they will be good in English they can serve outside the country too. He also observes that teachers should be refrained from other works and engaged only for teaching.

Further, he suggests that to train skilled labour as per the demand of industries there is need to redesign ITI's and Polytechnic and their curriculum. He explains that there is need of proper training of teachers and up-scaling of it to improve standard of school education especially primary Education. Training makes the difference and results can be seen radically.

Shri. Lokesh Kabadia Special Invitee, Industrial Talk Force and Member Standing Working Group on Skill and MSME Development and Infrastructure and Housing informs that he is associated with large number of women self help groups, who are engaged in making of Aam Barfi, Khajur Paan, Sanitary Napkins etc.. He provides all support, right from training to logistic, to start their business. He submits to the august gathering that since there is huge demand of above referred product in the market, if youths of the state trained in this sector thousands of youths may earn their livelihood.

He further informs that battery operated vehicle is being imported from China. Its basic cost is approximate Rs. 50,000 but it costs Rs. 1 lakh from China. It can be assembled or manufactured in Chhattisgarh. If Rs. 10,000 subsidy is given to manufacturer, industry can compete with the China product.

Taking part in the discussion Dr. M. I. Loya explained that automobile and e-vehicle batteries are of different nature, using automobile battery e-vehicle cannot be viable. Supporting Mr. Loya's views Dr. Pathak informed that different application need different kind of batteries. IIT Mumbai is working on various kind of batteries, if needed IIT Mumbai can help.

Dr. Nagraj Venkatraman, Member, SWG, Extension of Education and Employability informs that there is tremendous scope of employment in medical sector in form of Doctors, Nurses, paramedical personnel and related services. If any initiative is taken up or initiated he can readily help. Vice Chairman, SPC Chhattisgarh informs that medical tourism flourishing in India. While looking at large void between Nagpur in central India and Kolkata in the east there is no other developed medical centre in this large tract. If Raipur-Bilaspur are developed as medical hub, it will provide thousands of job opportunities catering medical facility to western Odisha and eastern Madhya Pradesh.

Dr. Nagraj Venktaraman, further suggests that in industrial front, initiative can be taken to build up Pharma Park and Medical Device Park. Private Medical Collage should be started, every district may have one Medical Collage.

Dr. M.I. Loya Special Invitee, Industrial Task Force SWG on Skill and MSME Development gave elaborate presentation on scope of MSME Development in Chhattisgarh. He emphasized on importance of cluster based approach for the development of Micro, Small and Medium industries. Sharing views he informs that cluster based approach is getting recognition and becoming popular option among policy makers around the world. Further he observes that developing a sector should be such that it is self sustained after the subsidy is withdrawn. To ensure this Government fund should be utilized for developing eco-system of the industrial sector.

Dr. Loya also suggests that use of fly ash is not commensurate with its production. There is urgent need to address this issue. Fly ash can be used in building and road construction very easily. To maximize utilization of fly ash technology is available, the only need is to implement it.

Shri D. S. Mishra, former Additional Chief Secretary, Government of Chhattisgarh expresses his view on good practices and role of law. He gave the example of Government of Odisha, where every month any iconic personality is invited, who deliver lecture on his success story and good practices. It gives the insight and motivation to the bureaucracy. This type of practice may be useful for this state too. He raises the issues concerning binding laws regulating industrial development. Every industry run by abiding rules and some time smaller change in rule or law force to close down the factory. He opines that in such situation there should be industry friendly rules and laws which extend support or help the industry in adverse situation arising out of enactment of new rule, adverse market situation and natural calamity or any disaster.

Dr. D. K. Marothia, Member, State Planning Commission, Chhattisgarh and Chairman, Agriculture Talk Force, observes that agro processing industry is integral part of industry sector and agro processing industry and agriculture are interlinked. Agro processing industry gets input from agriculture and agriculture produce gets market through processing industry. Therefore, for the bonding of agriculture with processing industry it requires long term planning so that sustainable agricultural and industrial development could be achieve.

Further he informs that both agriculture and industry sector use energy and water as their input which are scarce resources. There should be rational policy for both the sector so that one's policy doesn't not harm or hurt others.



Shri D. P. Mishra, Member, SWG, Mineral Chemical and Heavy Industry during the SWG meeting and meeting with Honourable Chief Minister suggests following points:-

**1. Coal Based Projects:**

Coal has thermal value and Chemical Value. there are lot of Thermal Power Projects in Chhattisgarh using thermal value only. He suggests to use Chemical Value of Coal also. Coal can be gasified to produce Synthesis Gas which can be used to produce ammonia and then urea for fertiliser Use. Alternatively Synthesis Gas can be used to produce Chemicals like Methanol and then to Olefins which can be feedstock for Plastics. China has about 40 Coal Gasification Plants including several Coal to Oil Plants. China uses 1.5 billion tpa Coal for production of Chemicals and Fertilisers. China's Chemical Industry is world's biggest at \$1.5 trillion per year.

**2. Fertiliser Projects:**

Plants for manufacture of Ammonia and Urea can be set up using Coal Bed Methane available in Coal Mines or Natural Gas line going to pass through Chhattisgarh.

**3. Korba Alumina/Aluminium Plant:**

a) **Alumina Chemicals Plant:** In view of fluctuation in price of Aluminium it will be advantageous for any aluminium producing plant to have Alumina Chemicals Plant producing Alpha Alumina, Beta Alumina, Refractory Grade Alumina etc. which will bring profitability to the Alumina Plant. In similar line, alumina chemical plant can be explored in Korba.

b) **Calcined Petroleum Coke Plant:** BALCO need Calcined Petroleum Coke in Ancillary Sector for production of Aluminium. With Petroleum Coke being available at Bina Refinery of BOREL, a Calcination Plant with production of Electricity from off gases can be set up in Chhattisgarh.

**4. Extraction of Tin:**

Chhattisgarh having a rare metal like tin. A plant for extraction of Tin can be set up by inviting FDI having technology with them.

#### 5. Petrochemical Plants:

BORL at Bina produces petroleum downstream like Naphtha, Kerosene etc which can be feedstock for production of host of Petrochemicals at Chhattisgarh

#### 6. Pharmaceutical Complexes:

Pharmaceutical industry produces API and formulations. If a suitable area is selected with cleanliness equal to IT Sector, that can be designated for pharmaceutical cluster. Recently Himachal had located such clusters at Badi and Uttaranchal at Dehradun through investor friendly policies. Majority of pharma plants have moved to those locations. Pharma industry which is today 20b\$ industry in India is growing at CARG of 18%. Chhattisgarh Govt may consider to build up pharmaceutical cluster like Badi, Dehradun and Devas with investor friendly policies.

Shri. Tara Prasad Dhal, Member, SWG, Urban and Infrastructure proposes to have super specialty hospitals at various strategic locations of state which will be satellite hospitals of AIIMS. It will be developed under Government of India scheme *Pradhan Mantri Swasthya Suraksha Yojana* (PMSSY). Govt of India provides financial support for development of each super specialty hospital. The cost usually covers infrastructure and equipments. Under special consideration it can be taken up as AIIMS satellite hospital where AIIMS shall recruit faculties with para medical staff.

Shri. Panchanan Das, Member, SWG, Skill, Micro, Small and Medium Industry Department suggested that to attract the youth to entrepreneurship a motivational video may be developed. As Doordarshan has maximum out reach the video may be telecast in Doordarshan. He further pointed out that focus must be on cluster development as standalone enterprises will not be competitive, potentiality of existing clusters may be studied and road map may be prepared for various interventions. For promotion of new enterprises specific infrastructure may be developed to promote the same in induced cluster mode. As the entrepreneurs, while setting up any enterprises study the policies of various States to compare the benefits, a specific MSME policy may be thought of. He further suggested that Government may consider bringing out an

entrepreneurship development policy to attract the youth to take entrepreneurship as career option. If required I can help in drafting the policy.

Shri. Kshiti Bhushan Das, Member, Extension of Education and Employability could not attend the meeting due to other engagement. He sent his views which included in Minutes. He suggested that to discuss the issue of quality in Higher Education and employability, issue papers should be written. Four groups may be constituted to prepare the issue papers relating to four broad areas.

Group I : Issue – Quality of Higher Education

Group II : Issue – Finance

Group III : Issue- Access and Equity

Group IV : Issue – Governance and Management

Each of the working groups will prepare an issue paper containing present status, the need assessment and strategic plans to meet the mandate of education reforms of the state. Each of the issue papers should also propose concrete steps over the next years in terms of objectives and targets, proposed reforms and investments. Each issue paper should set targets for the next 10 years. The targets should be quantifiable and achievable within a stipulated time and budget. The interventions required action plans, road maps should be clearly put in place. Each group may consist of:

- Five to six members
- Vice-Chancellor as Chairman
- P.G. Council Chairman/Director, CDC as Convenor
- Two Principals of leading colleges
- One Professor of Professional College/Industry Nominee.
- One from the Administration.

The time line for the preparation of the issue papers:

- One month from the date of assignment – specific date (Drafts)
- This Committee will provide its comment after review and analysis - one month after submission of issue papers.
- The draft issue papers, after being reviewed along with comments will be returned.
- Final issue papers are to be submitted within 2 at half months to 3 months.

- Finally the Committee will have a discussion through Delphi method and a draft will be prepared (policy options). After the deliberation the Final Report may be prepared.

For accomplishment of this task minimum 6-8 months time may be stipulated.

In the interim – An International/National seminar may be organized to share international and national experience, if possible.

Promotion of Quality in Education can be achieved through a focus on performance, Curriculum Reforms, Better Human Resource Management, Schemes to promote High Class Research and technology assisted, monitoring mechanism. (XI & XII Plan).

Two meetings may kindly be convened by the Hon'ble Chairman to spell out the rationale of preparing the issue papers and the TOR of the document preparation. The Vice-Chancellor, The Chairman, P.G. Councils, the Director, CDC, The Principals of some autonomous colleges & lead colleges, few Professors of the Universities and Professional institutions may be invited to the meeting.

One more meeting of the officials in Education Department directly dealing with Higher Education may be organized to discuss the modalities and support.

He proposed that after taking decision in principle for constitution of groups to write issue papers, ToR of the Groups may be discussed which he has already prepared.

Unfortunately on 1<sup>st</sup> August, 2016 I will not be able to come to Raipur to attend the first meeting, because on that day I have a board meeting and AGM, where I am the Chairman. I have requested for a video conference and will be happy to dial-in from Kolkata, if I am given the number.

Shri Sandipan Chakrabarti, Member, SWG, Skill, Micro, Small and Medium Industry Development also could not attend the meeting but in his sent views he pointed out that Skill training and MSMEs are the back bone of any state or country and the stronger it is, the more prosperous the country becomes.

He suggested that to improve employment and employability, great stress has to be put on skill training. First looked into all the ITIs in the State,

how many of them have collaboration with industries (There is a system through CII, industries adopting certain ITIs), funding of ITIs, locations of new ITIs, rationalization / addition of new disciplines, provision of labs and tools in ITIs, getting trainers from industry and other trained trainers.

He further explained, of equal importance are the training institutes and facilities put up and used by large organizations in the State of Chhattisgarh like the steel industry, aluminium industry, power industry, railways, cement, etc. Each of them have to be connected and try to extend their training facilities to others also for achieving win-win results. Other private institutes and confederations like CII, etc. must also be approached to set up training institutes. Philanthropic institutes like Ramakrishnan Mission, etc., also have training centres for skill development and must be brought in the network.

It is extremely pertinent to map the skill development needs of the state, district-wise. It is, however, very important to check with every District Magistrate of Chhattisgarh the skill need mapping they have done in their districts, how they are utilising the funds and how that can be improved and coordinated. New Raipur is coming up as a Model Smart City. I propose that we have a skill training centre in New Raipur of international levels of excellence, providing best quality training (short term and long term courses) on residential basis as well as non residential basis.

The first task is to prepare a directory of all the MSMEs in the different Districts and States. Next, identification of clusters and segment them into appropriate groups. Next it is to be ascertained whether the MSMEs are running on standalone basis or they are subsidiary of large organizations. The approach will be different in both cases.

Next step would be to find out the gaps, viz., what the customer wants (and are compelled to source from outside Chhattisgarh) vis-à-vis what the MSMEs in Chhattisgarh can provide. We then will be able to identify what new MSMEs have to be supported and set up that cluster.

STANDALONE MSMEs are of equal concern because they are set up to utilize the resources of Chhattisgarh, e.g. bamboo, herbal products, artisan work, work related to agriculture, forest products, animal husbandry, power generated from non conventional sources, etc.,

Training of people operating MSMEs are of utmost importance and help of CII, National Productivity Council, etc. can be taken.

It was decided that each subgroup will separately meet to prepare a vision document for the sector belonging to the subgroup. The agencies concerned with the group may prepare a base paper giving the status of the sector in the state. The subgroup will also invite concerned agencies to have the ground level assessment of the situation.

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## Names of Members who Participated in Combined Working Group Meeting of Industrial Task Force

1. Dr. Damodar Acharya, Member (Non Government), State Planning Commission Chhattisgarh and chairman Task Force on Industry, Skill Development, Higher and Technical Education and Employment
2. Shri. D. P. Mishra Member, SWG, Mineral Chemical and Heavy Industry
3. Dr. Chinmay kumar Maity, Member, SWG, Electronic Manufacturing
4. Dr. Nagrajan Venkataraman, Member, SWG, Extension of Education and Employability
5. Shri. Panchanan Das, Member, SWG, Skill, Micro, Small and Medium Industry Department
6. Shree Lokesh Kavadia, Member, SWG, Skill, Micro, Small and Medium Industry Department and Urban and Infrastructure.
7. Padma Shree Dr. Deepak Pathak, Member, SWG, Information Technology and software industry
8. Shri. A. M. Parial, Member SWG, Information Technology and software industry
9. Shri. Manish Gupta, Member, SWG, Urban and Infrastructure
10. Shri. Tara Prasad Dhal, Member, SWG, Urban and Infrastructure
11. Shri. Dilip Shikadar, Member, SWG, Urban and Infrastructure
12. Shri. Sanjog Bavane, Member, SWG, Urban and Infrastructure
13. Dr. M. I. Loya Special Invitee, Industrial Task Force SWG on Skill and MSME Development
14. Shri. A. N. Sahay, Special Invitee, SWG, Mineral Chemical and Heavy Industry.
15. Shri. D. S. Misra, Special Invitee, Task Force on Industry, Skill Development, Higher and Technical Education and Employment
16. Dr. D. K. Marothiya, Member (Non Government), State Planning Commission Chhattisgarh and chairman Task Force, Agriculture, Environment, Forestry and Allied Sector

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# State Planning Commission Chhattisgarh

Group Meeting of Standing Working Group-VII

*Urban and Infrastructure*

December 14<sup>th</sup>, 2016

Venue: Yojana Bhavan, North Block, Capital Complex, Sector- 19, Naya Raipur

## AGENDA

|             |  |
|-------------|--|
| 10:30-10:40 | <b>Welcome Address</b><br><i>Mr. Amitabha Panda, Member Secretary, SPC Chhattisgarh</i>  |
| 10:40-10:50 | <b>Opening Remarks</b><br><i>Mr P P Soti, Member, SPC Chhattisgarh</i>   |
| 10:50-11:10 | <b>Brief and Background</b><br><i>Mr. Manish Gupta, Chairperson, BSBK Pvt Ltd &amp; SWG-Urban and Infrastructure.</i>  |
| 11:10-11:30 | <b>Discussion with Health department on super specialty hospital for satellite AIIMS under PMGSSY scheme GOI</b><br><i>Mr R Prasanna, Director Health &amp; Family Welfare</i>   |
| 11:30-11:45 | <b>Energy Conservation Policy in Building and Infrastructure</b><br><i>Mr Shailendra Shukla, CEO CREDA</i>   |
| 11:45-12:00 | <b>Strategy to develop urban infrastructure in the state.</b><br><i>Mr. Abhinav Agrawal, Addl CEO, State Urban Development Agency (SUDA)</i>   |
| 12:00-12:30 | <b>Problem &amp; prospects of improving civil amenities in Urban local bodies.</b><br><i>Mr. Rajat Bansal, Commissioner Raipur Municipal Corporation</i>   |
| 12:30-12:45 | <b>Roadmap to Housing for all</b><br><i>Mr H K Verma, Nodal Officer, Chhattisgarh Housing Board</i>  |
| 12:45-01:00 | <b>Roadmap for increasing connectivity in the state.</b><br><i>Mr. D K Pradhan, Engineer-in-chief, Public works Departments</i>  |
| 01:00-02:00 | <b>Open Discussion of all task force members with officials from departments</b>   |
| 02:00-02:30 | <b>Lunch</b>   |
| 02:30-04:00 | <b>Inputs from SWG members-</b><br><i>Mr Manish Gupta, Chairperson, BSBK Pvt Ltd. Bhilai</i><br><i>Mr. C S Pilliwar, Civil Engineer Consultant, Ex Professor, Government Engineering College, Raipur</i><br><i>Mr. Tara Prasad Dhal, Vastukar, Energy Efficient Building, Bhubaneswar, Odisha</i><br><i>Mr. Dilip Vishnupant Shikdar, Urban Planner, Thane, Maharashtra</i><br><i>Mr. Sanjog Bawane, Counselor, Raipur</i><br><i>Mr. Lokesh Kawadia, Expert Entrepreneurship and skill Development Raipur, Chhattisgarh</i><br><i>Mr. Manish Pilliwar, Special Invitee, Urban Planner &amp; Head of Consultancy Firm Pilliwar Associates</i> |
| 04:00-04:30 | <b>Open Discussion &amp; Concluding Remarks</b>  |



SWG VII "Urban & Infrastructure-State Planning Commission

Meeting 14.12.2016

(Proceedings)

Yojna Bhawan, Capitol Complex

Naya Raipur

Welcome address was given by the Member Secretary. He reflected that the State is still lacking in urbanization and emphasized the need for creating infrastructure which will also speed up urbanization.

Member, SPC in his opening remarks praised the government machinery for putting in efforts towards the growth in the state. Citing the example of Bhubaneswar, the No.1 Smart City, he informed that Naya Raipur is also being developed on similar lines. He mentioned about the formation of 3<sup>rd</sup> State Finance Commission in the state. He opined that it is important that delegation of powers should be actually devolved to the bottom level agencies. The capacity of PRIs and ULBs is also a challenging issue. Therefore, while devolving the power, the capacities should not be overlooked.

Shri Manish Gupta (Chair) emphasized that infrastructure is the foundation for any industrial development in the state and the main objective of this SWG is to understand and review the present status as well as prevalent practices, departmental inputs etc. with a focus on urban settlements, rehabilitation, employment opportunities etc. He said that building of good quality infrastructure is integral to the development of a strong economy in the state and it is a challenging task as well as a big opportunity. He then introduced the SWG members He then introduced the SWG members Mr. Tara Prasad Dhal, Mr. Sanjog Bawane, Mr. Manish Pilliwar, and Mr. Lokesh Kawadia with a brief on their area of expertise.

List of Participants at Annexure A

The presentations then followed and the major points of each presentation are as follows:

Discussion by Mr. R Sharma, Deputy Director, Health:

State has not yet gone ahead in 'Telemedicine for Super Specialty Hospitals'. Whether the state should concentrate more on primary health care or in super specialty area is a point of concern. (Mr. Soti intervened and informed that HCM has already agreed for Satellite AIIMS and so there should not be any confusion). Shri Manish Gupta (Chair) pointed out that the telemedicine project in Bihar is working very well and Chhattisgarh also can consider adopting this project. He has offered his assistance to the Health Department in this regard.

I. Presentation by Mr. Tara Prasad Dhal:

He elaborated on the idea of a Satellite Hospital which is a Govt. of India initiative. The satellite hospital is expected to take care of the super specialty part. The probable budget would be Rs.200 crore per unit with project execution by State and operations & maintenance costs to be borne by the AIIMS/(MOHFW).

Four strategic locations have been proposed under PMSSY for North, South, East and West regions of the State.

He then elaborated on the infra, HR and equipment norms for a satellite hospital such as condition of having 8 Departments; minimum 40 beds in each Dept.; land area – more than 10 acres; and, additional non-clinical facilities. Satellite hospitals can be developed under PMSSY with Centre, State shares. Under State's share,

land, approach infrastructure like boundary wall, water supply, sewerage, power connectivity etc. can be developed by State Government whereas hospital infrastructure can be developed with central assistance.

Chair advised that the SWG members should give recommendation to the State Govt. which will facilitate setting up of satellite hospitals. Mr. Dhal suggested that a proposal can be made in consultation with the Health Dept. and be sent to GOI. Mr. Soti reflected that there are two schemes viz. (i). Satellites managed by the State, (ii). Satellite managed by AIIMS. He also enquired of any possibility of introducing this concept in an existing Private Hospital in the State.

Mr. Dhal gave example of Rural Training Centres / Mini Medical Colleges as per MCI guidelines. Mr. Sharma from department of health reflected that the State do not have such training centres; however, the PHCs are attached to Medical Colleges. He also mentioned the need of a sickle cell institute attached with one 100 bedded hospital at Naya Raipur, which can be developed under PMSSY.

Mr. Dhal gave example of Rural Training Centres / Mini Medical Colleges as per MCI guidelines. Mr. Sharma from department of health reflected that the State do not have such training centres; however, the PHCs are attached to Medical Colleges.

The Chair then invited the other participating departments to give their respective presentations.

#### II. Presentation by Mr. Shailendra Shukla, CEO, CREDA:

CREDA has already prepared ECBC and soon it will be approved by State Govt., where it has been divided C.G. into 3 zones based on the 3 climatic zones.

Energy Efficient Buildings- Quoted 10 of such buildings in the State such as Abkari Bhawan, Chips Building, Sainik School of Ambikapur, Airport building etc. Their per square feet energy consumption is one-fourth of that consumed by a normal building

Energy Efficient Projects- E.g. of Central Jail was mentioned, where the average electricity bill of Rs. 5 lakh has been reduced to Rs.40,000 per month due to use of energy efficiency techniques such as LED lights, 5 star rated ACs, use of insulated walls/ roofs etc. CREDA helps in the designing part for eg. the energy park of C.G. On a query of the Chair, Mr. Shailendra shared that a water heating structure is now compulsory in residential buildings of housing board. Chair suggested that there should be incentives to people going for the 'green building'. SWG members advised for introduction solar energy based traffic signals as in Andhra Pradesh. Chair suggested him to develop some mandatory parameters to follow. The prepared draft can then be shared with the SWG members.

Mr. Dhal pointed out that the State is having 2nd highest solar radiation compared to national average, on which Member, SPC enquired about possibilities of exporting State's solar energy to other states.

On the query of steps being taken for rural electrification and about development of skills due to electricity including the backward linkages, Mr. Shailendra shared that there are cluster level technician @ 1 technician per cluster for local maintenance; Surya Mitra programme.

Mr Soti, Member, SPC and Mr Dhal suggested all Govt. buildings should be made energy efficient. All state level executing agencies should consult CREDA in this regard. during planning stage itself.

III. Presentation by Mr. Abhinav Agarwal, Addl. CEO, SUDA:

"Strategy to develop Urban Infrastructure in Chhattisgarh"

He discussed in details on the following components- Water Supply Network, Sewerage Facilities, Storm Water Drains, Roads, Sanitation Facilities, Solid Waste Management, Housing for the poor and Transport Network. Major points are summarized below:-

Water Supply:

Presently average per capita supply is 80.78 LPCD (liters per capita per day), ULBs having 3.06 Hrs of continuity of water supply, 1, 93, 532 household do not have tap connection in their premises, and nNo ULB has grey water recycling and reuse system.

Strategy:

9 corporations will be provided with 24/7 treated water supply with prescribed standard of 135 LPCD under AMRUT mission with outlay of Rs.2000 crores.

Remaining 159 towns will be elevated to 24/7 water supply through surface water resources, as per the availability of water and funds.

Waste water reuse will be given thrust for water supply to industries.

For remaining 159 towns, a mix strategy of household tap connections combined with community stand post will be adopted as per availability of water supply and demand.

Sewerage/Septage Facilities:

Sewerage Facility:

Presently Sewerage facilities are available in modern newly developed colonies in CG and newly developed city of Naya Raipur. Other than this there is non-functional sewer network in Raipur and under construction sewer network in Bilaspur. The major challenges with sewer network are for developing the same the whole town needs to be dug up, causing immense resentment among city dwellers and also requires huge investment.

Septage Management:

Offers economic solution and is practical. Every Indian Household has septic tank. At regular intervals septic sludge can be cleaned and treated in STP. Treated Grey water from STP can be supplied to industries. No need to develop costly sewer network by digging whole town.

STP's can also be built across major storm water drains.

In new Greenfield cities sewer network can be built as it is easy and more convenient, whereas in already settled towns esp. densely populated ones, septage management is more practical solution.

Strategy: In Chhattisgarh, Naya Raipur, Bilaspur and Raipur (partly) will be having sewer facility. All remaining towns will have septage management facility.

#### Storm Water Drains:

These are roadside open/covered drains meant to flow rain water and prevent the cities from flooding.

In India due to lack of sewer network, waste water drainage is non-existent, leading to storm water drain also carrying untreated sewage. Also due to lack of proper solid waste management system, storm water drains also carry garbage. Due to both these problems storm water drains often get choked and water in the drainage is very dirty and polluted.

#### Strategy:

Provide proper Solid Waste Management system to the cities so that garbage is not thrown in storm water drains. CG – Mission Clean City, Ambikapur SLRM Model.

Provide Adequate Septage Management facilities to city dwellers preferably through private participation so that untreated sewage is not discharged in drains – Septage management under AMRUT in 9 towns to be expanded to all towns of the state.

Build STP's across all major storm water drains so that grey water can be treated and reused and dirty polluted water is not discharged in lakes, rivers, oceans. CG has hired private agency to identify and prepare projects to install STP across all major drains in all cities of the state.

Chair suggested that alternate solution of creating small colony-wise cluster seweragebioidigester treatment plants which causes much lesser damage to existing infrastructure and avoid digging can be a solution for old cities with no existing centralised sewerage system. The treated water can also be used for street cleaning and for watering the common public gardens in the area.

The Chair also opined that the Solid Waste Management on PPP basis should be limited to collection, disposal and utilisation of waste and responsibility of user fee collection should be that of the Municipal Bodies.

It was also suggested that the PPP projects floated for such works, in order to be successful on a long term, should be bankable and terms and conditions should be vetted by a Banker active in this area of financing.

#### Roads:

Road network in urban areas of the state is primarily built by PWD, CSRDC and ULB's. Adequate funds are provided to all three agencies and all three agencies are regularly engaged in building/expanding/improving road network in urban areas.

As per the requirement and demand in the ULB, Infrastructure funds are given to the ULB's to to construct roads. Currently in the Urban Department there is no focused scheme to develop/improve Road network. Funds are given by state govt. on case by case basis based on requirement and demands from ULB's.

Chair suggested that pavements need to be developed and there is also need of some CC roads in urban areas.

Sanitation:

Main Components of Sanitation are provision of Individual toilets, Community/Public Toilets, Road Cleaning, Drain Cleaning, SWM and ODF status

A gap of 3 lakh IHHT was identified at the launch of SBM. Already 1.8 lakh IHHT toilets have been constructed and remaining 1.2 lakh IHHT toilets will be constructed by March 2017. Accordingly all urban household will have toilet facility by March.

In Urban Chhattisgarh adequate SafaiKaramcharis are provided in each city through placement agencies for Road Sweeping and Drain Cleaning.

Member, SPC suggested to have Community Toilets in Parks and Gardens; and, Public toilet facility for traffic personnel especially ladies.

The Chair also suggested that these Toilets in Urban Areas can be developed on PPP basis by giving away Advertisement Right on the toilet walls for a period of 5 years.

Solid Waste Management:

SWM included D2D waste collection, transportation, segregation/processing, recycling/reuse, composting

Raipur SWM – Waste to Energy, Bilaspur SWM – Waste to RDF

Ambikapur Model is National Best Practice for SWM

Remaining 166 ULB – Ambikapur Model based Mission Clean City

Under Mission clean city all HH will cover by Door to Door collection, segregation at SLRM center, composting, bio mechanization etc.

Housing for the poor:

60,331 EWS/LIG DU units built by various Govt. agencies under JnNURM and other scheme in the past five years.

Existing gap of approx. 4,00,000 EWS/LIG Dus

Pradhan MantriAwasYojana: The mission seeks to address the housing requirement of urban poor including slum dwellers through following programme verticals:

Slum rehabilitation of Slum Dwellers with participation of private developers using land as a resource

Promotion of Affordable Housing for weaker section through credit linked subsidy

Affordable Housing in Partnership with Public & Private sectors

Subsidy for beneficiary-led individual house construction

Strategy:

- Introduction of new technology as a tool for rapid construction of EWS/LIG Housing, Involve Private sector to Upgrade Slums, Patta distribution to slums and linking BLC component with new Patta distribution.

Chair suggested that in order to make these PPP slumrehabilitationcontracts financially viable and attractive for developers, adequate handholding and protections should be provided in the Contract.

Also it was suggested to standardise the design of such affordable housing projectsto be cost efficient using rapid construction technologies.

Shri Dhal, SWG member queried that why PWD has not yet constructed a single energy efficient building. Mr.Soti shared that response of PWD to maintenance services is very poor. The speed breakers are inappropriate. He also enquired whether the "Structural Audit" is being done for the age old infrastructures.

SWG Member, Mr Dhal suggested to make necessary revisions in PWD SOR compatible to design and build energy efficient buildings. Capacity building for PWD field staff should take place for making GREEN buildings.

Shri SanjogBawane, Member, SWG suggested that there is a need for improvement of industrial infrastructure through strengthening of infrastructure in backward linkages of priority industries of Chhattisgarh. He has proposed that development of irrigation infrastructure (through community participation) on pilot basis to facilitate/attract food processing industry should be considered.

Shri Bawane also emphasized the need for improvement of social infrastructure, particularly education around the impact/catchment area of industrial nodes through PPP/Management Partner model.

Inputs from SWG members (summarized):

Following areas were consented upon by the members for working papers/suggestions to be given to State Planning Commission

SWG chairperson will decide the task allocation with respect to each subject; the list could be further modified as per convenience of the group.

| Particulars / Inputs  | Action to be taken by  | Tentative Date |
|---|--|----------------|
| Zonal and local area mapping  | Shri Manish Pilliwar & Raipur Nagar Nigam                          | 20.02.2017     |
| Asset Mapping   | Shri Manish Pilliwar & Raipur Nagar Nigam                          | 20.02.2017     |
| GIS Based Property Tax  | Shri Manish Pilliwar & Raipur Nagar Nigam                          | 20.02.2017     |
| Profiling of Roads  | Shri Manish Pilliwar, Raipur Nagar Nigam, PWD                      | 20.02.2017     |
| Telemedicine Project  | Shri Manish Gupta  | 20.02.2017     |
| Slum re-development model (PPP based)   | Shri SanjogBawane & Raipur Nagar Nigam                             | 06.03.2017     |
| Community Based Irrigation System in Backward Linkages  | Shri SanjogBawane, Irrigation Department & Agricultural Department | 27.02.2017     |
| Improvement of Education Facility in Backward Linkages through PPP based management operation model | Shri SanjogBawane & Education Department                           | 27.02.2017     |
| State Unit/Department for approval of fast track approval of PPP Projects                           | Shri SanjogBawane & State Planning Commission.                     | 06.03.2017     |
| Satellite Hospitals, Sickle Cell Institute, Rural Health Training Centres                           | Shri Tara Prasad Dhal & Dept. of H & FW                            | 15.03.2017     |
| Water Recharging System   | Shri Manish Pilliwar   | 20.02.2017     |
| Utility Mapping/Foot over bridge  | Shri Manish Pilliwar, Raipur Nagar Nigam                           | 20.02.2017     |
| Bio Remediation   | Shri Manish Pilliwar   | 20.02.2017     |
| Energy efficient buildings, Chhattisgarh Energy Conservation Building Code                          | Shri Tara Prasad Dhal, CREDA, CGPWD, CGHB                          | 15.03.2017     |
| Smart City  | Shri Manish Pilliwar & Other members of SWG                        | 06.03.2017     |

List of Participants

| S.No.                                 | Name                                 | Designation  |
|---------------------------------------|--------------------------------------|--|
| <b>STANDING WORKING GROUP MEMBERS</b> |                                      |  |
| 1.                                    | Mr.Manish Gupta (Chairman, SWG)      | Chairperson, BSBK Group                                      |
| 2.                                    | Mr.Tara Prasad Dhal (Member)         | Energy Efficient Building, Bhubaneswar, Odisha               |
| 3.                                    | Mr.Sanjog Bawane (Member)            | Consultant, Infrastructure & PPP                             |
| 4.                                    | Mr.Lokesh Kawadia (Member)           | Expert Entrepreneurship & Skill Development, Raipur          |
| 5.                                    | Mr.Manish Pilliwar (Special Invitee) | Urban Planner & Head of Consultancy Firm Pilliwar Associates |
| 6.                                    | Mr.JP Bajpayee (Special Invitee)     | Former Joint Director  |
| <b>Govt. of Chhattisgarh</b>          |                                      |  |
| 1.                                    | Mr.Shailendra Shukla                 | CEO CREDA  |
| 2.                                    | Mr.Abhinav Agrawal                   | Addl.CEO, State Urban Development Agency (SUDA)              |
| 3.                                    | Mr.Rajat Bansal                      | Commissioner, Raipur Nagar Nigam                             |
| 4.                                    | Mr.HK Verma, Nodal Officer           | Chhattisgarh Housing Board                                   |
| 5.                                    | Mr.Rajesh Sharma                     | Dy.Director, Healty & Family Welfare                         |
| 6.                                    | Chief Engineer                       | Public Works Department                                      |
| <b>State Planning Commission</b>      |                                      |  |
| 1.                                    | Mr.Amitabh Panda                     | Member Secretary   |
| 2.                                    | Mr. PP Soti                          | Member   |
| 3.                                    | Mrs.NimishaJha                       | Deputy Secretary   |
| 4.                                    | Mr.JS Virdi                          | Joint Director   |
| 5.                                    | Mr.RR Sharma                         | Consultant   |

*MP*

# State Planning Commission Chhattisgarh

Group Meeting of Standing Working Group-IV  
Skill, Micro, Small and Medium Industry Department  
15-16 December, 2016

Venue: Yojana Bhavan, North Block, Capital Complex, Sector- 19, Naya Raipur

## AGENDA

|                   |  |
|-------------------|--|
| 15 December, 2016 | Field Visit to Bhilai /Raipur  |
| 16 December, 2016 |  |
| 11:00-11:10-      | Welcome Address<br><i>Mr. Amitabha Panda, Member Secretary, SPC Chhattisgarh</i>   |
| 11:10-11:20       | Open Discussion<br><i>Shri. P.P. Soti, Member, SPC Chhattisgarh</i>  |
| 11:20-11:30       | Brief and Background<br><i>Dr. Damodar Acharya, Member (Non-government) SPC Chhattisgarh, Chairperson, Task Force Industry, Skill development, Technical and Higher Education</i>  |
| 11:30-11:50       | Schemes of Govt. of India to promote Micro, Small and Medium Enterprises- MSME<br><i>Shri. Rajeev. S. Director MSME Development Institute Raipur Govt. of India</i>  |
| 11:50-12:10       | Prospects and Problems of Village Industry in Chhattisgarh<br><i>Director khadhi and village industries</i>  |
| 12:10-12:40       | Stratagy, Achievement and Roadmap of Skill Development in Chhattisgarh<br><i>K. C. Devasenapathi, CEO, Chhattisgarh State Skill Development Authority</i>  |
| 12:40-01:00       | Scope of Micro, Small and Midium Industries in Chhattisgarh<br><i>Director, Industry</i>   |
| 01:00-01:30       | Achievement and Schemes for development of Micro and Small Industries<br><i>MD, CSIDC Chhattisgarh</i>   |
| 01:30-02:00       | Lunch  |
| 02:00-04:00       | Inputs from SWG-I Members<br><ul style="list-style-type: none"><li>- <i>Shri. Ramesh Nair, CEO, Bharat Aluminum Company Ltd. Korba, Chhattisgarh</i></li><li>- <i>Shri. M. Ravi, CEO, Bhilai Steel Plant, Bhilai, Chhattishgarh</i></li><li>- <i>Shri. Panchanan Das, Deputy Director General, Computer Centre Statistics and Programme Implementation mantralay, New Delhi</i></li><li>- <i>Dr. Vandana Varvankar, Career Counsellor, Raipur</i></li><li>- <i>Shri. Lokesh Kawadia, Expert Entrepreneurship and Skill Development, Raipur, Chhattisgarh</i></li><li>- <i>Shri. I. M. Loya, Business Consultant, Proff. rand Researchers, Raipur</i></li></ul> |
| 04.00-04-30       | Open Discussion  |
| 04.30-05.00       | Concluding Remarks<br><i>Shri. Sandipan Chakraborti, Presedent SWG, Skill, Micro, Small and Medium Industry Department</i>   |



SWG-IV Small, Micro, and Medium Industries-State Planning Commission

Meeting 15-16.12.2016

Proceedings

Yoja Bhawan, Capitol Complex

Naya Raipur

The subcommittee on Skill, Micro Small and Medium Enterprise met on 16.12.2016 in the State Planning Commission's Office. The list of participants is placed at annexure A. At the outset Mr. PP Soti (Member State Planning Commission) welcomed the chairman and all members to the meeting. He briefed about the rationale behind constitution of the subcommittee and requested all members to contribute for success of the mission.

Mr. Damodar Acharya chairperson of the industrial task force apprised the group on the mission and vision of each sub group and suggested that each group to develop unique ideas for industrial development of the state. Through these meetings, essentially may be in form of policy intervention or working papers, the planning commission to peruse with the concerned line departments for implementing the recommendations.

He apprised the members of the TOR of the task force and this SWG on MSME some of the broad areas being

- Potential of Micro Small, Medium Enterprises
- Skill set requirements of this sector
- Strategy to be adopted to help this sector achieve full potentiality
- Identification of MSME clusters

Mr. Sandeepan Chakrabarty, chairperson of this Standing Working group asserted the subject being a vast one a deep understanding of the segment is required. He emphasized on the need for an up to date directory of MSME. In present situation most of MSME are unregistered because they don't know benefits of registration. The gap could be analyzed after getting the up to date directory. In addition a skill set analysis is required in the sector as done by CII for the sector. The same is done by Skill development department by Govt of Chhattisgarh as apprised by the department.

Mr. Rajeev S-Director MSME Development Institute-Raipur gave a brief of the schemes of Ministry of MSME, Government of India.

The Micro Small and Medium Enterprise Development Institute made a presentation on various schemes lunched by the Ministry of MSME. They touched upon mainly

1. Prime Minister Employment Generation Programme (PMEGP)
2. Enterprise and Skill Development
3. National Manufacturing Competitiveness Programme (NMCP)
4. Credit Guarantee Fund Scheme assists MSEs (CGTMSE)

5. Credit Linked Capital Subsidy Schemes (CLCSS)
6. Micro and Small Enterprise Cluster Development programmes (MSE-CDP)
7. Scheme of Fund for Regeneration of Traditional Industries (SFURTI)
8. TREAD Scheme
9. Marketing Assistance
10. Aspire
11. TCSP- A World Bank Project
12. Assistance to Training Institution
13. International Cooperation
14. Performance & Credit Rating Scheme
15. Surveys, Studies & Policy Research
16. Coir Udyami Yojana (CUY)
17. Coir Vikas Yojana (CVY)
18. Mahila Coir Yojana (MCY)

NMIUS i.e National Productive Council and Quality Council of India (QCI) are responsible for Monitoring and Implementation for the up-scaled Scheme.

Things like design clinic scheme for MSME and technology up gradation mechanism are also in place for the sector assist Incubation of Innovative Ideas a new strategy to encourage Ideas to become SMEs the incentives in the package being

- Maximum of Rs.66.50 lakh for starting Business Incubators.
- Govt. Grant (Max. 85%) = @ Rs. 6.25 lakh per enterprise
- Each BI to Assist 10 Ideas / Units
- Tie Up 'Successes' with VC / Angel Funds
- Implementing Agency: IIT/NIT/Research Institutions, / Engineering colleges/TDC/Tool Room

He also stated the poor performance about scheme (MATU). Credit Guarantee Fund Scheme assists MSEs (CGTMSE), Credit Linked Capital Subsidy Schemes (CLCSS), and Scheme of Fund for Regeneration of Traditional Industries (SFURTI), Aspire and all other schemes. He also described about Udyog Adhar and MSME data bank.

Mr. Chakraborty said there were many programs, and ways to make program more effective needs to be institutionalized. In present situation only numbers are there, we should focus on quality also. And subsequent follow up must be there. System must be accessible, accessible point may be college, or panchayat or mohalla or may be person centric approach should be adopted. (Example of Pune and Uttarakhand's and Calcutta Industrial Parks, TCS is there.)

Mr Rajesh S also apprised the group of cluster development program and cluster identification already done in 13 areas and Helps cells as accessible points to train people and be the nodal point for any such needs.

Prof Damodar Acharya explained the role of the tool room at Bhubaneswar in skilling the youth.

Alok Katiyar ,MD KVIB spoke about the subsidy linked programs and emphasized on hassle free environment for subsidy disbursement.

Problems – lot of paper work for needy and semi literate people, so simplification is required. There is variety of schemes and no dearth of funds, more important is to deliver on time. Like PMEGP e tracing is there but time bound system should be there, He also raised issues like no standard form, no standard evaluation process, no definite parameter for approval in banks of loan and large number of pendency. Lack of accountability is there so only solution of these is to sensitize bank staff.

The group agreed on a standard evaluation format for selection of entrepreneurs under different schemes.

The group after the deliberations observed that no specific information was available as to how many entrepreneurs have availed the benefit under different schemes of ministry of MSME except PMEGP. In absence of such information, the usefulness of the scheme to the State could not be appreciated. It was suggested that effort may be made to evaluate the success of the schemes and the benefit derived by the local entrepreneurs from such schemes.

C. Regarding the skill Training a presentation was made and the state initiatives were discussed. The committee observed that a skill mapping is required to train the youth in the areas of demand.

D. Sri Panchanan Dash said Motivation is very important for any youth to take up entrepreneurship as a career option. So a well-designed motivational video need to be prepared and the same be telecast through DoorDarshan as the channel has widest rural coverage. The present system of motivational campaign does not yield any result. He further emphasized on promoting new enterprises in cluster mode to make them competitive globally

Mr. Kartikeya Goel, Director Industries made a presentation on Scope for Promotion and Development of MSME in the state, achievement in various Schemes for Development of MICRO SMALL & MEDIUM Enterprises in Chhattisgarh.

He indicated that though the contribution of the states to All-India Indicators of growth is very low, still enormous opportunities exist for MSMEs to grow in the state and increase Chhattisgarh's contribution to the economic development of country as a whole.

He highlighted the key achievements of the sector as under.

- Successful launch of dedicated Udhmi helpline (1800 180 6763) to assist MSMEs
- 18 workshops in 23 districts organized where 15000 youths participated and registered more than 3700 start-up ideas in 'Start-up Chhattisgarh' Initiative.
- 20 College level boot camps have been conducted in colleges of Raipur and Durg for generating ideas among students and promoting entrepreneurship

He further touched upon the schemes of Start Up India, Udhm Akansha, Industrial Infrastructure and Product clusters in state, He also briefed about Champa a natural kosa clusters which is developed naturally without govt help. No big venture in IT is coming in state because they have no future expansion plan. He briefed about Udyam Akansha, Udyam helpline number, GIS (23 layered mapping system) system for development, achievements of state in MUDRA scheme. He also informed of the ASPIRE program and the initiative by Government of Chhattisgarh (GoCG) to create a ecosystem for promoting Electronics Manufacturing in the State under DeITY, Government of India (Gol) at an area of-28.32 Ha in Sector 22 in Naya Raipur the Cost of project – Rs. 105 Cr.

Also automated call logging facility by the directorate is in place for any resource mechanism.

His presentation further underlined the following aspects.

Chhattisgarh ranks 15th in number of MSME } Chhattisgarh ranks 19th in number of Employment } Chhattisgarh ranks 30th in ratio of gross output & total input } Chhattisgarh ranks 22nd in Exports } Chhattisgarh ranks 19th in net worth

Huge opportunity to promote MSME units and extend support through various central and state schemes like credit, infrastructure, marketing, skill, quality, IPR etc. exist in the State.

Chhattisgarh production in percentage of All India: → 100% Tin → 15% Cement → 30% Sponge Iron → 30% Steel → 30% Aluminum → 21% of Coal Reserves } 12% of India's forest land is in Chhattisgarh } 80% Population is dependent on Agriculture } 27% of state revenue comes from Minerals State values its raw material production and is promoting investments in High end products. Thus creating a big void and scope for intermediary products which can be leveraged by MSMEs.

Prepare a list of items that can be manufactured from the mineral resources to facilitate the entrepreneurs to select the item and prepare project. Government may prepare some standard project reports.

Infrastructure: Industry specific infrastructure may be considered. This will facilitate development of induced cluster. Infrastructure with plug and play system may also be considered so that youth with innovative idea may start the start up enterprises.

Cluster: Not much fund has been sourced under MSE CDP Programme and other cluster based programs of Govt. of India.

There are about six important policies of the state such as industrial policy, food processing policy etc. to promote the MSMEs. Road shows at strategic locations may be held to sensitize the entrepreneurs and attract investment.

Ease of Doing Business: The state has done very good work in this direction and the state ranks 4<sup>th</sup> at all India level in ease of doing business. The efforts of the state should also be highlighted in road shows to motivate the entrepreneurs to come to the state.

Suggestions of the sub group ( Sri P. Dash)

MSME Facilitation Cell: The State has developed a MSME Facilitation Cell which is a good initiative. The MSME Facilitation Cell may be set up in each district or for group of districts which is to be managed by professional agencies on out sourcing and payment to the agencies may be made on real output. With the existing government officials it can't be handled professionally.

ASPIRE : Under this scheme different agencies may be given targets for establishing Setting up of Livelihood Business Incubators (LBI) } in all districts in a phased manner. In next one year atleast two such centres may be set up. Setting up Technology Business Incubators (TBI) at twin levels, i.e. supporting existing incubation centres and also new incubation centres to be set up by eligible institutions } may be attempted in a few locations in a phased manner.

SFURTI. As the aim of this scheme is to make Traditional Industries more productive and competitive a few clusters may be programmed under this scheme for intervention. The State KVIB may prepare proposal and send it to KVIC central office at Mumbai to get fund. At least two clusters may be taken up for intervention in next one year.

PMEGP: PMEGP is a credit linked subsidy scheme of the Ministry, launched in Sep 2008, implemented through KVIC, DICs and State KVI Boards with KVIC as the Nodal Agency at the national level for setting up new self-employment ventures/projects/ micro enterprises to generate employment opportunities in rural as well as urban areas of the country. The progress of the scheme may be monitored from the beginning to utilize the

fund in time. The new units may be considered to be promoted in a cluster mode or in existing clusters to make the unit more competitive. State specific model projects may be provided by DICs to the entrepreneurs. The banks may be impressed during the SLBC meetings to timely disburse the loan and adjust the margin money to achieve the progress in time.

Under Stand up India programme, each bank branch is supposed to provide credit to one SC/ST and one entrepreneur for starting an enterprise. The progress may be reviewed in SLBC. This will facilitate credit to the weaker section.

Mr. K Goel, Director of Industries admitted that development of MSME is at a very nascent stage but work is geared up to find loopholes and to fix them

Mr. KC Devsenapati-CEO Skill Development Mission

Through his presentation apprised the group on the status of the skill sector in the state being

- 1,94,722 candidates given certified training as off now.
- Total 78 Sectors with 644 course and 2419 training providers
- 1,09,473 candidates of LWE districts given certified training .
- 1353 VTPs of state are connected with bio-metric attendance for online attendance.
- So far placement percentage is 31.06%
- Total no. of prisoners are undergoing training in different jails- 1960
- 845 candidates are taking training in the plastic MES course in CIPET Raipur.
- Under PVTGs (Primitive vulnerable Tribal Groups) total 2194 youth has been given training

The main issues and challenges however have been Quality of Training Quality of Trainer, Availability of Good Training Providers, Quality of Assessment, Placement linkages after training, Skill training coverage in rural areas etc.

The strategies discussed with the group were Bio-metric based attendance, Certified trainer will be taken from SSC/NSDC, Renewal /Extension of VTP's on the basis of performance and placement linkage, Assessment procedure will be based on PMKVY 2.0 guideline, Through EOI good knowledge partner will be selected for quality training, to establish a call centre for both employer and skill trained candidates on real time basis and grading of VTPs to be ensured.

Mr Damodar Acharya updated on the case of Rajnanadgaon and training provided by PARHI institute.

Mr. P.Dash suggested on the information or facilitation centre should be there in each district centre, in school syllabus the life history of successful entrepreneurs may be included to show the seeds of entrepreneurship in the mind of the children. A system may be developed for Industry and academia interaction.

Mr M Ravi CEO BSP-Member SWG

Spoke of the employment exchange pool of resources.

Mr IM Loya -Member SWG

Suggested that cluster-approach should be preferred rather than working on individual enterprise. For this focus areas should be identified. Some of the possible areas could be-

- 1) Within the existing business category Steel related SMEs have been an important part of Industries in CG. Urla steel visit experience reveals that these SMEs had a good business when pig iron and electricity was available at low cost. This is because they use electricity for the furnace and pig iron is their basic raw material. In order to solve the crises SMEs request for low price supply of pig iron and subsidized electricity. However the discussion with experts indicates that the real and sustainable solution is technology up gradation (use of billet iron rather than pig iron) and migration to value added products. This requires a change in mindset. Accordingly an awareness programme and motivation (financial and non-financial incentive) for technology up gradation and value added product seems to be a good approach.
- 2) Within the new business category, start-up is widely recognized to be an important area. It was learnt that various initiatives and effective measures are being undertaken by Government of Chhattisgarh, it should continue.
- 3) Within the new business category other possible areas could be
  - a) Agriculture & Forest produce (because CG has rich supply of these).
  - b) Development of Green Vehicles hub could be another possible area. Cluster for car manufacturing, auto manufacturing and heavy vehicle manufacturing are already developed at various parts of the country. Repeating the same might be a great challenge. Rather than this, it might be a good idea to identify an upcoming technology in the field and try to develop an eco-system for the same. In this context Green Vehicles and related clusters of business could be a good idea. This may lead to more than type of business clusters such as:
    - i) Battery operated vehicles (scooter, bike, rickshaw, micro-car, mini-bus, etc.).

- ii) Part manufacturers for these vehicles (a possible value added product for steel SMEs of the region)
- iii) A system of fuel station for such vehicles (battery banks)
- iv) Manufacturing of special batteries for such use (Deep discharge batteries, etc.)
- v) Solar chargers for these batteries.

Mr. Lokesh Kawadia- expressed the issue on marketing display centre in mall or Udyog bhawan for larger dissemination and knowledge sharing for this sector.

Mrs Varsha suggested- marketing support, actual beneficiaries are not getting help. Awareness should be started at a very early age

Wrap up by Mr Sandipan Chakravorty, where he stated that the state needs to have an updated directory for the cluster zones and several schemes are already in place from the central and state level to provide adequate fund support for this sector. However gaps remain in getting them filtered down to the last mile. More needs to be done than the existing toll free number mechanism and departments need to take a call on this. Centres of training with help groups established to rope in the people well conversant with training mechanism needs to be highlighted. Systematic procedures to be put in place from where people can access money from the banks.

Lots to be done to make create centres of excellence with ideas collated from the government and non government sector. An approach where ambassadors for this mission needs to be put in place to motivate people and help revive old skills and traditions.



Actionable areas for the group to dwell into the following areas in form of working papers/ reports:

| S.No | Topic   | Action to be taken by            |
|------|---|----------------------------------|
| 1    | Directory of clusters for the state                           | Mr. Sandipan Chakravorty         |
| 2    | Service Sector start ups                                      | Mr. Lokesh Kawadya               |
| 3    | Call log help mechanism an aid develop further and help cells | Mr. Panchanan Das                |
| 4    | Entrepreneurship development centres                          | Mr. I.M. Loya and Lokesh Kawadya |
| 5    | Business incubator centres                                    | Mr. I.M. Loya- Consultant        |
| 6    | Bank procedures-PMEGP   | Mrs. Varsha Verwamdkar           |
| 7    | Employee agency pools   | Mrs. Varsha Verwandkar           |
| 8    | Skill gap analysis on a real time basis                       | Mr. Panchanan Das                |
| 9    | E rickshaw-Green auto bio fuel                                | Mr. I.M Loya- Consultant         |

Participants  
Annexure A

| SNo                            | Name  | Designation   |
|--------------------------------|---|---|
| Standing working group Members |   |   |
| 1                              | Mr. Damodar Acharya   | Chairperson, Industry task force                              |
| 2                              | Mr. Sandepan Chakraborty  | Chairperson, SWG on SKILL, Micro, Small and medium industries |
| 3                              | Mr. M Ravi-CEO BSP  | Member- SWG   |
| 4                              | Mr Panchanan Das, ISS   | Member- SWG   |
| 5                              | Mr. I M Loya-Consultant   | Special Invitee   |
| 6                              | Dr. Varsha Varwandkar-Director FS Management India Pvt Ltd                | Member- SWG   |
| 7                              | Mr. Lokesh Kawadiya-Expert Entrepreneurship and skill Development, Raipur | Member- SWG   |
| Govt of Chhattisgarh officials |   |   |
| 1                              | Mr DevSenapati, IAS   | CEO Skill Development Mission                                 |
| 2                              | Mr. Kartikeya GOEL, IAS   | Director Industries   |

|                           |                       |  |
|---------------------------|-----------------------|--|
| 3                         | Mr. Alok Katiyar, IFS | Director-KVB                           |
| 4                         | Mr. Rajeev S          | Director MSME<br>Development Institute |
| State Planning Commission |                       |  |
| 1                         | Mr PP Soli            | Member                                 |
| 2                         | Mr A.k Panda,         | Member Secretary                       |
| 3                         | Mr JS Virdi           | Joint Director                         |
| 4                         | Ms Nimisha Jha        | Deputy Secretary                       |

State Planning Commission Chhattisgarh

Group Meeting of Standing Working Group-  
Extension of Education and Employability

SWG-3

17<sup>th</sup> February, 2017

Venue: Yojana Bhavan, North Block, Capitol Complex, Sector-19, Naya Raipur

AGENDA

| 17 February, 2017   |   |
|---|---|
| 10:30-10:40   | Welcome Address<br><i>Mr. Amitabha Panda, Member Secretary, SPC Chhattisgarh</i>  |
| 10:40-10:50   | Opening Remarks<br><i>Mr. P.P. Soti, Member, SPC Chhattisgarh</i>   |
| 10:50-11:00   | Brief and Background of the SWG<br><i>Mr. Damodar Acharya, Member (Non-government) SPC Chhattisgarh, Chairperson, Task Force Industry, Skill development, Technical, Higher Education</i> |
| 11:00-01:00<br>Government of Chhattisgarh officials<br><i>Current Status, Present Policies Achievements and Problem areas (if any) of School, Higher, Technical &amp; Medical Education</i> |   |
| 11:00-11:10   | Directorate of School Education Department<br><i>Current Status, Present Policies, Achievements and Problem areas (if any) of School Education in the State.</i>                          |
| 11:10-11:20   | Directorate of Higher Education Department<br><i>Current Status, Present Policies, Achievements and Problem areas (if any) of Higher Education in the State.</i>                          |
| 11:20-11:30   | Directorate of Technical Education Department<br><i>Current Status, Present Policies, Achievements and Problem areas (if any) of Technical Education in the State.</i>                    |
| 11:30-11:40   | Directorate of Medical Education Department<br><i>Current States, Present Policies, Achievement and Problem areas (if any) of Medical Education.</i>                                      |
| 11:40-12:30   | Open Discussion, Govt. of C.G. Officials -Task Force Members  |
| 12:30-12:45   | Brief and Strategy of SWGs under other Task Force<br><i>Nimisha Jha, Deputy Secretary, SPC</i>  |
| 12:45-12:55   | Presentation of Sustainable Development Goals in view of SWG<br><i>Mr. Rishi Raj Sharma and Mr. Nilesh Tiwari, Consultants, SPC</i>   |

|             |  |
|-------------|--|
| 12:55-02:00 | <p>Presentation by SWG Members</p> <ul style="list-style-type: none"> <li>- Mr. Raghunath Panda, (Former Principal, B. J. B. collage Bhubneshwar)<br/>(Improving Quality of Chhattisgarh Primary &amp; Secondary Education.)</li> <li>- Prof. Kshiti Bhusan das, (Ex. Chairperson, Post Graduate, Utkal University, Bhubaneswar.<br/>(Improving Quality of Chhattisgarh Higher and Collegiate education.)</li> <li>- Dr. Nagarajan Venkatraman, Prof. Govt. Dr. M.G. R. Medical University, Chennai,<br/>Tamilnadu<br/>(Strategy to strengthen Medical Education in the state of Chhattisgarh)</li> <li>- Prof. B.S.Sahay, Director, IIM Raipur, Chhattisgarh<br/>( Enhancing quality of Management Education in the State .)</li> <li>- Dr. Sudarshan Tiwari, Director NIT Raipur, Chhattisgarh and Dr. P. K. Sinha, Director, IIT<br/>Raipur, Chhattisgarh<br/>(Ways to enhance the quality of Technical education in the State )</li> </ul> |
| 02:00-02:30 | Lunch  |
| 02:30-03:00 | Open Discussion  |
| 03:00-03:30 | <p>Wrap up and Way Forward</p> <p><i>Dr. Damodar Acharya, Chairperson of Standing Working Group</i></p>  |
| 03:30-04:00 | <p>Probable areas of Report/Working Papers</p> <p><i>Nimisha Jha, Deputy secretary, State planning Commission, Chhattisgarh</i></p>  |
| 04:00       | <p>Vote of Thanks</p> <p><i>Dr. J. S. Virdi, Joint Director, State Planning Commission, Chhattisgarh</i></p>   |

**Industry Task Force**  
**SWG No.-3 'Extension of Education and Employability'**  
**Minutes of Meeting** **Date-17.02.2017**

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**1. Introduction**

The meeting of Standing Working Group on 'Extension of Education and Employability' was organized under the Chairpersonship of Dr. Damodar Acharya, Member (Non-government), Chhattisgarh State Planning Commission (CGSPC) on 17<sup>th</sup> February 2017 at Yojana Bhawan, CGSPC, Naya Raipur. Dr. Acharya briefed on the objective of the meeting which was followed by a round of introduction. The list of participants is annexed at 'A'.

In his welcome address Shri P.P. Soti, Member, CGSPC shared the highlights of youth development index as such indices have relevance to the issues of education and employability. He agreed that in the State of Chhattisgarh there is now high accessibility to the education but in the quality aspect of the education more efforts are still required. Though in the State at one hand there is continuous expansion of institutes like AIMS, IIT, IIM, IIIT, NIT etc. but on the other hand quality of human resources is an issue of concern. He also shared present partnership models of CGSPC which can be replicated in the State. He further added that to address the issues of quality, capacity building is required at all levels and participation of youth should increase.

Dr. Acharya briefed of the ongoing model of Task Forces and Standing Working Groups and how this strategy facilitates ideas and inputs from pan India. He added that during the course of meeting the focus would be on the present situation with respect to education and employability along with the field realities and implementation challenges. The SWG would then be submitting its recommendations to CGSPC within a month or two.

*M. M. Soti*  
17.02.2017

## 2. Management Education

Dr. Bidya Shankar Sahay, Director, IIM, Raipur shared his view points through skype. He showed concern on the declining number of management institutions as well as the declining enrolments as quality of most of the private institutions is not upto the mark. Most of such institutions are not even reaching their break even points and the quality of their faculty is also not satisfactory and they are poorly paid too. It is high time that their need to frame strategies to make such institutions as viable entities. Along with the identification of non-performing institutes, initially there should be focus on few good institutes which can be strengthened by facilitating them to work closely with the government. How graduates can become entrepreneurs that should also be looked into.

The Management Education with specialization in marketing, human resource, strategy and finance etc. that prepares graduates for top end jobs in ill equipped colleges has serious limitation. The graduates of these colleges neither fit into top jobs nor have the skills for doing the low end managerial jobs in retail, banking, insurance, hospitality tourism etc. It is necessary to restructure the program and make it suitable for employability. A group of experts may look into these aspects.

## 3. School Education

The officials of School Education threw light on the present status of school education in Chhattisgarh. Assistant Director shared about the rationalization intervention of school teachers which was done in the year 2014 to improve the Pupil-Teacher Ratio (PTR). He also discussed on the quality aspect of regular versus panchayat teachers. The effective interventions viz. Potable Residential Cabins for out of school children in conflict areas, the State's *Gunvatta Abhiyan* (Quality Campaign), Mobile App for Attendance, Mathematical and English Improvement Kits, Professional Learning

Communities etc. were discussed at length. The current policy intervention with regard to upper primary schools and high schools was also discussed such as 'no fail policy' upto class VIII.

Mr. Sunil K. Sahay of Azim Premji Foundation shared his observation especially on the challenges being faced like long pending issue of appointment of regular teachers in the State; mushrooming B.Ed. Colleges (130 private B.Ed. Colleges out of total 136 in the State); turning out of poor quality teachers and the issue of non-availability of school teachers in the conflict areas. Prof. Raghunath N. Panda from Odisha shared his experience of Odisha state where teachers have been involved in non-teaching activities like census, malaria investigation; and the problem of teachers' absenteeism and lack of moral education in schools.

It was observed that :

- While good progress has been made on enrolment at primary level, the dropout at the secondary and higher secondary level is a concern.
- Quality of education needs to be improved so that the children of CG can compete and take advantage of many premier All India Institutes that have come up in the state.
- The teacher quality should be improved and Panchayat level appointment of teachers have to be phased out.
- A state level selection test for teachers need to be introduced. B.Ed qualified teachers have to qualify in this test.
- The teachers should not be involved in any job other than teaching, extracurricular and co-curricular activities. Mid-day meal, census duties etc. should be avoided.

- To make sure that the Schools are really imparting quality education the School Inspection Systems has to be strengthened where the Inspectors are educationists who can judge the quality of education being imparted.
- Now that RTE act is being modified and no fail rule is being done away with, learning competency at 5<sup>th</sup>, 7<sup>th</sup>, 10<sup>th</sup> level has to be evaluated. The teachers promotional increment may be linked to the performance in these tests of the pupil.
- Now that CG has taken the step of introducing English education at the Upper primary level, the same needs to be strengthened and spread to all schools.
- The Private Schools should also be subjected to inspection.

#### 4. Higher Education

The officials from Higher Education apprised participants on the status of higher education in the State. There are at present 8 government universities, 216 government and 2015 private colleges, and 13 government aided colleges in Chhattisgarh. It is government's policy to have one government college in each block. Mr. Soti showed concern about the recruitments in higher education which are not regular. The department then reflected on the challenges being faced such as many vacant posts, unavailability of quality teachers in various subjects *etc.* As a strategy for better coverage, now the new postings through Public Service Commission would be in tribal areas. The department officials informed that in most of the colleges there is WiFi zone, tablets distributed to most of the students, counseling sessions for students on every Saturday *etc.* Mr. Sunil gave example of Bilaspur's campus recruitment drive wherein no one got recruited as none of the applicants was qualified. He shared that even many students are not able to qualify the UGC and CSIR NET. The system had less than 10% regular faculty since 2005. In 2015, recruitments have increased the strength to 70%. Large scale recruitment at one go has its affect on quality. There is hardly any focus on the actual problem solving and project based learning. Mr. Soti suggested that Internship is SPC and Government Departments could be used to impact problem



solving skills. Prof. Acharya advised to have 'global perspective' in the State's higher education curricula. Participants also discussed the possibilities of four-year Honors Degree Course inclusive of one year practical work.

Prof. Khiti Bhusahan Dash suggested that to understand the problems faced by the Higher Education Systems, besides the academic issues like curriculum and syllabus, the systemic issues including the administrative issues of Universities, Colleges and the interface with the Government need to be looked into.

To a next meeting the Vice-Chancellor and principals of select colleges including training colleges may be invited to find ways and means of improving quality of education and training. The system's problems are also to be addressed. The SWG observed that:

- To expedite recruitment of teachers the state may consider forming a State Teacher Service Commission.
- To address the non availability of eligible teachers, the Government may consider recruitment from other states on a contract basis.
- The quality of education at colleges and Universities has to improve to produce enough UGC and CSIR NET qualified teachers. Special coaching at University level may be imparted.
- Education quality at the degree and postgraduate level has to substantially improve. The quality of training at B.Ed level has to improve. Mere certificate will not be enough.
- Teachers need to be trained to use IT enabled education tools and tablets more effectively.
- Emphasis on project oriented learning is to be given.

## 5. Technical Education

The Technical Education scenario in the State comprises 48 Engineering Colleges (of which only 3 are Govt. Colleges) which have an intake capacity of about 17,000 students. There are 51 Polytechnic Colleges in the State inclusive of 4 Girls' Polytechnics. The State has 273 it is with intake capacity of about 31,000. There is a Livelihood College in every district of the State. Though due to the recruitments in 2015 now 70% staff is there in the technical education; The recruitment has to be a continuous process. Recruitment after gap of several years, seriously affect the quality. Poor quality of teachers affect the education and the future of the pupil. The state of technical education shows a gloomy picture. Number wise, the state may have enough capacity, but the quality is not upto the mark. Unemployability and Underemployability are high. The students are not willing to join engineering program. Seats are remaining vacant. Unemployable diploma holders are having a free entry to degree programs. Similar is the case for the ITIs. Quality teachers are not available. The graduates and diploma holders are not skilled enough. The skill gap needs to improve. The curriculum and syllabus needs to be relooked. Delivery need to improve. The SWG was of the view that a committee of Technical University Vice-Chancellor, the Principal of select polytechnics, ITIs and DTET be formed to give a report on the state of Technical Education in the State and to suggest ways to improve. Four new polytechnics are still functioning in the mentor mode; and, the curriculum of technical education has not yet revised. Prof. Acharya suggested that as PSC is overloaded there should be a separate Commission to recruit the teachers in the technical education.

## **6. Sustainable Development Goals**

The importance and relevance of Sustainable Development Goals (SDGs) with the current SWG were discussed in detail by Mr. Rishi Raj Sharma (Lead Consultant, NFI) and Mr. Nilesh Kumar Tiwari (Consultant, NFI). The NFI Consultants apprised the participants on the new universal set of global aspirational goals that countries are expected to use to frame their policies over 15 years period (2016-2030). MDGs made no mention of Human Rights, nor specifically addressed economic development. It was

also shared that the previous Millennium Development Goals (MDGs) did not practically apply to all countries and they made no mention of human rights, access to justice, employment and economic development etc. All the 17 SDGs were briefed with special focus on SDG 4 (Ensure Inclusive and Equitable Quality of Education and Promote Lifelong Learning Opportunities for All) and its targets. The SWG members were requested to incorporate SDGs related strategies in their policy recommendations.

## **7. Medical Education**

Mr. Sumeet Tripathi (Deputy Director), Dr. Onkar Khandelwal (professor) said their observation respect to medical education -Medical department was carved out of health services. It was stated that presently the state of Chhattisgarh has only one Dental college and one Nursing college in private sector. The degrees available in medical field are MBBS, MD, and MS. In dental stream available courses are BDS, MDS. Other courses Physiotherapy, Nursing and Medical biotechnology. Presently there are 1100 seats of which 650 from Govt. & 450(private). Out of 8 medical colleges- 5 are Govt. and 3 are Private Colleges. Total seats in Dental stream are 600 of which 500 are government seats & 100 private. In MDS course, there are 125 private Seats. In Physiotherapy course has 93 private seats. As per MCI norms Doctor to citizen population would be 1:1000 and in Chhattisgarh it is 1:1700. There is a need of health education policy in the State. Also there is a need to encourage young doctors to work in rural areas and this should be strengthened to a great extent.

Dr. Surya Prakash Dhaneria, AIIMS, Cited about the Short coming of the medical curriculum and key is to introduce essential medicines. Through his Power Point Presentation on Concept of Essential Medicines he apprised the group on the following

- Medical Curriculum need to be modified - Medical curriculum must enable the undergraduates and post graduates to acquire knowledge and skills to manage common illnesses prevalent in country promptly and effectively through proficiency in clinical acumen and rational approach towards use of medicines.
- According to National list of essential medicines – 279 medicines were in year 1996, 376 medicines in 2015.
- Criteria for preparing EML
  - a. Medicines in list are mentioned by non proprietary names.
  - b. Medicine should be approved / licensed in India.
  - c. Regulatory authorities must assure the quality of essential medicines.

There should be provision to provide relevant information of essential Medicines.
- The medicines required in various national health programmes are included in NLEM. Any medicine/vaccine, as and when recommended under a national health programme will be deemed to have been included in NLEM.
- fdcS are generally not included unless having proven advantage.
- Price of total treatment is to be considered and not the unit price of medicine.
- Sales turnover will not influence selection of medicines in eml.

The SWG was of the view that

- To improve the doctors to population ratio, the three years medical education program approved by the MCI needs to be imparted to provide treatment of common diseases in remote areas.
- Good referral system including patient transfer system has to be developed. The Medicine supply system may be linked to it.
- All hospital should have telemedicine.
- The number of PG seats with needed facility is to be increased.
- The number of Nursing Colleges have to increase. CG could become a net supplier of nurses to other States.

- The training facilities in such areas as critical care nursing should be increased.
- The paramedical courses like physiotherapy, X-ray technician, dental assistant, Optometric technician etc should be offered in more numbers of medical colleges.
- Getting good doctors as faculty is a problem for the state. Dr. Nagarajan Venkatraman suggested that with the type of facilities that the CG government is giving MD and MS graduates could be employed on contract basis from other states.
- Faculty on Clinical subjects will still be a problem. The state should have more PG seats in clinical areas. This will call for strengthening its medical colleges.
- A comprehensive Medical Education Policy has to be formulated.
- CG has potential to become a Pharmaceutical hub in the country by utilizing the vast natural resources that it has. For this purpose pharmacy education should be strengthened. It should have a NIPER and a Pharmaceutical park.
- A committee of experts may be appointed by SPC to prepare a status report on Alternate Medicines education and their integration with the main stream Allopathic education and patient care.

## 8. Improving Employability

- An initiative of SPC to train solar technicians with Private Partnership and assured employment by the Industry and possible job opportunity as entrepreneur is worth considering in other sectors.
- Similar programs for skill development in such areas as telecom, construction, maintenance, retail, hospitality, banking, insurance, tourism, IT etc. are to be started where the pass outs will out National Vocational Qualification Frame Work Certificate of National Skill Development Council.
- The ITI education should be revamped with each ITI linked to a set of Industries and possible employers offering skill needed by this segment. In plant training

should be part of the program. it is must use modern simulators and web based technology to impart knowledge and skill.

A few Centers of excellences with all state of the art machineries and equipments should be created. While the basis training may be in the ITIs, the advanced training may be given in these Centre of Excellences. Focus of ITIs have to 80% on skill and 20% on theory. Communication Skill and personality development must be focused.

- Polytechnic level of education must focus 60% on skill and 40% on theory. Besides communication and personality development, supervisory skill also have to be imparted.

Each polytechnic must focus on the disciplines which its neighboring industries need. The linkage with the industry will provide hands on training and eventual employment.

- For graduate level technical education, the theory should constitute 60% and skill must be 40%. Project based learning with focus on design and prototype development will give the necessary skill. The curriculum and syllabus have to be dynamic and skill sets must match with the current needs. A graduate degree program may have several specializations with a common core. The specialization package must aims at specific industry needs. For instance a typical CSE program may have specialization on embedded systems, Internet of Things, Big data, Data Science, Cyber Security and Cloud Computing as per present needs.
- A graduate engineer must be capable of working any where in the country or in abroad. For which it is essential to equip him with soft skills, good IQ and EQ. Accordingly the program must have about 30 percent soft subjects. Focus has to be on problem solving, laboratory and project work.

- Government is focusing on opening vocational streams must have good trained faculty and necessary facilities for skill development. Otherwise, it will face closure of such programs as it has happened at school level.

### 9. Vote of Thanks

The meeting ended with vote of thanks to the chair and the participants.

### 10. Actionable Items

Actionable areas for the group to dwell into the following areas in form of working papers/ reports

| S No. | Task  | Action to be taken by       |
|-------|---|-----------------------------|
| 1.    | Formation of a Committee with the Vice-Chancellor, Principals of select colleges and the representative of Higher Education Department as members to prepare a report on current status of the higher education system in the state and to prepare a road map to enhance quality of education and to improve the governance with adequate financing within one month. | SPC may form a subgroup.    |
| 2.    | As subcommittee with Vice-Chancellor, Technical University, the Principals of select colleges (Private and Government), Engineering, Management, Pharmacy and Architecture, Principals of select Polytechnics,  | SPC to form a subcommittee. |

|  |  |
|--|--|
| ITIs, and representative of DTET may be constituted to prepare a report on the status of Technical Education in the State and to prepare a roadmap for (1) its quality and employability enhancement, (2) Governance, (3) regulation and (4) financing within one month. |  |
|--|--|

List of Participants

Annexure A

| S No.                           | Name                     | Designation                         |
|---------------------------------|--------------------------|-------------------------------------|
| Standing Working Group Members  |                          |                                     |
| 1                               | Mr. Damodar Acharya      | Chairperson , Industry Task Force   |
| 2                               | Mr. Raghunath Panda      | Member -SWG                         |
| 3                               | Prof. Kshiti Bhusan Das  | Member -SWG                         |
| 4                               | Dr. Nagrajan Venkatraman | Member -SWG                         |
| 5                               | Prof. B. S. Sahay        | Member -SWG                         |
| 6                               | Mr. Shirish Verma        | NIT , Raipur(Member -SWG)           |
| 7                               | Dr. P.K. Sinha           | Director , IIIT Raipur(Member -SWG) |
| 8                               | Mr. S. P. Dhaneria       | Dean Medical Education              |
| 9                               | Mr. Sunil K. Sah         | Azim Premji Foundation              |
| 10                              | Dr. Amarkant Pandey      | Pt. Ravishankar Shukla University   |
| Govt. of Chhattisgarh Officials |                          |                                     |
| 1                               | Mr. S. Kar               | Ass. Director, School Education     |
| 2                               | Dr. Kiran Gajpal         | Joint Director, Higher Education    |
| 3                               | Mr. Quereshi             | Director , Technical Education      |
| 4                               | K. N. Bapat              | Higher Education                    |
| 5                               | Mr. Ashutosh Pandey      | Programmer, SSA, Raipur             |
| 6                               | Dr. Onkar Khandelwal     | Prof. Pediatrics, Medical Education |
| 7                               | Dr. Sumeet Tripathi      | Deputy Director, Medical Education  |
| State Planning Commission       |                          |                                     |

*Mha*  
23.3.2017



# State Planning Commission Chhattisgarh

## Group Meeting of Standing Working Group- Mineral, Chemical and Heavy Industry

SWG -1

21<sup>st</sup> June, 2017

Venue: Yojana Bhavan, North Block, Capital Complex, Sector- 19, Naya Raipur

### AGENDA

|               |  |
|---------------|--|
| 10:30-10:40   | <b>Welcome Address</b><br><i>Mr. Amitabha Panda, Member Secretary, SPC Chhattisgarh</i>  |
| 10:40-10:50   | <b>Brief and Background of the SWG</b><br><i>Mr. Damodar Acharya, Chairperson, Task Force Industry</i>   |
| 10:50-11:10   | <b>Opening Remarks</b><br><i>Mr. P.P. Soti, Member, SPC Chhattisgarh</i><br><i>Mrs. Nimisha Jha, Deputy secretary, State planning Commission, Chhattisgarh</i>   |
| 11:10 – 11:45 | <b>Overview of Chhattisgarh Industrial Scenario</b><br><i>Dr. Preet Deep Singh, Directorate Industry, Chhattisgarh</i>   |
| 11:45-12:00   | <b>Academia perspective-</b><br><i>Mr B. Mazumdar, Prof. Chemical Department, NIT Raipur</i>   |
| 12:00- 01:00  | <b>Inputs from SWG Members</b><br><br><i>-Dr. B. K. Mishra (Director IIT Goa)</i><br><i>(Strategy to enhance mineral based production in Chhattisgarh)</i><br><i>-Dr. P. K. Sen (Prof. Department of Metallurgy and Material Engineering)</i><br><i>(Blueprint for attracting investment, promotion of mineral, metallurgical industries for Chhattisgarh)</i> |
| 01:00- 01:30  | <b>Wrap up and Way Forward</b><br><i>Mrs. Nimisha Jha, Deputy secretary, State planning Commission, Chhattisgarh</i>   |
| 01:30-02:00   | <b>Lunch</b>   |
| 02:00-02:30   | <ul style="list-style-type: none"><li>• <i>Departure for field Visit to Bhilai Steel Plant</i></li><li>• <i>Overall scenario, Problems of Steel Industries in Chhattisgarh</i></li></ul>   |

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# CHHATTISGARH STATE PLANNING COMMISSION

## Minutes of the meeting of SWG (Industry Sector Task Force) - "Mineral, Chemical and Heavy Industries"

21<sup>st</sup> June 2017

A Industry Sector Task Force Standing Working Group meeting was organised at the Conference hall F-10, Yojna Bhavan, North Block Sector-19 Naya Raipur on 21<sup>st</sup> June 2017. The meeting was chaired by Mr. Damodar Acharya, Member State Planning Commission. The list of attendees is attached in Annexure-A.

### 21<sup>st</sup> June 2017

Mr. Amitabha Panda, Member Secretary, State Planning Commission Chhattisgarh welcomed the group and told that a sub group for development of Mineral, Chemical and heavy Industries is formed under the Industry Task force. It is constituted to examine scope, new initiatives and for value addition of this sector in the state.

Mr Damodar Acharya, Chairman, Industry Task Force stated that it is the first meeting of this group. Chhattisgarh is a rich state in terms of resources like mineral, iron, bauxite. It is also a power surplus state. Iron based industry like Bhilai Steel Plant, and Nagarnar is located in state. Balco in Korba district is aluminium based industry. But Metal or Mineral based alloys extraction has serious impact on environment. We have to find ways and means so that those impact could be minimised. Also industry generates a lot of waste, which can be converted into wealth. He also stressed on the fact that there is a need to concentrate on Greenfield steel plant and also focus on several dimensions around this. We are rich in iron and steel but importing military equipments from USA, we must think to establish military equipments manufacturing industries. Presently we have small plants which are not sustainable. He further suggested that Aluminium is a very critical resource. In manufacturing alumina from bauxite caustic soda is required, which is not available in India so we must invest in this type of industry. Similarly in manufacturing LNG by product is ethylene/gas cracker which can be use in PVC manufacturing.

Mr Preet Pal Singh, Consultant Directorate of Industry, briefly presented situation of industry in the state through PPT. He stated Chhattisgarh is power surplus state, but is using less power per person compared to other states. He further added that very low up gradation in technology is being done in the state presently.

Mr Damodar Acharya, Chairman, Industry Task Force raised question about several types of Industrial Parks situated within state. He asked to clarify types and numbers of industries located in those Parks. Meanwhile Mr P K Sen, Professor, Department of Metallurgy and Material Engineering asked about developmental activities in Industrial Parks, also asked quality of labour, need of right type of atmosphere and local trading behavioural problems and stated need of change in the mindset.

Mr B Mazumdar, Professor, Chemical Department NIT Chhattisgarh stated that there should be incentive to industries which perform well. He also asked about saturated industries, and if there is a list of such industries .

Mr Damodar Acharya, Chairman, Industry Task Force stated that departments are not very successful in regulatory function. He raised questions about environment impact. He also asked on the requirement of up gradation in technology as effluents are directly deposited in the river.

Mr B Mazumdar, Professor, Chemical Department NIT Chhattisgarh stressed attention to potential of NIT and other technical institutions in the state. He also laid attention to requirement of diploma courses in mineral processing, polymer, agrochemicals and phytochemicals. He suggested that we must directly pick-up 10-15 students from technical institutes and support their start-up. Thereby promoting entrepreneurship culture of the state.

Mr B K Mishra, chairman of the Standing Working Group discussed on the future of mineral industries, their logistic and expertise and on how to use available mineral resources in the state.

Mr. P. P. Soti, Member, State Planning Commission, Chhattisgarh said that state should focus on ayurvedic traditional industries of Chhattisgarh as there is a belt rich in herbal products. There is a requirement of lab testing for this sector.

Mr P. K. Sen, Professor, Department of Metallurgy and Material Engineering, stated that Chhattisgarh is mineral rich state, it is fortunate and unfortunate both. He said that there is a need of cleaner technology for coal production. New equipments are required. Aluminum based solar energy products can be explored.

The group deliberated on the key issues and stressed on the following components for recommendations of the state.

Ms N Jha, Deputy Secretary, State Planning Commission, Chhattisgarh summarised the key areas of discussion and there was a consensus on making working papers on the key recommendations of this group which were deliberated upon by the members.

The key recommendation being -

- Producing ammonia from coal gas (syngas production from coal)
- Bioremediation of rivers/water bodies.
- Utilisation of fly ash.



## Consultation for the Development of Education in the State of Chhattisgarh

Date: 22.06.2017

Venue: State Planning Commission, 'Yojana Bhawan', North Block, Sector-19, Near Mantralaya, Naya Raipur, Chhattisgarh

### AGENDA

|             |   |  |
|-------------|---|--|
| 10:00-10:30 | Registration  |  |
| 10:30-10:45 | Welcome Address   | Mr. Sunil Kumar<br>Hon. Vice- Chairman State Planning Commission CG  |
| 10:45-11:00 | Opening Remarks   | -Mr. Damodar Acharya , Chairman Industry task force &<br>-Mr. Amitabha Panda , Member Secretary of State Planning Commission   |
| 11:00-11:15 | Expected Outcomes from the consultation   | -Mr. PP Soti , Member of State Planning Commission   |
| 11:15-11:30 | Status of Education in Chhattisgarh and a brief on National Education Policy 2016 | -Mr. Rishi Raj Sharma, Lead Consultant State Planning Commission   |
| 11:30-11:45 | Working Group Methodology :A brief  | -Ms. Nimisha Jha, Deputy Secretary, State Planning Commission  |
| 11:45-1:00  | Group   | Sub Theme  |
|             | Working Group -1<br>School Education  | <ol style="list-style-type: none"><li>1. Orient the system toward Outcomes : Introduce an independent state of the art sample based outcomes measurement system .</li><li>2. Provide evidence based ICT tools to teacher &amp; students to enhance effective learning .</li><li>3. Explore role of Private Players in improving existing Governance mechanism.</li><li>4. Teacher management</li></ol> |
|             |   | Convener - Mr. Mukteshwar Singh, Assistant Director & Mr. Udit , State Planning Commission   |

|           |   |  |  |
|-----------|---|--|--|
|           |   | <ul style="list-style-type: none"> <li>• Teachers motivation</li> <li>• Teachers absenteeism</li> </ul> <p>5. Community participation in education</p>   |  |
|           | <b>Working Group -2<br/>Higher Education</b>    | <ol style="list-style-type: none"> <li>1. Focus on Vocational &amp; Professional led education.</li> <li>2. Student &amp; teacher participation in enhancing learning process.</li> <li>3. Improving the availability/adequacy of teachers across the state .</li> <li>4. Learning: Combination of Practical &amp; theoretical knowledge.</li> </ol> | Convener - <b>Mr. Nilesh Tiwari</b> ,<br>Consultant, State Planning Commission         |
|           | <b>Working Group -3<br/>Technical Education</b> | <ol style="list-style-type: none"> <li>1. Strategy for designation of CG universities as World class universities.</li> <li>2. Establish system of project / researcher specific research grants.</li> <li>3. Enhancing employability for students in technical institutions of Chhattisgarh.</li> </ol>   | Convener - <b>Mr. Rishi Raj Sharma</b> , Lead<br>Consultant, State Planning Commission |
|           | (Group Details at the End)                      |  |  |
| 1:00-1:30 | Presentation                                    |  | Working Group -1   |
| 1:30-2:00 | <i>Lunch</i>                                    |  |  |
| 2:00-2:30 | Presentation                                    |  | Working Group -2   |
| 2:30-3:00 | Presentation                                    |  | Working Group -3   |
| 3:00-4:00 | Open Session                                    |  |  |
| 4:00-4:30 | Wrap up   |  | <b>Mr. Damodar Acharya</b> , Chairman<br>Industry Task Force                           |
| 4:30      | Vote of thanks                                  |  | <b>Dr. J S Virdi</b> , Joint Director State<br>Planning Commission                     |

## Working Group Details :-

### Working Group 1:- School Education

| Sub Working Group Members  | Delegates / Special Invitee   |
|--|---|
| <ol style="list-style-type: none"><li>1. Social Sector Task Force (All members)<br/>- Mr. Sunil Sah, Azim Premji Foundation<br/>-Dr. Amarkant Pandey, Professor &amp; Head (School of studies in Economics), Pt.RSVV C.G.</li><li>2. Dr Dinesh Masta, Joint Director , State Planning Commission</li></ol> | <p>Delegates from Schools of Chhattisgarh</p> <ol style="list-style-type: none"><li>1. Mr. M.R. Sawant, Principal, Pt. J.N. Pandey Govt.Multi HSS Raipur</li><li>2. Mr. Raghunath Mukharjee, Principal, Delhi Public School Raipur</li><li>3. Mr. Prasant Kumar, Principal , DAV Public School Bhilai</li><li>4. Mr. Parshant Vashishta, Principal, Delhi Public School, Bhilai</li><li>5. Mr. Rakesh Gupta, Principal, Govt. School, Trimurti Nagar, Raipur</li><li>6. Mr. M. P. Yadav, former Principal, DPS Bhilai</li><li>7. Ms. A.L.Gauraha , Principal, Govt. Higher Sec. School Changora bhata, Raipur</li><li>8. Mr. Kiran Pal Singh Chawla, Chairman, Career Point World School Bilaspur</li></ol> |
| Convener: Mr. Mukteshwar Singh, Assistant Director & Mr. Udit , State Planning Commission  |   |

### Working Group 2:- Higher Education

| Sub Working Group Members   | Delegates / Special Invitee  |
|---|--|
| <ol style="list-style-type: none"><li>1. Mr. Damodar Acharya, Chairman, Adviser Committee, SOA University</li></ol> | <p>Delegates from Higher Education Institutions of Chhattisgarh</p> <ol style="list-style-type: none"><li>1. Dr. A.K Pati, Pt. Ravi Shankar Shukla University C.G. Raipur</li><li>2. Dr. Aruna Palta, Principal Radhabai Naveen Kanya Mahavidhyalaya, raipur</li><li>3. Dr. Preeti Lal, Assistant Professor, Radhabai Naveen Kanya Mahavidhyalaya, Raipur</li><li>4. Dr. J.C Ajawani, HoD Psychology Devendra Nagar college</li><li>5. Dr. Radha Pandey, Principal, Govt. PG College, Bhilai-3</li><li>6. Dr. Arvind Girokar, Principal, Govt. D. B. Girls PG College Raipur</li><li>7. Mr S. K. Bhatt, Vice Principal, Government Nagarjun Post Graduate College of Science</li></ol> |
| Convener: - Mr. Nilesh Tiwari, Consultant, State Planning Commission  |  |

Working Group 3:-Technical Education

| Sub Working Group Members   | Delegates / Special Invitee   |
|---|---|
| <ol style="list-style-type: none"> <li>1. Prof. B.S. Sahay , Ex.- Director IIM Raipur</li> <li>2. Dr. Kripa Shankar, Prof. Emeritus, Ex. Vice Chancellor , UP Technical University, IIT Kanpur</li> <li>3. Dr. Nagrajan Venkatraman, Prof. , Govt. Dr.MGR Medical University, Chennai, Tamilnadu</li> </ol> | <p>Delegates from Technical Education Institutions of Chhattisgarh</p> <ol style="list-style-type: none"> <li>1. Prof(Dr.) M.S.Parmar, Vice-Chancellor, Kushabhau Thakre University of Journalism &amp; Mass communication Raipur</li> <li>2. Dr.(Col.) Sajay K. Patil, Vice-Chancellor, Indira Gandhi Agriculture University ,C.G.Raipur</li> <li>3. Dr. M.K. Verma, Vice-Chancellor, C.G. Swami Vivekanand Technical University ,Bhilai</li> <li>4. Dr. Shailendra Kumar, Director In charge, Institute of Technology, GGU Bilaspur</li> <li>5. Dr. Piyush Kant Pandey, Principal, Bhilai Institute of Technology Raipur.</li> </ol> <p>Special Invitee:-</p> <ul style="list-style-type: none"> <li>- Prof(Dr.) Nitin M. Nagarkar, Director AIIMS Raipur</li> <li>-Dr. Sudarsan Tiwari , Director NIT Raipur</li> <li>-Dr. P.K Sinha , Director IIIT Raipur</li> </ul> |
| <p>Convener: Mr. Rishi Raj Sharma, Lead Consultant, State Planning Commission</p>   |   |



# AGENDA

| 10:00-10:30 |   | Registration  |  |
|-------------|---|---|--|
| 10:30-10:45 | Welcome Address   | Mr. Sunil Kumar<br>Hon. Vice- Chairman State Planning Commission CG   |  |
| 10:45-11:00 | Opening Remarks   | -Mr. Damodar Acharya ,<br>Chairman Industry task force &<br>-Mr. Amitabha Panda , Member<br>Secretary of State Planning<br>Commission   |  |
| 11:00-11:15 | Expected Outcomes from the consultation   | -Mr. PP Soti , Member of State<br>Planning Commission   |  |
| 11:15-11:30 | Status of Education in Chhattisgarh and a brief on National Education Policy 2016 | -Mr. Rishi Raj Sharma, Lead<br>Consultant State Planning<br>Commission  |  |
| 11:30-11:45 | Working Group Methodology :A brief  | -Ms. Nimisha Jha, Deputy<br>Secretary, State Planning<br>Commission   |  |
| 11:45-1:00  | Group   | Sub Theme   | Convener - Mr. Mukteshwar<br>Singh, Assistant Director & Mr.<br>Udit , State Planning Commission |
|             | <b>Working Group -1<br/>School Education</b>                                      | <ol style="list-style-type: none"> <li>1. Orient the system toward Outcomes : Introduce an independent state of the art sample based outcomes measurement system .</li> <li>2. Provide evidence based ICT tools to teacher &amp; students to enhance effective learning .</li> <li>3. Explore role of Private Players in improving existing Governance mechanism.</li> <li>4. Teacher management                             <ul style="list-style-type: none"> <li>• Teachers motivation</li> <li>• Teachers absenteeism</li> </ul> </li> <li>5. Community participation in education</li> </ol> |  |
|             | <b>Working Group -2<br/>Higher Education</b>                                      | <ol style="list-style-type: none"> <li>1. Focus on Vocational &amp; Professional led education.</li> <li>2. Student &amp; teacher participation in enhancing</li> </ol>   | Convener - Mr. Nilesh Tiwari,  |

|                            |   |  |   |
|----------------------------|---|--|---|
|                            |   | learning process.<br>3. Improving the availability/adequacy of teachers across the state .<br>4. Learning: Combination of Practical & theoretical knowledge.   | Consultant, State Planning Commission   |
|                            | <b>Working Group -3<br/>Technical Education</b> | 1. Strategy for designation of CG universities as World class universities.<br>2. Establish system of project / researcher specific research grants.<br>3. Enhancing employability for students in technical institutions of Chhattisgarh. | Convener - <b>Mr. Rishi Raj Sharma</b> , Lead Consultant, State Planning Commission |
| (Group Details at the End) |   |  |   |
| <b>1:00-1:30</b>           | Presentation                                    |  | Working Group -1  |
| <b>1:30-2:00</b>           | <i>Lunch</i>                                    |  |   |
| <b>2:00-2:30</b>           | Presentation                                    |  | Working Group -2  |
| <b>2:30-3:00</b>           | Presentation                                    |  | Working Group -3  |
| <b>3:00-4:00</b>           | Open Session                                    |  |   |
| <b>4:00-4:30</b>           | Wrap up   |  | <b>Mr. Damodar Acharya</b> , Chairman Industry Task Force                           |
| <b>4:30</b>                | Vote of thanks                                  |  | <b>Dr. J S Viridi</b> , Joint Director State Planning Commission                    |