



# Catalogue of Research Reports on Infrastructure Sectors

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# ABOUT US

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**India Infrastructure Research** is a division of India Infrastructure Publishing Private Limited, a company dedicated to providing information on the infrastructure sectors through magazines, conferences, newsletters and research reports.

**India Infrastructure Research** publishes research reports in the areas of power, oil & gas, ports & shipping, roads & bridges, telecommunications, aviation and water.

Our reports are acknowledged as high-quality, user-friendly, up-to-date, accurate and comprehensive sources of information. They range from sector overviews (**Power in India**, for example) to more intensive studies of segments and subsegments (such as **Power Transmission in India** and **Power Distribution in India**).

Our clients include most organisations involved in the infrastructure sectors – multinationals, top Indian corporates, commercial and investment banks, consulting companies, public sector companies, government agencies, multilateral agencies and legal firms.

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The report is available in a PDF format

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**3. KEY POLICY AND REGULATORY DEVELOPMENTS** .....

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Each Profile would cover the following:

- Area of Operations, Total number of Customers, Line Length Additions, Transformer and Substation Capacity, Metering Coverage, System Reliability Performance (SAIFI, SAIDI), Energy Sales (HT and LT), AT&C losses, Billing and Collection Efficiency, Revenue Gap, O&M Costs, Power Purchase Costs, Capex, Net Profits, Future Network Additions and Investments, Contact Details

*The report will be available in a PDF format.*

## Progress so Far, Recent Developments, Business Opportunities and Outlook

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## 2. CNG NETWORK: SIZE AND GROWTH

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## 3. PNG NETWORK: SIZE AND GROWTH

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## 5. RECENT REGULATORY DEVELOPMENTS

- New Open Access Norms: Salient Features and Expected Impact, New Guidelines on Determination of Transportation Rate for CGD Networks, New Unified Tariff Policy: Impact on CGD players and Challenges in Implementation, Easing of LNG Distribution and Regulation, Recent Amendments in Technical Standards and Access Code, Indian Gas Exchange: Key Benefits to CGD Players, New Force Majeure Guidelines and Time Extensions, Other Regulatory Developments

## 6. FUTURE OUTLOOK AND KEY PROJECTIONS (Till 2025-26)

- Growth Drivers, MWP Targets, Projected Network Addition, Gas Demand Projections for Operational and New GAs, Projected Gas Sales for Key Players, Equipment Demand Projections, Investment Requirements (Till 2025-26), Regulatory Outlook

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## 15. UPDATE ON GAS PIPELINE INFRASTRUCTURE

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## 18. SMART METERING PRACTICES

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## 19. NEW MODELS FOR CNG STATION DEVELOPMENT

- Dealer Owned Dealer Operated (DODO) Model, LCNG Stations, Bio CNG, Hydrogen enriched CNG, Simulated Natural Gas

*The chapter will cover information on salient features of each model, capex and opex, cost savings, current infrastructure created, future plans, etc.*

## SECTION IV: PROFILES OF KEY PLAYERS

## 20. MAJOR CGD PLAYERS

- v Avantika Gas Limited, Adani Gas Limited, AG&P Ashoka Gas, Assam Gas Company Limited, Bhagyanagar Gas Limited, Bharat Gas Resource Limited, Central UP Gas Limited, etc.

*Each profile provides information on current infrastructure & GAs authorised, gas sales, financial performance, under construction GAs, infrastructure expansion plans, etc.*

*The report will be available in a PDF format.*

### 1. EXECUTIVE SUMMARY

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- Liquid Fuels: Consumption and Supply, Prices, Future Outlook

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- Real-time Market
- GTAM
- Trading of RECs
- Issues and Concerns

### 14. DATABASE OF EXISTING PLANTS

The most comprehensive database covering over 2,900 captive power plants with information on owner, capacity, location, fuel type.

Contact details of the captive power plants will also be provided on a best effort basis.

\*CPPs from the following Industries would be covered across the fuel types (Coal, Lignite, Petcoke, Natural gas, Bagasse, Co-generation, Solar Ground-Mounted, Rooftop Solar, Wind, Waste-heat Recovery, Liquid fuels, Biomass, Mixed Fuels, etc).

- Metals and Minerals
- Cement
- Petrochemicals and Refineries
- Chemicals
- Textiles
- Engineering
- Pulp and Paper
- Data Centers
- Fertilisers
- Sugar
- Institutional Users
- Automobiles
- Group Captive
- Etc.

The report will be available in a PDF format.

## Market Trends, Developments, Opportunities and Outlook

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## Emerging Economics, Evolving Regulatory Framework, Increasing Opportunities and Changing Risks

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There is a rising popularity among developers, especially renewable energy players, to go for third-party direct sale agreements. States of Karnataka, Tamil Nadu, Andhra Pradesh and Telangana in the southern region of India and Rajasthan, Punjab and Haryana in the northern region of the country are fast catching up with open access transactions. But there are significant challenges in the growth of this segment, especially those pertaining to discoms' resistance to let go of their high-end consumers.

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**3. EXISTING OPEN ACCESS POLICY AND REGULATORY SCENARIO . . . . .**

The policy and regulatory framework in this space is currently highly dispersed and varied across states, and is not even stable over the years. There is always a risk of open access charges changing year on year, making it a risky proposition to invest in.

- Overview of Open Access Charges and Losses: For Solar Projects, For Wind Projects
- Model Regulations for Intra-state Open Access and Group Captive
- State-wise Orders of Open Access/Group Captive
- State-wise Implementation Status Overview
- State-wise Power Demand and Supply Overview
- RPO Trajectory for Open Access Consumers
- Key Issues and Challenges

**4. INDUSTRY STRUCTURE AND BUSINESS MODELS . . . . .**

The industry structure in the renewable open access segment has been emerging gradually with more number of players entering into this space. Project developers and investors are currently cautious of investing significantly in this segment, but the trend is now changing.

- Power sale options: Bilateral, Collective, REC
- Industry Structure
- Key Players and Capacities: Solar Segment, Wind Segment
- Risks and Concerns

**5. TERMS OF THIRD-PARTY POWER SALE CONTRACTS . . . . .**

It is important for both the buyers and sellers to clarify and list out their expectations and accordingly draw up the commercial power sale contract as per the applicable regulatory framework in the respective state.

- Time Period
- Extension Provision
- Tariff and Escalations

- Provision for Changes in Regulatory Charges
- Penalties
- Legal Terms

**6. ROLE OF ENERGY BANKING, F&S AND DEVIATION SETTLEMENT MECHANISM . . . . .**

Energy banking will play a key role in the success of solar and wind power-based open access projects. Banking is presently allowed by SERCs upon the levy of a banking charge, which differs in magnitude across states.

Rules around energy banking are specified in different types of documents in various states. Additionally, various attributes of the energy banking framework also differ across states.

- State-wise Energy Banking Mechanism for Open Access Projects: Banking Charge, Banking Period, Buy-back Rate, Restrictions on Time of Injection, Withdrawal of the Banked Energy, Other Attributes (seasonality constraints, buy-back rates, accounting for RPO, etc.)
- State-wise Emerging Energy Banking Framework
- State-wise Forecasting and Scheduling
- Deviation Settlement Charges

**7. STATE PROFILES . . . . .**

This chapter will include profiles of Andhra Pradesh, Karnataka, Tamil Nadu, Maharashtra, Gujarat, Rajasthan, Madhya Pradesh, Telangana, Uttar Pradesh, Chhattisgarh, Haryana, Delhi, Punjab, etc.

- Open Access Charges and Exemptions for Solar and Wind Power: Transmission Losses, Distribution Losses, Wheeling Charges, Cross Subsidy Surcharge, Additional Surcharge, Reactive Energy Charges, Standby Charges, Banking of Surplus Solar Power, Scheduling of Power, Energy Metering
- Key Players and Capacities: Overall Solar, Solar Open Access, Overall Wind, Wind Open Access
- Landed Cost and Return Analysis
- Process and Approvals for Open Access Projects
- Key Industrial and Corporate Clusters: Existing, Upcoming

**8. PROJECTED OPEN ACCESS MARKET . . . . .**

Over 2 GW of green power is being sold to big corporates through direct agreements and the trend is northbound as more and more corporates and industries are joining in the race. The business case for renewable energy based open access is getting stronger with the decreasing cost of green power and increasing cost of thermal power.

- Short-term (2019-23) and Long-term (2024-28) Projections
- Renewable-based Open Access Capacity Projections
- Open Access Projected Tariff and Pricing Trends
- IRR Projections
- Future Growth Drivers
- Expected Market Restraints

**EXPERT OPINION . . . . .**

The report will feature 5-8 interviews of senior representatives at regulatory commissions, large open access consumers and key open access project developers, and experienced industry consultants

*The report is available in a PDF format.*

### EXECUTIVE SUMMARY

With the growing demand for power in urban areas and industries, underground cable systems are becoming an increasingly indispensable part of power transmission and distribution systems. With improved technologies and increased reliability, the cost differential between underground cables and overhead power lines is narrowing and utilities are acknowledging the benefits associated with underground cabling. This report will attempt to take a look at the key trends in the deployment of underground cables so far; analyse the plans and proposal of T&D utilities; examine new and evolving technology improvements and solutions being offered by the industry; as well as assess the key issues and challenges.

### 1. T&D INDUSTRY OVERVIEW

The T&D industry has been growing steadily with investments being made in system strengthening and capacity additions. This chapter gives an overview of the T&D industry and will focus on:

- Growth and Size of Existing T&D Networks
- Recent T&D Network Additions
- Projected T&D Network Additions
- Projected Capex (till 2022-23)
- Future Outlook
- Issues and Challenges

### 2. MARKET SIZE AND GROWTH FOR UNDERGROUND CABLES

Most of India's T&D network continues to be strung overhead across the country; however, concerns about reliability and quality of supply are making utilities gradually replace their networks with underground lines. This chapter gives an overview on the new and emerging utility requirements in the underground cabling segment and will cover the following:

- Experience so far in T&D Networks
- Emerging Utility Requirements
  - Transmission
  - Distribution
- Major Projects Commissioned
  - Transmission
  - Distribution
- Major Projects Awarded/Under Construction
  - Transmission
  - Distribution
- Key Recent Tenders
- Issues and Challenges

### 3. RECENT TRENDS AND ADVANCES

Well-designed and well-installed underground cable systems are expected to have a service life of 30-40 years. Utility providers, transmission companies and cable manufacturers are hence, looking for new technologies and solutions to respond to new grid challenges. This chapter looks at the new and promising technologies, designs and solutions for underground cable networks.

- Design, Laying and Construction Processes
- Product and Technology Trends
- Market Trends and Developments (JVs/Acquisitions/Partnership Deals)
- Pricing and Cost Trends

### 4. OPPORTUNITIES UNDER KEY CENTRAL/STATE GOVERNMENT PROGRAMMES

Underground cables are an important part of several central government initiatives for improving T&D networks under IPDS. This chapter provides the details of plans and targets of works proposed to be taken up under various schemes.

- Snapshot of Key Government Programmes (IPDS, Green Energy Corridors, State Government Initiatives, etc.)
- Physical Targets for UG Cabling Works
- Funding Availability for UG Cabling Projects
- Issues and Concerns

### 5. OPPORTUNITIES UNDER SMART CITIES MISSION

The Smart Cities Mission offers significant opportunities for underground cabling in key cities. Some cities such as Indore, Belagavi, Dharamshala, Lucknow, Kanpur and Tirupati are implementing projects for setting up underground cabling network for utilities such as electric wires, water pipelines, stormwater drains, sewers and telecommunication cables. This chapter provides the details of plans and targets of works proposed to be taken up under various schemes.

- Snapshot of the Mission
- Physical Targets for UG Cabling Works
- Projects Completed so Far in Key Cities
- Projects Under Construction/ Awarded
- Proposed Projects
- Issues and concerns

### 6. OUTLOOK AND PROJECTIONS (till 2022)

This chapter will give a snapshot of the investments and physical targets proposed for underground cabling networks by transcos and discoms. The information presented in this chapter is based on both primary and secondary information collected from transcos and discoms.

- Growth Drivers for UG Cabling
- Expected Demand for UG Cables
- Plans and Targets of Utilities by Segment
  - Transmission
  - Distribution
- Budgeted Capital Expenditures on UG Cabling
- Future Outlook

### 7. LEADING PLAYERS

This chapter primarily focuses on the profiles of key vendors and technology providers for underground cabling. Each profile covers the following information:

- Brief Company Overview
- Key Product Offerings
- Existing Manufacturing Capacity
- Financial Performance
- Future Plans

*The report is available in a PDF format.*

## Changing Landscape, Growing Role of Digitisation and New Opportunities

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**1. EXECUTIVE SUMMARY**

Solar plants are built to last 20-25 years. After the engineering procurement and construction period is completed, developers need to ensure that the operations and maintenance (O&M) activities are seamless for sustained energy generation over the project lifetime. The report will highlight the emerging opportunities in this space and the growing role of new technologies like automation and artificial intelligence.

**2. MARKET OVERVIEW**

In the initial years of solar power development in India, O&M was often coupled with EPC and performed by the same vendors, but of late, solar O&M has emerged as a separate market with its own landscape, trends and dynamics. This chapter will cover the following areas:

- ❖ Current size of the solar O&M market
- ❖ Market size by segment
  - Utility-scale, Rooftop, Canal-top & floating solar
- ❖ Key growth trends and drivers
- ❖ O&M Evolution - Reactive to Predictive Analysis
  - Applications in solar O&M, Cost and time savings
- ❖ Emerging Role of Energy Storage
- ❖ Key issues and concerns

**3. COST TRENDS**

The cost of O&M services has been declining over the past few years and the downward trend is expected to continue. The cost composition itself is changing due to greater automation and use of advanced tools. This chapter will cover the following areas:

- ❖ Solar O&M cost trajectory (2012-18)
- ❖ Cost breakup analysis
  - Vehicles and logistics, Equipment and tools, Overheads, Personnel/ Manpower, Digital, Others
- ❖ Cost projections (2019-24)
  - Business model evolution, Key cost considerations, Impact of scale, Impact of energy storage, Future cost estimates

**4. EMERGING O&M BUSINESS MODELS**

Globally, there has been a rise of third party solar O&M service providers. As more sophisticated and structured approach emerges in the solar O&M market, third party providers are able to deliver more value to solar investors and owners. This chapter will cover the following areas:

- ❖ Capex-based
- ❖ Profit-sharing
- ❖ Fixed cost
- ❖ O&M extensions
- ❖ Others

**5. TERMS OF O&M CONTRACTS**

It is important for both developers and O&M service providers to clarify and list out their expectations and accordingly draw up a long-term contract. An effective contract will result in higher plant efficiencies. This chapter will cover the following areas:

- ❖ Time periods
- ❖ Product warranties
- ❖ Performance guarantees/SLAs
- ❖ Penalties
- ❖ Ownership
- ❖ Legal terms

**6. GRID MANAGEMENT BY O&M PLAYERS**

As the government becomes stricter in its implementation of forecasting, scheduling and deviation settlement mechanism regulations, grid management will become a key component of O&M players. Integration of energy storage on to existing plants will lead to a greater O&M play. This chapter will cover the following areas:

- ❖ Forecasting and scheduling
- ❖ Deviation settlement management
- ❖ Integration of energy storage into existing plants
- ❖ Cost implications
- ❖ Experience so far

**7. O&M COMPANY PROFILES**

A large number of O&M focused players are coming up, some as hive-offs from existing EPC companies and others as independent specialists. This chapter will have 5-8 profiles of key O&M players in India covering the following:

- ❖ Project portfolio
- ❖ Service offerings
- ❖ Technology tie-ups
- ❖ On-ground experience
- ❖ In-pipeline capacity
- ❖ Etc.

**8. DIGITALISATION AND AUTOMATION AT PLANT LEVEL**

Digitalisation and automation will play a key role in providing efficient O&M services, thereby changing the current O&M cost composition, which is currently dominated by manpower expenses. New technologies are being adopted for improving asset lifecycle management, predictive maintenance, remote sensing and control, cloud computing, and use of drones for visual imaging. A number of companies have also already started using robotics for cleaning modules. This chapter will cover the following areas:

- ❖ Emerging role, applications and use case for the following
  - Manpower and material management, Automated monitoring and big data analytics, Robotics, drones and wearables
- ❖ Growing role of artificial intelligence
  - Machine learning applications, AI field assistants and predictive analytics, Existing use cases
- ❖ Key technology providers
- ❖ Industry Perspective  
(Views of key personnel from the solar O&M industry and technology providers on the growing role of AI, robotics and data analytics)

**9. KEY CHALLENGES, BEST PRACTICES AND CASE STUDIES**

The lack of attention given to O&M practices is one of the primary challenges that the segment is facing. If the plant is not maintained properly, developers can lose up to 15 per cent of the returns. This chapter will cover the following areas:

- ❖ O&M challenges matrix
- ❖ Best practices (Globally and in India)
- ❖ Case studies (This will cover successes and failures of various technologies, business models and strategies adopted by O&M players)

**10. PROJECTED O&M MARKET SIZE (FROM 2019-20 TO 2024-25)**

The total addressable market for solar PV O&M is expected to reach 30 GW in 2018-19. It is likely to more than triple by 2022 to exceed 100 GW. In fact, going forward, as the installed base gets larger, O&M revenue may even exceed the development and construction revenue. This chapter will cover the following areas:

- ❖ Impact factors
- ❖ Emerging O&M industry structure
- ❖ Short-term projections
- ❖ Medium-term projections
- ❖ Long-term projections

*The report is available in a PDF format.*



**1. EXECUTIVE SUMMARY** .....

**SECTION A: MARKET OVERVIEW, TRENDS AND OUTLOOK**

**2. CURRENT SCENARIO** .....

- Waste Generation Potential in India
- Size and Growth of Waste to Energy
- Leading Cities in Waste to Energy Development
- Current Industry Structure
- Waste Treatment and Processing Practices
- New Technology Advancements
- Market for Waste Residues/Byproducts
- Key Issues and Challenges
- Future Outlook

**3. ENABLING POLICY FRAMEWORK** .....

- Swachh Bharat Mission
- Smart Cities Mission
- Government Schemes for Waste-based Projects
- National Tariff Policy, 2016
- Solid Waste Management Rules, 2016
- Environmental Norms for WtE Projects
- GST for WtE Projects
- WtE Tariffs Determined by CERC and SERCs
- State-wise WtE Policies and Regulations

**4. FUTURE OUTLOOK AND MARKET OPPORTUNITIES** .....

- MNRE's Targets
- Key Growth Drivers
- Capacity Addition Outlook
- Investment Projections
- City-wise Potential and Opportunities
- Market Opportunities
- The Way Forward

**5. ANALYSIS OF OPERATIONAL PROJECTS** .....

- City-wise Analysis of Waste to Energy Capacity
- Technology-wise Analysis
- Segment-wise Analysis: MSW Power Plants; Grid Power Projects in Industries; Captive off-grid Projects; Biogas for Captive Thermal; Bio-CNG Projects

**6. ECONOMICS AND FINANCING** .....

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- Key Financiers
- Year-wise CFA and Sanctions
- New Financing Tools and Instruments
- Emerging Business Models for Project Development
- Key Risks and Concerns
- Project IRRs

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- Size and Growth
- MSW Generation in Major Cities of India
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- Future Outlook
- Key Project Case Studies: Key Features; Waste Collection System; Waste Management Practices; Performance Trends; Critical Success Factors

**8. INDUSTRIAL WASTE-BASED POWER PROJECTS (INCLUDING CAPTIVE OFF-GRID)** .....

- Size and Growth
- Industry-wise Potential
- Growth Drivers
- Upcoming Projects
- Key Issues and Challenges
- Future Outlook
- Key Project Case Studies: Key Features; Waste Collection System; Waste Management Practices; Critical Success Factors

**9. BIOGAS PROJECTS** .....

- Size and Growth
- Market Potential
- Growth Drivers
- Upcoming Projects
- Key Issues and Challenges
- Future Outlook
- Key Project Case Studies: Key Features; Waste Collection System; Waste Management Practices; Critical Success Factors

**10. BIO-CNG PROJECTS** .....

- Size and Growth
- Market Potential
- Growth Drivers
- Upcoming Projects
- Key Issues and Challenges
- Future Outlook
- Key Project Case Studies: Key Features; Waste Collection System; Waste Management Practices; Critical Success Factors

*The report is available in a PDF format.*

## Key Trends, Risks, Alternatives and Outlook

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*The report is available in a PDF format.*

## EXECUTIVE SUMMARY

### 1. SECTOR SIZE AND GROWTH

- Hydro Power Potential and Development: Basin-wise; Region-wise
- Installed Capacity Addition Trends
- Sector and Utility-wise Additions
- Hydro Power Generation Trends
- Share of Hydro Power in Electricity Generation Mix
- Small-hydro Power Capacity
- Pumped-hydro Storage Capacity
- Key Barriers to Development

### 2. IMPACT OF COVID-19

- Impact on
  - Overall Power Sector
  - Power Demand and Generation
  - Hydro Power Generation Revenues
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### 3. RECENT DEVELOPMENTS

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- Impact of COVID-19 on Under-construction Capacity
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### 4. IMPACT OF NEW HYDRO POWER POLICY

- Key Features of Approved Policy Measure
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- Impact on Tariff Competitiveness
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### 5. UPCOMING PROJECT PIPELINE

- Capacity Under Construction
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### 6. FUTURE OUTLOOK AND PROJECTIONS

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- Existing Power Ties
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- Private Sector: JSW Energy; Tata Power Company Limited; JP Power Ventures; AHPC
- Others: Malana Power Company Limited; Gati Infrastructure; Everest Power Private Limited; Dans Group; Sneha Kinetic Power Projects Limited

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**SECTION B: COUNTRY PROFILES**

This section has 30 chapters pertaining to the renewable energy scenario and outlook for 30 African countries. These includes Algeria, Angola, Botswana, Cameroon, Democratic Republic of the Congo, Egypt, Ethiopia, Ghana, Guinea, Kenya, Libya, Madagascar, Mauritius, Morocco, Mozambique, Namibia, Niger, Nigeria, Rwanda, Senegal, Seychelles, Sierra Leone, South Africa, Sudan, Tanzania, Togo, Tunisia, Uganda, Zambia and Zimbabwe.

Each country profile provides information on:

- Economic Scenario and Demography
- Power Demand and Supply Scenario
- Resource-wise Renewable Energy Potential
- Segment-wise Size and Growth (Solar, Wind, Bioenergy, etc.)
- Key Growth Drivers
- Evolving Policy and Regulatory Scenario
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- Term of Franchise Validity
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- Major Initiatives undertaken by DF

The franchises covered include:

- Bhiwandi (Torrent Power Limited)
- Nagpur (Spanco Nagpur Discom Limited)
- Agra (Torrent Power Limited)
- Muzaffarpur (Essel Vidyut Vitaran (Muzaffarpur) Limited)
- Bhagalpur (SPML Infra Limited)
- Gaya (India Power Corporation Limited)
- Kendarapara Division I & II, Jagatsinghpur, Dhenkanal, Talcher and Angul (Enzen Global Solutions Private Limited)
- Khurda, Balugaon, Puri and Nayagarh (Feedback Electricity Distribution Company Limited)
- City Electrical Division (Cuttack), Athagarh and Salipur (Riverside Utilities Private Limited)
- Nimapara (Seaside Utilities Private Limited)
- Kota, Bharatpur and Bikaner (CESC Limited)
- Ajmer (Tata Power Company Limited)

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(January 2018)

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*The report is available in a PDF format.*

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*Each profile will cover the project scope (network length, alignment details, number of stations, rolling stock, fare system, signaling and telecommunications, traction, etc.), ownership details, implementing agency, cost estimates, key consultants, key contractors, key milestones, funding pattern, actual/expected ridership, recent contracts, upcoming tenders, and the detailed current status.*

*The report will be available in a PDF format.*

## Market Trends, New Opportunities, Future Strategies and Outlook

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*Each profile will provide an overview of the airport, key stakeholders involved, ownership structure, traffic trends, financial performance, user charges, current capacity, expansion plans, key initiatives, recent contracts; etc.*

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*Each profile will provide an overview of the airport, traffic projections, ownership structure, expected capacity, progress under construction, new strategies for faster construction, future timelines, recent contracts; expansion etc.*

*The report will be available in a PDF format.*



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*Each profile provides information on current infrastructure, traffic & capacity analysis, vessel traffic, efficiency and financial performance, ongoing & upcoming projects, etc.*

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*Each profile provides information on current infrastructure, traffic & capacity analysis, ongoing & upcoming projects, etc.*

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*The report will be available in a PDF format.*

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A comprehensive excel-based database of ongoing and upcoming projects in the railways sector. Each project provides information on:

- Scope, Project Cost, Current Status, Segment (Tracks, S&T, Tunnels, Bridges, DFC, HSR, RRTS, Suburban rail, Station redevelopment, Rolling Stock, Electrification, etc.), Mode of Implementation (PPP or EPC), Contractor/Developer, Consultant, Funding Sources (wherever available), Expected Network Addition, Expected Completion Date

The report is available in a PDF format.

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*The report will be available in a PDF format.*

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The report is available in a PDF format

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*The report is available in a PDF format.*

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<b>SECTION II: CONTAINER MOVEMENT: SEGMENT ANALYSIS, TRENDS &amp; OPPORTUNITIES</b>	<i>Each profile will cover information on throughput, current capacity &amp; capacity utilisation, key facilities, draught levels, dwell time, equipment availability and planned expansion.</i>
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- Traffic Trends: Major and Non-major Ports, Port-wise Analysis, Terminal-wise Analysis, East Coast versus West Coast, Loaded versus Unloaded, Transshipment Traffic, Domestic vs Exim Traffic; Container Handling Capacity; Trends in Global Container Shipping; Transshipment Scenario; Vessel Traffic; Average Vessel Size at Ports; Efficiency Trends; Upcoming Projects & Planned Capacity Addition; Key Initiatives to Improve Hinterland Connectivity; Key Issues and Challenges; Outlook and Projections	- Adani Logistics Limited; Arshiya Rail Infrastructure Limited; Container Corporation of India Limited; Central Warehousing Corporation; Distribution Logistics Infrastructure Private Limited; Gateway Rail Freight Limited; Hind Terminals Private Limited; IndiaLinx; Inlogistics; International Cargo Terminals and Rail Infrastructure Private Limited; Kribhco Infrastructure Limited; etc.
	<i>Each profile will cover information on company operations, existing infrastructure, network covered, financial performance, future plans, etc.</i>
	<b>20. KEY ROAD TRANSPORT OPERATORS</b> .....
	- Transport Corporation of India Limited; Allcargo Logistics; Associated Road Carriers Limited; Coastal Roadways; Darcl Logistics; DRC Logistics; East West Freight Carriers Private Limited; Gati KWE; Patel Roadways; Prakash Roadlines Private Limited; TVS Southern Roadways Limited; VRL Logistics Limited; Others
	<i>Each profile will cover information on company operations, existing fleet, geographical coverage, financial performance, future plans, etc.</i>
	<i>The report is available in a PDF format.</i>

**1. DREDGING MARKET OVERVIEW** .....

- Size and Growth
- Key Trends
- Recent Developments
- Major Players
- Growth Drivers
- Issues and Challenges
- Future Outlook

**2. POLICY FRAMEWORK AND CONTRACTING PRACTICES** .....

- Policy Framework
- New Dredging Guidelines
- Impact of GST
- Regulatory Developments
- Disinvestment in DCI
- Type of Contract
- Current Contracting Practices
- Global Best Practices

**3. SEGMENT FOCUS - MAINTENANCE DREDGING** .....

- Size and Growth
  - Major Ports
  - Non-major Ports
  - National Waterways
- Key Completed Projects
- Key Ongoing Projects
- Future Outlook

**4. SEGMENT FOCUS - CAPITAL DREDGING** .....

- Size and Growth
  - Major Ports
  - Non-major Ports
  - National Waterways
- Key Completed Projects
- Key Ongoing Projects
- Future Outlook

**5. DREDGING COST ECONOMICS** .....

- Experience So Far
- Factors Impacting Project Viability
- Key Cost Components
- Funding Sources
- New Funding Options
- Investment Projections (till 2024-25)

**6. KEY GOVERNMENT PROGRAMMES** .....

This chapter will highlight the current status and upcoming opportunities under Sagarmala, Jal Marg Vikas and National Mission for Clean Ganga. Each programme covers the following information:

- Project Scope
- Investment Requirement
- Progress So Far
- Key Completed Projects
- Key Ongoing Projects
- Announced/Planned Projects
- Targets and Timelines

**7. MARKET OPPORTUNITIES (TILL 2024-25)** .....

- Under Key Schemes/Programmes
  - At the Central Level
  - By Port Authorities
  - By IWAI
- For Key Stakeholders

- EPC Contractors
- Dredger Manufacturers
- Technology Providers
- Equipment Suppliers
- Etc.

**8. RISKS AND CHALLENGES** .....

- Policy, Fiscal and Regulatory Issues
- Contractual Issues
- Inadequate Survey and Investigation
- Environmental Concerns
- Financing Issues
- Absence of Dredger Building and Repair Facilities
- Manpower Issues

*(This chapter includes views/perspective of key dredging companies and technology/equipment providers on the key issues and challenges affecting the implementation of dredging projects)*

**9. DREDGER MARKET** .....

- Current Size
- Import of Dredgers
- Market Trends
- Advancements and New innovations
- Indigenous Manufacturing
  - Experience So Far
  - Future Potential
- Segment Outlook

**10. OTHER EQUIPMENT REQUIREMENTS** .....

- Type of Equipment
- Key Suppliers
- Trends in Equipment Usage
- Advancements and Developments in Technology
- Segment outlook

**11. EMERGING AREAS OF GROWTH** .....

- Experience So Far
- Key Completed Projects
- Key Ongoing Projects
- Future Outlook

**12. PROFILES OF MAJOR PLAYERS** .....

- Company Overview
- Fleet Size
- Project Portfolio (Completed and Ongoing Projects)
- Upcoming Projects
- Financial Performance
- Future Plans

**DATABASE OF DREDGING PROJECTS**

A comprehensive database of key dredging projects with information on quantity dredged, contractor, location, contract value, type of dredged deployed, etc. The database would include projects being undertaken at the major ports, non-major ports, national waterways, oil and gas fields, rivers, beaches, etc. It would also cover the ongoing and upcoming projects under the central government programmes.

*The report is available in a PDF format.*

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<p><b>1. EXECUTIVE SUMMARY</b> .....</p> <p><b>SECTION I: MARKET OVERVIEW AND OUTLOOK</b></p> <p><b>2. OVERVIEW</b> .....</p> <ul style="list-style-type: none"> <li>- Growth in India's Bus Market</li> <li>- Current Share of Clean Buses</li> <li>- Recent Trends</li> <li>- National Electric Mobility Mission and FAME Scheme</li> <li>- Key Regulations and Incentives</li> <li>- Investment Needs and Requirements</li> <li>- Issues and Challenges</li> <li>- Future Outlook</li> </ul> <p><b>3. GROWTH DRIVERS</b> .....</p> <ul style="list-style-type: none"> <li>- Key Trends</li> <li>- Focus on Emission Control</li> <li>- Strengthening of Public Transport</li> <li>- Government's Subsidy Scheme</li> <li>- Rising Oil Imports</li> <li>- Smart Cities Mission</li> </ul> <p><b>4. OUTLOOK AND MARKET OPPORTUNITIES</b> .....</p> <ul style="list-style-type: none"> <li>- Procurement Plans of Transport Undertakings</li> <li>- Key Upcoming Bids and Tenders</li> <li>- Future Demand Projections</li> <li>- Market Opportunities <ul style="list-style-type: none"> <li>● Bus Manufacturers</li> <li>● Battery Manufacturers</li> <li>● Other Component Suppliers</li> </ul> </li> </ul> <p><b>5. COMPETITIVE LANDSCAPE</b> .....</p> <ul style="list-style-type: none"> <li>- Key Players (Indian and Global) <ul style="list-style-type: none"> <li>● Company Profile</li> <li>● Operational Fleet of Clean Buses</li> <li>● Future Plans</li> <li>● Key Milestones</li> <li>● Recent Collaborations/JV/Technology Partner</li> </ul> </li> <li>- Current Market Shares</li> </ul>	<p><b>SECTION II: SEGMENT FOCUS</b></p> <p><b>6. HYBRID BUS MARKET</b> .....</p> <ul style="list-style-type: none"> <li>- Types of Hybrid Buses</li> <li>- Operational Fleet</li> <li>- Experience So Far</li> <li>- Procurement Models and Incentives</li> <li>- Technology Options</li> <li>- Cost Benefit Analysis</li> <li>- Key Issues and Challenges</li> <li>- Demand Projections and Market Opportunities</li> </ul> <p><b>7. ELECTRIC BUS MARKET (BATTERY OPERATED)</b> .....</p> <ul style="list-style-type: none"> <li>- Experience So Far</li> <li>- Lesson from China</li> <li>- Operational Fleet</li> <li>- Procurement Models and Incentives</li> <li>- Recent Orders and Investments Made So Far</li> <li>- FAME Phase I Bidding-Key Takeaway</li> <li>- Cost Benefit Analysis</li> <li>- Battery Technology Option</li> <li>- Potential of Battery Swapping</li> <li>- Charging Infrastructure and Technologies</li> <li>- Impact of Charging on Grid</li> <li>- Issues and Challenges in E-bus Adoption</li> <li>- Demand Projections and Market Opportunities</li> </ul> <p><b>8. GAS-BASED BUS MARKET (CNG, LNG, BIOGAS)</b> .....</p> <ul style="list-style-type: none"> <li>- Current Size and Growth</li> <li>- Operational Performance: Costs and ROI</li> <li>- Experience So Far</li> <li>- Recent Contract and Tenders</li> <li>- Initiatives So Far</li> <li>- Potential for LNG and Biogas Buses</li> <li>- Issues and Challenges</li> <li>- Demand Projections and Market Opportunities</li> </ul>
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*The report is available in a PDF format.*



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- Recent Developments
- Mining Techniques and Practices
- Technology Trends
- Private Sector and MDO Experience
- Issues and Challenges
- Future Outlook

**2. IMPACT OF COVID-19 ON THE MINING SECTOR**

- Impact on: Production of Coal and Coal Offtake; Production of Non-coal Minerals; Mineral Demand; Pricing; Exports and Imports; Performance of Mining Companies
- Time Overruns in Mine Projects
- Impact on Contracting Market
- Impact on Supply chain
- New Investment Avenues being Explored
- Mitigation Strategies

**3. PROPOSED REFORMS UNDER MMDR AMENDMENT ACT AND ITS IMPACT**

- Proposed Amendments: Enhancing Private Participation; Defining Illegal Mining; Removing Distinction between Captive and Non-captive Mines; Moving Towards Auction Regime; Developing a National Mineral Index; Etc.
- Expected Impact on the Industry: Production; Exploration; Private Investments and FDI
- Impact on Coal Mining
- Impact on Other Minerals
- Industry Recommendations

**4. EXPLORATION TRENDS AND TARGETS**

- Current Exploration Area and Spending, Recent Initiatives, Capex Plans of Mining Companies, Participation from Foreign Players, Future of Underground Mining, Issues and Challenges, Future Exploration Targets

**5. FUTURE OUTLOOK AND KEY PROJECTIONS (2025-26)**

- Demand Projections of Key Minerals, Supply Projections of Key Minerals, Growth Drivers, Policy Outlook, Prospects of Digitalisation in Mining, Proposed Investments, Upcoming Blocks for Auction

**6. PROJECT PIPELINE AND MARKET OPPORTUNITIES**

- Overall Pipeline
- Top Upcoming Projects
- Pipeline Analysis: By Mineral; Stage; State; Ownership
- Market Opportunities for: Mine Developers and Contractors; Equipment Providers; Mine Design Consultants; Technology Providers

**7. COMMERCIAL COAL MINING: EXPERIENCE AND OUTLOOK**

- Auctions conducted so far, Bidding Response and Experience, Auction Plan for 2021-22, Impact on Coal Mining PSUs, Issues and Challenges, Future Outlook

**8. UPDATE ON MINERAL AUCTIONS**

- Summary of Auctions so Far: Year-wise and State-wise Analysis (Last Five Years); Mineral-wise Analysis; Type of Licenses; Statutory Payments (Royalty, DMF and NMET)
- Key Issues and Challenges
- Upcoming Auctions

**SECTION II: ANALYSIS OF KEY MINERALS, MARKETPLACE AND FUTURE OUTLOOK**

**9. COAL**

- Coal Reserves, Domestic Production, Coal Imports and Sourcing Countries, Pricing Trends, Recent Policy Changes and Developments, Upcoming Projects and their Status, Demand Projections (till 2025-26), Supply Projections (till 2025-26)

**10. IRON ORE**

- Reserves, Production, Exports and Imports, Price Trends: Recent Updates, Recent Developments, Key Players, Investment Plans, Upcoming Projects and their Status, Blocks on Auction, Outlook and Projections (till 2025-26)

**11. LIGNITE**

- Reserves, Production, Exports and Imports, Price Trends, Recent Developments, Key Players, Upcoming Projects: Status and Investments, Outlook and Projections (till 2025-26)

**12. LIMESTONE**

- Reserves, Production, Exports and Imports, Price Trends, Recent Developments, Key Players, Investment Plans, Upcoming Projects and their Status, Blocks on Auction, Outlook and Projections (till 2025-26)

**13. BAUXITE**

- Reserves, Production, Exports and Imports, Price Trends, Recent Developments, Key Players, Upcoming Projects and their Status, Mineral Outlook and Projections (till 2025-26)

**14. COPPER**

- Reserves, Production, Exports and Imports, Price Trends, Recent Developments, Key Players, Investment Plans, Upcoming Projects and their Status, Outlook and Projections (till 2025-26)

**15. LEAD AND ZINC** .....

- Reserves, Production, Exports and Imports, Price Trends, Recent Developments, Key Players, Investment Plans, Upcoming Projects and their Status, Outlook and Projections (till 2025-26)

**16. OTHER KEY MINERALS (BATTERY MINERALS, REAR EARTH MINERALS, MAGNESITE, DOLOMITE, QUARTZ, SILICA SAND, KAOLIN, ETC.)** .....

- Reserves, Production, Exports and Imports, Price Trends, Key Mining Companies, Outlook

**SECTION III: LEADING PLAYERS**

**17. PROFILES OF KEY MINING COMPANIES** .....

- Coal India Limited
- Singareni Collieries Company Limited
- Gujarat Mineral Development Corporation Limited
- NLC India Limited
- National Aluminium Company Limited
- Hindalco industries Limited
- KIOCL Limited
- NMDC Limited
- Vedanta Limited
- Steel Authority of India Limited
- Tata Steel Limited
- Hindustan Copper Limited
- Hindustan Zinc Limited

*(Each mining player will cover operational performance, financial performance, project portfolio, and future plans and strategies)*

*The report will be available in a PDF format.*

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**1. MARKET SIZE, TRENDS AND DEVELOPMENTS** .....

- Size and Growth, Emerging Trends, Project Awards and Completion, Recent Developments (in the past 15 months), Technology Trends and Advancements, New Equipment & Innovations, Investment Requirements (till 2025-26), Risks and Challenges, Segment Outlook

**2. IMPACT OF COVID-19 ON PROJECTS, INVESTMENTS & CAPEX PLANS**

- Progress made by Projects since April 2020: Projects that have Resumed Construction Work; Projects Awarded; Projects Facing Supply Chain Issues; Projects Facing Funding Delays; Project that have Progressed to Construction Post Award; Bid Postponements; Under Bidding Projects; Invocation of Force Majeure and Contract Renegotiation
- Impact of Covid-19 on Key Players: Project Portfolios and Order Books; Project Costs, Payments and Delivery; Planned Capex & Future Plans
- Impact on Investments
- Overall Impact on Capacity Addition
- Relief Measures & Recovery Strategies

**3. PROJECT PIPELINE ANALYSIS (Till 2025-26)** .....

- Realistic Assessment of Project Pipeline: Short Term; Medium Term; Long Term
- Analysis by Stage of Development
- Analysis by Segment (Hydropower, Roads, Railways, Metro, Water & Wastewater, Irrigation, Caverns)
- Analysis by Region & State
- Analysis by Completion Period
- Top Upcoming Projects in terms of Investments
- Projects Awaiting Clearances/Land Acquisition/Financial Closure
- Big-ticket Opportunities to Look Out For
- Upcoming Contracts & Tenders

**4. FUTURE OUTLOOK & MARKET OPPORTUNITIES (Medium & Long Term)**

- Growth Drivers
- Mega/Big Ticket Projects under Construction
- Project Award and Completion Targets
- Investment Requirements (Medium-term and Long-term)
- Market Opportunities: EPC Contractors; Technology Providers; Equipment Suppliers; Construction Material Suppliers; Consultants
- Post-Covid Segment Outlook

**5. CONSTRUCTION EXPERIENCE, CHALLENGES AND BEST PRACTICES**

- Experience So Far
- Current Contracting Practices and Standards
- Construction Techniques and Methods
- Design & Engineering Practices
- Risks and Challenges: Contractual Challenges; Procurement (Equipment and Materials) related Issues; Manpower Issues; Safety Issues; Survey and Investigation Issues; Average Time and Cost Overruns
- Best Practices and Key Learnings

**SECTION II: SEGMENT FOCUS: EMERGING TRENDS, NEW PROJECTS AND OPPORTUNITIES**

**6. METRO RAIL TUNNELS** .....

- Size and Growth, Technology Trends and Advancements, Key Completed Projects, Key Ongoing Projects, Select Case Studies, Major Players, Recent Tenders/Contracts, Upcoming/Planned Projects

**7. ROADS AND HIGHWAYS** .....

- Size and Growth, Technology Trends and Advancements, Key Completed Projects, Key Ongoing Projects, Select Case Studies, Major Players, Recent Tenders/Contracts, Upcoming/Planned Projects

**8. RAILWAY TUNNELS** .....

- Size and Growth, Technology Trends and Advancements, Key Completed Projects, Key Ongoing Projects, Select Case Studies, Major Players, Recent Tenders/Contracts, Upcoming/Planned Projects

**9. HYDRO TUNNELS** .....

- Size and Growth, Technology Trends and Advancements, Key Completed Projects, Key Ongoing Projects, Select Case Studies, Major Players, Recent Tenders/Contracts, Upcoming/Planned Projects

**10. IRRIGATION, WATER SUPPLY AND SEWERAGE TUNNELS** .....

- Size and Growth, Technology Trends and Advancements, Key Completed Projects, Key Ongoing Projects, Select Case Studies, Major Players, Recent Tenders/Contracts, Upcoming/Planned Projects

**11. UNDERGROUND CAVERNS** .....

- Size and Growth, Technology Trends and Advancements, Key Completed Projects, Key Ongoing Projects, Select Case Studies, Major Players, Recent Tenders/Contracts, Upcoming/Planned Projects

**SECTION III: FOCUS ON TECHNOLOGY, EQUIPMENT AND MATERIALS**

**12. TBM TECHNOLOGY** .....

- Market Size and Growth, Current Deployment, TBM Types & New Advancements, Costs Analysis, Key Projects (Completed and Ongoing), Issues and Challenges, Segment Outlook

**13. DRILL AND BLAST METHOD** .....

- Market Size and Growth, Current Deployment, Trends and Advancements, Costs Analysis, Key Projects (Completed and Ongoing), Issues and Challenges, Segment Outlook

**14. NEW AUSTRIAN TUNNELING METHOD** .....

- Market Size and Growth, Current Deployment, Trends and Advancements, Key Projects (Completed and Ongoing), Issues and Challenges, Segment Outlook

**15. TRENCHLESS TECHNOLOGY: MICRO-TUNNELLING AND HORIZONTAL DIRECTIONAL DRILLING** .....

- Market Size and Growth, Current Deployment, Trends and Advancements, Key Projects (Completed and Ongoing), Issues and Challenges, Segment Outlook

**16. EQUIPMENT MARKET TRENDS & FUTURE PROJECTIONS** .....

- Market Size and Growth, Types of Equipment, Rental and Leasing Market, Impact of Covid-19 on Supply & Availability, Innovations and Advancements, Major Players/Suppliers, Issues and Challenges, Future Requirements & Projections

**17. FOCUS ON MEP SYSTEMS & SMART TUNNELS** .....

- Types of MEP Systems (power supply, tunnel ventilation, lighting, fire fighting, traffic management, etc.), New and Emerging Requirements, Trends & Advancements, Safety & Automation Solutions, Noteworthy Initiatives & Best Practices, Future Technologies in Light of Covid-19, Key Challenges & Lessons Learnt, Segment Outlook

**18. NEW CONSTRUCTION MATERIALS** .....

- Types of Materials Used (steel, cement, anchors, explosives, admixtures, etc.), Recent Innovations (Fibre & rock reinforcement, geosynthetics, etc.), Noteworthy Initiatives & Best Practices, Issues & Challenges, Segment Outlook

**SECTION IV: KEY PLAYERS**

**19. PROFILES OF KEY PLAYERS** .....

- Abir Infrastructure Private Limited, Afcons Infrastructure Limited, Gammon Infrastructure Projects Limited, Hindustan Construction Company Limited, IRCON International Limited, ITD Cementation, J Kumar Infraprojects Limited, L&T Construction, Navayuga Engineering Company Limited, NCC Limited, Patel Engineering Limited, SEW Infrastructure Limited

*(This section will cover operations, financial performance (wherever available), recent developments, project portfolio, strategies being adopted in light of Covid-19 and future plans of each company)*

**SECTION V: DATABASE OF KEY PROJECTS**

The database is a compilation of upcoming projects (ongoing and planned) in the segment with details on project name, sector/segment, length, location, cost, implementing agency, current status, mode of implementation, etc.

*The report will be available in a PDF format.*

### EXECUTIVE SUMMARY .....

### SECTION I: SEGMENT ANALYSIS AND GROWTH DRIVERS

#### 1. MINING SECTOR OVERVIEW AND KEY TRENDS .....

- Size and Growth: Mineral Reserves; Mining Gross Value Added; Mineral Trade Deficit; FDI in Mining
- Mineral Laws Amendment Act, 2020
- Union Budget 2020-21
- Key Issues and Challenges
- Future Outlook and Projections
- Viewpoint of Different Stakeholders

#### 2. EQUIPMENT MARKET SIZE AND GROWTH .....

- Key Mining Equipment Used
- Current Market Size of Key Equipment
- Growth in the Past Five Years
- Equipment Productivity Levels
- Equipment Utilisation Levels
- Impact of COVID-19 on the Mining Equipment Market
- Recent Developments Impacting the Equipment Market
- Key Players
- Issues and Challenges

#### 3. EQUIPMENT MARKET OUTLOOK AND PROJECTIONS .....

- Key Growth Drivers
- Impact of Mineral Law Ordinance 2020
- Equipment Procurement Plans of Mining Companies
- Mining Project Pipeline
- Equipment Outlook and Projections (till 2024-25)

#### 4. KEY CONSUMING SEGMENTS .....

- Coal: Segment Size and Growth; Equipment Application and Usage; Growth Drivers; Key Challenges; Projected Demand for Mining Equipment (till 2024-25)
- Key Non-Coal Minerals (Metallic and Non-metallic): Segment Size and Growth; Equipment Application and Usage; Growth Drivers; Key Challenges; Projected Demand for Mining Equipment (till 2024-25)

#### 5. MINING TECHNIQUES AND TECHNOLOGY TRENDS .....

- Surface Mining
- Underground Mining
- Sustainability and Clean Mining Practices
- Mine Planning and Design
- Emerging Technologies
- Issues and Challenges
- Key Case Studies
- Techniques and Lessons to be Learned

### SECTION I: SEGMENT ANALYSIS AND GROWTH DRIVERS

#### 6. LEADING PLAYERS .....

- Action Construction Equipment Limited
- Atlas Copco (India) Limited
- BEML
- Case New Holland Construction Equipment India Private Limited
- Caterpillar Inc.
- Daimler India Commercial Vehicles

- Eimco Elecon (India) Limited
- Escorts Limited
- Hyundai Construction Equipment India Private Limited
- JCB India
- Komatsu
- L&T Construction Equipment Limited
- Liebherr India Private Limited
- Mahindra Construction Equipment
- Metso
- Sandvik Asia Private Limited
- Tata Hitachi Construction Machinery Company Private Limited
- Volvo India Private Limited

#### 7. DRILLING, EXCAVATION AND EXTRACTION EQUIPMENT .....

- Overview
- Recent Trends and Advancements
- Key Equipment Manufacturers
- Demand Drivers
- Projected Demand for Key Equipment (drills, hydraulic shovels, etc)

#### 8. LOADING .....

- Equipment Overview
- Recent Trends and Advances
- Demand Drivers
- Major Players
- Market Projections for Excavators (2020-25)
  - Number and Value Terms
  - Type of Mineral (coal versus non-coal)

#### 9. HAULAGE

- Equipment Overview
- Recent Trends and Advances
- Demand Drivers
- Major Players
- Market Projections for Dumpers (2020-25)
  - Number and Value Terms
  - Type of Mineral (coal versus non-coal)

#### 10. CRUSHING, PULVERISING AND SCREENING EQUIPMENT .....

- Equipment Overview
- Recent Trends and Advances
- Demand Drivers
- Major Players
- Market Projections (2020-25)
  - Number and Value Terms
  - Type of Mineral (coal versus non-coal)

#### 11. AUXILIARY AND SUPPORT EQUIPMENT .....

- Equipment Overview
- Recent Trends and Advances
- Demand Drivers
- Major Players
- Market Projections (2020-25): Number and Value Terms; Type of Mineral (coal versus non-coal)

The report is available in a PDF format.

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<p><b>1. WATER SECTOR OVERVIEW</b> .....</p> <ul style="list-style-type: none"> <li>- Size and Growth</li> <li>- Policy and Regulatory Developments</li> <li>- Freshwater Resources Availability</li> <li>- Sources of Water Supply</li> <li>- New Water Sources (treated wastewater, desalinated water, etc.)</li> <li>- Constraining Factors</li> <li>- Demand-Supply Gap</li> <li>- Supply Outlook and Projections</li> <li>- Future Outlook and Projections</li> </ul> <p><b>2. DESALINATION MARKET SNAPSHOT</b> .....</p> <ul style="list-style-type: none"> <li>- Current Capacity (completed and ongoing)</li> <li>- New Policy and Regulatory Initiatives to Scale up Capacity</li> <li>- Experience So Far</li> <li>- Major Milestones</li> <li>- Issues and Challenges</li> <li>- Key Recommendations</li> </ul> <p><b>3. COST ECONOMICS</b> .....</p> <ul style="list-style-type: none"> <li>- Trends in Capex</li> <li>- Desalination Cost Structure</li> <li>- Cost Components of Key Desalination Plants</li> </ul> <p><b>4. FUTURE POTENTIAL AND UPCOMING CAPACITY</b> .....</p> <ul style="list-style-type: none"> <li>- Growth Drivers</li> <li>- Planned Capacity of States/Local Utilities</li> <li>- Emerging Requirements of Key Industries</li> <li>- Planned Capacity Additions <ul style="list-style-type: none"> <li>• Municipal</li> <li>• Industrial</li> </ul> </li> <li>- Expansion Capacity Plans for Key Industries</li> <li>- Key Upcoming Projects and Tenders</li> </ul> <p><b>5. TREATMENT TECHNOLOGIES</b> .....</p> <ul style="list-style-type: none"> <li>- Types of Technologies (membrane and thermal)</li> <li>- Key Features (capital cost, land requirement, production cost, plant performance, quality of treatment, etc.)</li> <li>- Current State of Deployment</li> <li>- New Advancements</li> <li>- Issues and Challenges</li> </ul>	<p><b>6. KEY PLAYERS AND NOTEWORTHY PROJECTS</b> .....</p> <ul style="list-style-type: none"> <li>- Profiles of Key Players <ul style="list-style-type: none"> <li>• IDE Technologies</li> <li>• VA Tech Wabag</li> <li>• ION Exchange</li> <li>• Suez Water Technologies &amp; Solutions</li> <li>• Doshion Veolia Water Solutions</li> <li>• IVRCL</li> </ul> </li> <li>- Case Studies of Select Projects</li> </ul> <p><b>7. DATABASE OF KEY DESALINATION PROJECTS</b> .....</p> <ul style="list-style-type: none"> <li>- Completed</li> <li>- Ongoing</li> <li>- Planned/Proposed</li> </ul> <p><i>Each project provides information on the scope of work, location, cost, capacity, mode of implementation, implementing agency, developer/contractor, current status, expected date of completion, etc.</i></p> <p><i>The report is available in a PDF format.</i></p>
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### 1. SEWERAGE SECTOR OVERVIEW .....

- Sewage Generation
- Treatment Capacity
- Treatment Generation Gap
- Standards and Norms
- Notable Trends
- Government Initiatives
- Issues and Challenges
- Future Projections (till 2024-25)
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- Emerging Trends
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- New Technologies/Innovations
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- Existing Treatment Facilities
- Key Ongoing and Upcoming Facilities
- Recycle and Reuse Practices
- Innovations and Advancements
- Segment Outlook

### 4. SELECT CASE STUDIES .....

- Municipal
- Industrial

*Each case study will cover information on recycle/reuse initiatives, infrastructure created, sources of wastewater supply, cost of wastewater and tariffs (wherever available), key benefits, lessons learnt and future plans*

### 5. TREATMENT TECHNOLOGIES AND INNOVATIONS .....

- Key Treatment Technologies
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- Planned/Proposed STPs
- Planned/Proposed CETPs

*Each project provides information on the scope of work, location, capacity, implementing agency, developer/contractor, current status, expected date of completion, etc.*

*The report is available in a PDF format.*

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**SECTION I: MARKET SIZE, IMPACT OF COVID, OPPORTUNITIES AND OUTLOOK****1. WATER MARKET OVERVIEW, GROWTH, AND TRENDS**

- Size and Growth; Emerging Trends; Policy & Regulatory Developments; City-Level Initiatives & Best Practices; Technology Trends & Advancements; Sources of Water Supply (Surface & Groundwater); New Water Sources (Treated Wastewater, Desalinated Water, etc.); Issues and Challenges; Revised Outlook in Light of COVID-19

**2. IMPACT OF COVID-19 ON PROJECTS AND INVESTMENTS**

- Progress made by Projects Since April 2020; Impact on Supply Chain; Impact on Key Segments; Impact on Investments; Overall Impact on Capacity Addition; Relief Measures & Recovery Strategies

**3. PROJECT PIPELINE ANALYSIS: RE-ASSESSMENT OF OPPORTUNITIES IN LIGHT OF COVID-19 (Till 2025)**

- Realistic Assessment of Project Pipeline; Analysis by Segment (Municipal, Industrial, Desalination and Wastewater); Analysis by Stage of Development; Analysis by Ownership; Analysis by Region & State; Analysis by Completion Period; Top Upcoming Projects in terms of Investment; Upcoming Contracts and Tenders

**4. OUTLOOK & MARKET OPPORTUNITIES (Medium Term & Long Term)**

- Growth Drivers; Demand and Supply Projections (till 2025); Future Technologies in the Post- COVID-19 World; Capacity Addition Plans; Investment Requirements (till 2025); Market Opportunities

**SECTION II: MUNICIPAL WATER: SEGMENT ANALYSIS, OUTLOOK AND OPPORTUNITIES****5. SEGMENT SIZE AND GROWTH**

- Piped Water Supply Network; Emerging and Recent Trends; Urban Water Supply Sources; Consumption Patterns; Policy & Regulatory Developments; Key Completed Projects; Segment Outlook

**6. KEY GOVERNMENT PROGRAMMES: CURRENT STATUS, UPCOMING PROJECTS AND OPPORTUNITIES**

- Jal Jeevan Mission; Smart Cities Mission; Atal Mission For Rejuvenation and Urban Transformation; Namami Gange Mission

*For each of the programmes project scope, investment requirements, financing sources, current status, key completed and ongoing projects, upcoming tenders, targets and completion timelines, etc, will be covered.*

**7. TARIFFS AND COSTS STRUCTURE**

- Tariff Structure; Water Charges & Fees; Production Costs & O&M Expenses; Recent Tariff Reforms; Issues and Challenges

**8. FINANCING AND INVESTMENT TRENDS**

- Key Funding Sources; Recent Financing Trends; Potential for Private Participation; Formats and Models; Revenue Stream; Key PPP Projects: Completed and Ongoing; Key Upcoming Projects; Risks and Challenges

**9. 24X7 WATER SUPPLY: EXPERIENCE, CHALLENGES & OPPORTUNITIES**

- Experience So Far; Pilot Projects & Case Studies: Implementation Experience & Lessons Learnt; Key Completed & Ongoing Projects; Key Planned & Announced Projects; Upcoming Contracts & Tenders; Segment Outlook

**10. METERING PRACTICES: CURRENT DEPLOYMENT AND FUTURE OUTLOOK**

- Current Practices & Type of Meters Deployed; New Trends & Advancements; Case Studies & Best Practices; Demand Projections; Segment Outlook

**11. NRW REDUCTION STRATEGIES & REVENUE MANAGEMENT SYSTEMS**

- Current Practices & Strategies; City-wise NRW Levels; Case Studies & Best Practices; Future Plans & Initiatives; Segment Outlook

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- Water Requirement by Industry; Emerging and Recent Trends; Water Supply Sources; Consumption Patterns; Regulatory Developments; Key Completed Projects; Segment Outlook

**13. TARIFFS AND COST STRUCTURE**

- Tariff Structure; Water Charges & Fees; Production Costs & O&M Expenses; Recent Tariff Reforms; Issues and Challenges

**14. POWER SECTOR: DEMAND ANALYSIS AND FUTURE PROJECTIONS**

- Current Water Consumption; Water Management Practices & Initiatives; Effluent Generation and Treatment; Capacity Expansion Plans; Projected Water Demand; Issues and Challenges

**15. TEXTILE SECTOR: DEMAND ANALYSIS AND FUTURE PROJECTIONS**

- Current Water Consumption; Water Management Practices & Initiatives; Effluent Generation and Treatment; Capacity Expansion Plans; Projected Water Demand; Issues and Challenges

**16. PAPER & PULP INDUSTRY: DEMAND ANALYSIS AND FUTURE PROJECTIONS**

- Current Water Consumption; Water Management Practices & Initiatives; Effluent Generation and Treatment; Capacity Expansion Plans; Projected Water Demand; Issues and Challenges

**17. STEEL SECTOR: DEMAND ANALYSIS AND FUTURE PROJECTIONS**

- Current Water Consumption; Water Management Practices & Initiatives; Effluent Generation and Treatment; Capacity Expansion Plans; Projected Water Demand; Issues and Challenges

**18. OIL REFINERIES: DEMAND ANALYSIS AND FUTURE PROJECTIONS**

- Current Water Consumption; Water Management Practices & Initiatives; Effluent Generation and Treatment; Capacity Expansion Plans; Projected Water Demand; Issues and Challenges

**SECTION IV: DESALINATION MARKET: EMERGING TRENDS, COST ECONOMICS AND FUTURE POTENTIAL****19. MARKET SIZE, EXPERIENCE AND COST ECONOMICS**

- Current Capacity; Emerging Trends & Developments; Cost Components & Capex Trends; Noteworthy Projects; Industry Structure & Major Players; Planned Additions; Issues & Challenges; Segment Outlook

**20. FUTURE POTENTIAL AND UPCOMING CAPACITY**

- Growth Drivers; Planned Capacity; Investment Requirements; Future Potential

**21. TREATMENT TECHNOLOGIES: MARKET SIZE, EMERGING TRENDS AND ADVANCEMENTS**

- Prevalent Treatment Technologies; Cost Economics & Viability; Current Deployment & Case Studies; New Advancements & Innovations; Issues and Challenges; Future Requirements & Outlook

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- Current Practices & Infrastructure; Notable Trends & Developments; Regulatory Landscape; New Advancements & Innovations; Issues and Challenges

**23. FUTURE REQUIREMENTS AND POTENTIAL**

- Growth Drivers & Demand Potential; Availability of Treated Wastewater; Future Plans & Initiatives; Regulatory Outlook; Future Roadmap

**24. SELECT CASE STUDIES AND KEY LESSONS**

- Recycle/Reuse Initiatives & Best Practices; Lessons Learnt; Sources of Treated Wastewater Supply; Cost Components & Tariffs; Key Benefits & Cost Savings; Future Plans

**SECTION VI: DATABASE OF KEY PROJECTS**

*A comprehensive excel-based database of ongoing and upcoming projects in the municipal water supply, industrial water supply, desalination and wastewater treatment segments.*

Each project will provide information on:

- Scope; Project Cost; Current Status; Segment (Municipal, Industrial, Desalination, Wastewater Treatment); Mode of Implementation (PPP or EPC); Contractor/Developer; Equipment Supplier (wherever available); Funding Sources (wherever available); Expected Capacity Addition; Expected Completion Date

*The report is available in a PDF format.*

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### KEY TAKEAWAYS AND THE ROAD AHEAD

#### SECTION I: MARKET OVERVIEW, OUTLOOK AND OPPORTUNITIES

##### 1. SIZE AND GROWTH

- Sector Snapshot; Current Size and Growth; Notable Trends; Institutional Framework; Regulations, Standards and Norms; Risks and Challenges; Future Outlook and Projections (till 2025-26)

##### 2. IMPACT OF COVID-19 AND OTHER RECENT DEVELOPMENTS

- Impact of COVID-19 on: Under Construction Projects; Contracts Awarded; Under Bidding Projects; Planned/Announced Projects; Government Programmes; Project Delivery and Implementation; Labour Availability; Input Cost; Capex Plans of Private Players; Service Providers
- Regulatory Developments
- Other Key Developments

##### 3. PROJECT PIPELINE AND ANALYSIS

- Overall Project Pipeline
- Project Pipeline Analysis: By Region; State; Ownership/Mode of Implementation; Completion Period
- Expected Capacity Addition: By Treatment Capacity; Network Length
- Analysis of Upcoming Projects
- Top 50 Upcoming Projects

##### 4. FUTURE OUTLOOK AND MARKET OPPORTUNITIES

- Key Growth Drivers
- Investment Requirements
- Market Opportunities: EPC Contractors; Private Developers; Technology Providers; Equipment and Material Suppliers; Pipe Manufacturers; Consultants
- Outlook and Projections (till 2024-25)

##### 5. UPDATE ON KEY GOVERNMENT PROGRAMMES

- Swachh Bharat Mission; Namami Gange Programme; Smart Cities Mission; Atal Mission for Rejuvenation and Urban Transformation

##### 6. INTER-CITY COMPARISON: ANALYSIS OF KEY CITIES

- Sewage Generation; Treatment Capacity; Collection Infrastructure; Treatment Technologies Deployed; Ongoing Projects; Planned/Upcoming Projects; Recycle and Reuse Initiatives; Operational Constraints

##### 7. FINANCING EXPERIENCE AND PPP POTENTIAL

- Key Funding Sources
- Overall Investment Trends
- Union Budget 2020-21: Overall Budget Allocations; Allocations under Major Urban Infrastructure Development Programs
- Innovative Funding Options
- PPP Experience and Potential: Formats and Models; PPP Experience (1990s-2016); PPP Experience (Post 2016)
- Key Completed Projects
- Key Ongoing Projects: Future Outlook and Potential
- Key Risks and Challenges
- Investment Outlook

##### 8. NEW BUSINESS MODELS: HAM AND ONE CITY-ONE OPERATOR

- Salient Features and Experience So Far: HAM; One City-One Operator Model
- Capex and Opex Requirements
- Case Studies
- Key Ongoing Projects
- Upcoming Contracts and Tenders
- Risks and Challenges
- Future Outlook

##### 9. COST ECONOMICS, TARIFFS AND RETURNS

- Tariffs and User Charges; Economics of STPs; Capex and Opex Requirements; Market for Byproducts; Returns and Revenue Potential; New Reforms and Initiatives; Issues and Concerns

##### 10. LEADING PLAYERS: PROJECT PORTFOLIO AND FUTURE PLANS

- Overview: Major Players (Domestic and Global); Industry Structure
- Project Portfolio: Key Completed Projects; Key Ongoing Projects
- Financial Performance
- Industry Concerns and Expectations
- Future Plan

#### SECTION II: KEY FOCUS SEGMENTS: ANALYSIS AND OUTLOOK

##### 11. DECENTRALISED SEWAGE TREATMENT

- Introduction; Salient Features; Experience So far; Project Economics; Select Case Studies; Key Advantages; Constraining Factors; Future Outlook

##### 12. RECYCLE AND REUSE INITIATIVES

- Introduction; Current Practices; Standards and Norms for Reuse; Relevant Technologies; Key Recycle and Reuse Facilities; Case Studies and Lessons Learnt; Key Consumers of Recycled Wastewater; Issues and Challenges; Future Potential

##### 13. INDUSTRIAL EFFLUENT MANAGEMENT

- Current Effluent Generation; Discharge Standards and Norms; Existing Treatment Facilities; Key Ongoing and Upcoming Facilities; Recycle and Reuse Practices; Case Studies and Lessons Learnt; Innovations and Advancements; Segment Outlook

##### 14. ENERGY FROM SEWAGE

- Existing Capacity
- Energy Generation
- Relevant Technologies
- Case Studies & Lessons Learnt
- Key Upcoming Projects
- Future Potential

#### SECTION III: FOCUS ON TECHNOLOGY

##### 15. TREATMENT TECHNOLOGIES AND INNOVATIONS

- Sewage Treatment Technologies: Conventional Technologies; Advanced Technologies
- Comparison of Key Technologies: Cost Comparison; Performance Comparison
- Key STPs: Conventional Technologies; Advanced Technologies
- Current Capacity: Treatment Technology-wise; State-wise
- New Trends and Advancements: Case Studies
- Key Issues and Asset Management
- Segment Outlook

##### 16. O&M AND ASSET MANAGEMENT

- Introduction; Current Practices; Opex Requirements; Cost Recovery; Instrumentation & Automation; New Initiatives; Issues & Challenges

#### SECTION IV: DATABASE OF KEY PROJECTS

The database will be a compilation of operational sewage treatment plants (STPs) along with details on the capacity, implementing agency and technology (wherever available). It will also provide a detailed list of ongoing and planned projects in the sector including sewage treatment facilities, sewage pumping stations, sewage pipelines, recycle and reuse facilities, and effluent treatment plants with details on scope, location, cost, capacity, funding sources, implementing agency, contractor (wherever available), current status, expected date of completion, etc.

The report is available in a PDF format.

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**SECTION I: HOUSING MARKET: TRENDS, DEVELOPMENTS, PROJECTIONS AND OPPORTUNITIES**

- 1. AFFORDABLE HOUSING SEGMENT OVERVIEW**
  - Urbanisation and Demographic Trends, Current Market Size, Trends in Supply and Sales of Affordable Houses, Growth Drivers, Current Stock of Low-Income Housing, Recent and Emerging Trends, Institutional and Regulatory Structure, Outlook and Opportunities
- 2. KEY GOVERNMENT ANNOUNCEMENTS AND EXPECTED IMPACT**
  - Key Announcements in the Union Budget 2019-20, Expected Impact and Industry Views, Other Relief Measures by the Government and their Impact, Next Steps and Suggestions
- 3. POLICY AND REGULATORY DEVELOPMENTS**
  - Infrastructure Status to Affordable Housing, Impact of GST, Credit Linked Subsidy Scheme, RERA Act, Affordable Housing in Partnership (AHP) Scheme, Other Incentives, Industry Expectations and Recommendations
- 4. HOUSING DEMAND AND SUPPLY INDICATORS**
  - Households versus Housing Stock, Affordable Housing Demand and Supply, Demand and Supply Gap: Overall, Urban, State-wise, Rural, Houses by Habitable Conditions, Housing Congestion
- 5. FUTURE OUTLOOK AND KEY PROJECTIONS**
  - Housing Stock Requirement (By Region and By States), Housing Supply Projections, Projected Land Requirement, Projections for Material and Equipment Requirements, Sector Outlook
- 6. PROJECT PIPELINE AND MARKET OPPORTUNITIES**
  - Overall Project Pipeline, By Ownership, Project Pipeline by State, By Stage of Development, Projects under the Smart Cities Mission, Opportunities for Key Stakeholders
- 7. TOP CITIES FOR AFFORDABLE HOUSING**
  - Ahmedabad, Bengaluru, Chennai, Delhi NCR, Hyderabad, Kolkata, Mumbai, Pune

*(Each city profile will include information on the experience in affordable housing, completed and ongoing projects, demographic profile, state of existing infrastructure, upcoming investments, key players, opportunities, etc.)*
- 8. FINANCING AND INVESTMENT SCENARIO**
  - The Investment Experience
  - Funding Sources
    - Bank Credit/Priority Sector Lending, Private Equity/Institutional Investors, Bond Market Transactions, National Housing Bank, Housing Finance Companies/AHFCs, Multilateral Funding Agencies, Others (ECBs/FDI/CLSS)
  - Expectations from REIT Structures
  - Investment Projections and Outlook
  - Key Challenges
- 9. PROJECT ECONOMICS: COSTS, MARGINS, RETURNS AND RISK ANALYSIS**
  - Factors Impacting Project Viability, Key Cost Components, Profit Margins, Trends in Interest Rates and Prices, Project IRRs, Key Recommendations
- 10. MATERIAL AND EQUIPMENT MARKET**
  - Emerging Construction Technologies, Building Material and Equipment Market Size, Demand Drivers, Innovation in the Material and Equipment Market, Global Best Practices, Outlook and Upcoming Opportunities

**SECTION II: UPDATE ON GOVERNMENT PROGRAMMES: PROGRESS AND OPPORTUNITIES**

- 11. PROGRESS REPORT: HOUSING FOR ALL BY 2022**
    - Pradhan Mantri Awas Yojana (PMAY) - Urban: Scope and Objectives, Progress So Far - Physical and Financial, Completed and Ongoing Projects, Targets and Timeline, Investment Requirements
    - Pradhan Mantri Awas Yojana - Gramin: Scope and Objectives, Progress So Far - Physical and Financial, Completed and Ongoing Projects, Targets and Timeline, Investment Requirements
    - Deen Dayal Antyodaya Yojana
    - The National Urban Livelihoods Mission
  - 12. PROGRESS AND OPPORTUNITIES UNDER THE SMART CITIES MISSION**
    - Allocations for Affordable Housing under SCM, The Experience So Far, Key Projects, Upcoming Tenders, Investment Requirements and Market Opportunities
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- 13. PPP POLICY: IMPACT AND BENEFITS**
    - Formats and Models: Government land, Private land, Incentives and Schemes for PPP, Impact of PPP policy, State Initiatives and Opportunities, Industry Recommendations on Policy Implementation and Incentives
  - 14. PRIVATE SECTOR EXPERIENCE AND OUTLOOK**
    - The Experience So Far, Key Projects, Recent Announcements and Investments, Key Incentives under State Policies, Successful Case Studies, Innovative Business Models, Industry Expectations and Suggestions, Upcoming Opportunities, Segment Outlook
  - 15. RENTAL HOUSING MARKET**
    - Overview, Size and Growth, Policy and Regulatory Landscape, Draft Model Tenancy Act, 2019, Rental Housing under PMAY, Emerging Practices - Co-living and Student Housing, State Initiatives, Global Models, Issues and Challenges, Opportunities and Outlook
  - 16. KEY PRIVATE PLAYER PROFILES**
    - Arihant Superstructures, Design Build Serve, Dreams Group, Mahindra Lifespaces, Panvelkar Group, Provident Housing, Shapoorji Pallonji, Sheltrex, Signature Global, SNG Group, Tata Housing, VBHC, XRBIA

*(Each profile will include information on company operations, project portfolio-completed and ongoing, upcoming projects, financial performance and future plans)*

**SECTION IV: STATE-LEVEL SCHEMES, EXPERIENCE AND POTENTIAL**

- 17. INTER-STATE COMPARISON**
  - Current Infrastructure, Demographics, Housing Shortage, Key Initiatives, Future Plans
- 18. KEY STATE PROFILES**
  - Andhra Pradesh, Bihar, Chhattisgarh, Delhi, Gujarat, Haryana, Jharkhand, Karnataka, Madhya Pradesh, Maharashtra, Rajasthan, Tamil Nadu, Telangana, Uttar Pradesh, West Bengal

*(Each state profile will give an overview of the housing scenario, role of key agencies and housing boards, state policy on affordable housing, new initiatives and incentives, and ongoing and upcoming housing schemes/projects.)*

*The report is available in a PDF format.*



**KEY TAKEAWAYS AND THE ROAD AHEAD**

**SECTION I: OVERVIEW, OUTLOOK AND OPPORTUNITIES**

**1. MARKET SIZE, TRENDS AND DEVELOPMENTS**

- MSW Generation and Growth in the Past Five Years
- Institutional Framework
- Recent Policy and Regulatory Developments
- Project Completions
- Recent Contract Awards
- Projects Approved/Announced
- Notable Trends
- Government Initiatives
- Risks and Challenges
- Future Outlook and Projections (till 2025-26)

**2. COVID-19 IMPACT ASSESSMENT: PROJECTS, INVESTMENTS AND OPPORTUNITIES**

- Impact of COVID-19 on: Project Delivery and Implementation; Labour and Raw Material Availability; Input Cost
- Focus on Biomedical Waste Management
- Investment Landscape and Outlook
- City-level Initiatives & Mitigation Measures
- New & Emerging Technology Requirements
- Government Relief Measures
- Future Growth Strategies

**3. REALISTIC ASSESSMENT OF PROJECT PIPELINE**

- Project Pipeline by: Region; State; Stage of Development; Ownership; Completion Period
- Expected Capacity Addition: MSW Treatment Capacity; WtE Capacity
- Top 50 Upcoming Projects

**4. OUTLOOK, PROJECTIONS AND MARKET OPPORTUNITIES**

- Growth Drivers
- Investment Requirements
- Key Projections (till 2025-26)
- Market Opportunities: EPC Contractors; Private Developers; Technology Providers & System Integrators; Equipment Suppliers (Loaders, compactors, smart bins, etc.); Material Suppliers; Consultants
- Top Upcoming Cities
- Future Outlook

**5. KEY GOVERNMENT PROGRAMMES: PROGRESS SO FAR AND UPCOMING OPPORTUNITIES**

- Smart Cities Mission: Mission Scope; Mission Cities; Smart Waste Management; Investment Requirements & Sources of Funds; Progress So Far; Key Completed Projects; Key Ongoing Projects; Upcoming Contracts & Tenders
- Swachh Bharat Mission: Vision and Objectives; Mission and Targets Set; Investment Requirements & Sources of Funds; Funds Disbursement; Progress So Far; Key Completed Projects; Key Ongoing Projects; Upcoming Contracts & Tenders

**6. INTER-CITY COMPARISON: ANALYSIS OF KEY CITIES**

- MSW Generation; Collection & Transportation Infrastructure; Treatment & Disposal Practices; O&M and Asset Management Practices; Key Ongoing Projects; Planned/Upcoming Projects; WtE Initiatives; Operational Constraints

**7. FINANCING EXPERIENCE AND PPP POTENTIAL**

- Experience So Far
- Sources of Funding: Budgetary Allocations; State Grants; Multilateral Funds; Private Equity; Internal Revenue; Financial Institutions
- Innovative Funding Options (Municipal Bonds, etc.)
- PPP Experience and Outlook: Experience So Far; Formats and Models; Key Revenue Sources; Key Completed Projects; Key Ongoing Projects; Upcoming Projects
- Risks and Challenges
- Investment Outlook

**8. COST ECONOMICS, TARIFFS AND RETURNS**

- Tariffs and User Charges; Cost Economics; Capex and Opex Requirements; Market for Residues; Returns and Revenue Potential; New Reforms and Initiatives; Issues and Concerns

**9. LEADING PLAYERS: PROJECT PORTFOLIO AND FUTURE PLANS**

- Industry Structure; Major Players (Domestic and Global); Key Completed Projects; Key Ongoing Projects; Financial Performance; Industry Concerns and Expectations; Future Plans

**10. EQUIPMENT MARKET: CURRENT SIZE & EMERGING REQUIREMENTS**

- Size and Growth; Type of Equipment; Key Players & Products; Innovations and Advancements; Future Demand Projections; Issues and Challenges

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**11. COLLECTION AND TRANSPORTATION**

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**12. TREATMENT AND PROCESSING**

- Status of Waste Processing; Relevant Treatment Technologies; Smart Initiatives at the City Level; New Trends and Advancements; Key Completed and Ongoing Projects; Upcoming Contracts/Tenders; Issues and Challenges; Segment Outlook

**13. DISPOSAL, RECYCLE AND REUSE PRACTICES**

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**14. BIOMEDICAL WASTE MANAGEMENT**

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**15. WASTE-TO-ENERGY: CURRENT CAPACITY AND FUTURE POTENTIAL**

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- Salient Features; Experience So far; Government Initiatives; Key City Level Initiatives; Upcoming Projects & Tenders; Key Benefits; Issues and Challenges; Segment Outlook

**SECTION IV: DATABASE OF KEY PROJECTS**

*The database will provide a detailed list of completed, ongoing and announced/planned/proposed projects in the sector including door-to-door collection and transportation projects, treatment and processing facilities, WtE plants, biomedical waste treatment facility, landfill development and disposal facilities with details on scope, location, cost, capacity, funding sources, implementing agency, contractor (wherever available), current status, expected date of completion, etc.*

*The report will be available in a PDF format.*

## Trends, New Initiatives, Outlook and Opportunities

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**SECTION I: SECTOR ANALYSIS, RECENT DEVELOPMENTS AND UPCOMING PROJECTS**

- 1. TRENDS, DEVELOPMENTS AND MISSION UPDATE** .....
  - Smart Cities Mission; Notable Trends; Recent Developments; Budget 2020-21: Key Announcements & Likely Impact; Technology Trends & Advancements; Startups & MoUs; Issues and Challenges; Smart Cities Mission 2.0; Future Outlook
- 2. PROJECT ANALYSIS: COMPLETED & OPERATIONAL PROJECTS** .....
  - Overall Progress: Snapshot; Overall Progress: State-wise Scenario; Project Analysis; Inter-City Comparison; Select Operational Projects; Challenges and Mitigation Strategies in Key Cities
- 3. PROJECT PIPELINE** .....
  - By Stage of Development; By Segment; By Mode of Implementation; By Region and State; By City; By Period of Completion; Top 20 Upcoming Projects
- 4. IMPACT OF COVID-19** .....
  - Overall Project Pipeline; Under Construction Projects; Under Bidding Projects; Announced Projects; Input Costs; Financing; Supply Chain; Force Majeure; Smart Cities Response to COVID-19
- 5. RECENT INITIATIVES TO FASTTRACK IMPLEMENTATION** .....
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- 6. FUTURE OUTLOOK AND MARKET OPPORTUNITIES** .....
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- 7. TOP 15 INVESTMENT DESTINATIONS** .....
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- 8. NEW & INNOVATIVE FUNDING STRATEGIES** .....
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- 9. POTENTIAL FOR PRIVATE SECTOR PARTICIPATION** .....
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- 10. TOP 20 SMART CITIES** .....
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- 11. FAST TRACK (13 CITIES) AND ROUND II CITIES (27 cities)** .....
  - Snapshot; Key Focus Areas (Mobility, Energy, Governance, Water & Waste, etc.) & Infrastructure Development; Investment Plans & Key Funding Sources; Progress So Far & Key Achievements; Fund Allocation & Disbursements; Key Completed Projects; Key Ongoing Projects; Technology & Smart Initiatives; Key Upcoming Projects; Recent Tenders; Issues & Mitigation Measures
- 12. ROUND III (30 CITIES) AND ROUND IV CITIES (10 cities)** .....
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Projects; Technology & Smart Initiatives; Key Upcoming Projects; Recent Tenders; Issues & Mitigation Measures

- 13. GREENFIELD SMART CITIES** .....
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- 14. NON-MISSION SMART CITIES** .....
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**SECTION III: SEGMENTS IN FOCUS: NOTEWORTHY INITIATIVES, NEW TECHNOLOGIES AND ADVANCEMENTS**

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- 16. SMART ENERGY AND SMART GRIDS** .....
  - Overview and Key Components; Technology Solutions; Current State of Infrastructure in Smart Cities; Noteworthy Initiatives/Projects; Select Case Studies & Technologies Deployed; Issues & Challenges; Key Projects; Key Completed Projects; Recent Tenders; Key Learnings; Segment Outlook
- 17. SMART WATER AND WASTE** .....
  - Key Thrust Areas; Technology Solutions; Current State of Infrastructure; Noteworthy Initiatives/Projects; Select Case Studies & Technologies Deployed; Issues & Challenges; Key Learnings; Key Completed Projects; Key Upcoming Projects; Recent Tenders; Segment Outlook
- 18. AFFORDABLE HOUSING & INTELLIGENT BUILDINGS** .....
  - Key Thrust Areas; Technology Solutions; Current State of Infrastructure; Noteworthy Initiatives/Projects; Select Case Studies & Technologies Deployed; Issues & Challenges; Key Learnings; Key Completed Projects; Key Upcoming Projects; Recent Tenders; Segment Outlook
- 19. SMART GOVERNANCE & COMMUNICATION** .....
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- 20. SAFETY & SECURITY** .....
  - Key Thrust Areas; Technology Solutions; Current State of Infrastructure in Smart Cities; Noteworthy Initiatives/ Projects; Select Case Studies and Technologies Deployed; Key Learnings; Issues and Challenges; Upcoming Contracts and Tenders; Segment Outlook (till 2025-26)
- 21. NEW FOCUS AREA** .....
  - Healthcare; Public Amenities; City Gas Distribution; Roads & Flyovers; Others; Key Completed Projects; Key Upcoming Projects; Recent Tenders; Segment Outlook

**SECTION IV: DATABASE OF KEY PROJECTS**

*The report will also provide a comprehensive Excel-based database of ongoing and upcoming projects across the water supply, sewerage, waste, energy, mobility, buildings, roads, safety and security, e-governance, parking, and healthcare segments.*

Each project will provide information on:

- Scope; Project Cost; Type of Project (Area-based or Pan-City) ; Mode of Implementation ; Implementing Agency; Contractor/ Developer/Technology Vendor (wherever available); Current Status; Expected Date of Completion Etc.

*The report is available in a PDF format*

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(Each player profile will give an overview of the company's operations, focus areas, current production capacity, manufacturing facilities, key projects and tenders, financial performance, capex and expansion plans)

The report is available in a PDF format

## Growth Drivers, Emerging Business Models and Future Outlook

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- Others (GTL Infrastructure, RailTel, PowerGrid, etc.)

*(Each player profile will give an overview of the company's operations, tower footprint and portfolio, focus areas, key projects, key clients, financial performance, capex and expansion plans)*

*The report will be available in a PDF format.*

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This section will cover detailed profiles of 35 key countries the region.

**SECTION IV: DATABASE OF KEY PROJECTS**

The database will have information on project scope, cost, capacity, location, implementing agency, ownership, EPC contractor/developer, equipment provider, current status, date of commencement of construction/month of award, and expected date of completion.

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- Atal Bhujal Yojana (ABHY) - National Groundwater Management Improvement Program
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For each of the programmes we will cover project scope, investment requirements, financing sources, current status, key completed and ongoing projects, upcoming tenders, targets and completion timelines, etc.

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Each profile will give information on the following:

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Each country profile will cover the current economic scenario, current state of infrastructure, sector-wise size and growth, trends in budgetary allocations, mitigation strategies and relief measures to deal with the impact of Covid-19, expected capacity additions, proposed investments, and a snapshot of key completed and upcoming projects.

SECTION IV: DATABASE OF KEY PROJECTS

The database will have information on project scope, cost, capacity, location, implementing agency, ownership, EPC contractor/developer, equipment provider, current status, date of commencement of construction/month of award, and expected date of completion

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*Each profile gives an overview of the company's operations, key contracts, recent collaborations, joint ventures, and future plans and strategies.*

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