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**Key challenges for India's water infrastructure sector and Private Sector Participation**

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**The O.P Jindal Group**

**About the Group**

Founded in 1952  
Group Market Capitalization ~ Rs. 132000 Crore, Group Revenue ~ Rs. 52800 Crore  
4<sup>th</sup> largest conglomerate in India, with established leadership positions in steel, mining, power, energy, infrastructure, water, wastewater and solid waste management  
85,000 employees around the globe  
Manufacturing locations across America, Chile, India, Indonesia  
Largest Indian private steel producer

**Businesses**

Steel, Stainless Steel	Water - Potable, Industrial water and waste water
MS Pipes, DI Pipes	Waste Management - Municipal
Coastal Shipping	Infrastructure
Thermal Power - Generation	Rail
Renewable Energy	

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**The group has large capital investments ongoing across all the four major group companies**

O.P Jindal Group

Jindal Steel & Power Ltd.	JSW Steel Ltd.	Jindal SAW Ltd.	Jindal Stainless Steel Ltd.
 Navneet Jindal • Steel products • Power	 Sajjan Jindal • Steel • Energy • Infrastructure and logistics	 Prithviraj Jindal • Pipes • Tubes	 Ratan Jindal • Steel products • Customised products
-3.0	-5.5	-1.5	-1.5
• Investment of ~ US\$250 planned - Steel: 12 Mt - Power: 15 GW	• US\$ 8b in - Steel: US\$ 4 b - Power: US\$ 2.4b - Others: US\$ 1.6b	• Investment greater than US\$ 70m • Planned for freight wagon manufacturing unit	

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**Jindal ITF Limited**

Jindal ITF Ltd. (Wholly Owned Subsidiary of Jindal SAW Ltd.)

- Infrastructure
  - JITF Water Infrastructure Limited
  - JITF Urban Infrastructure Limited
- Transportation
  - JITF Waterways Limited
- Fabrication
  - JITF Rail Infrastructure Limited
  - JITF Shipyards Limited

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## Jindal Urban Infrastructure Services Limited


**Formed to participate in two important segments –**

- Water and Waste Water Management
- Municipal Solid Waste Management

**Mission**

- To build and operate safe, reliable, sustainable and environmentally superior solutions
- To achieve long term sustainable growth to build and operate a complementary network of:
  - Integrated and stand alone municipal solid waste management projects
  - Water treatment facilities,
  - Water distribution networks,
  - Waste water treatment facilities
  - Water concessions

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## Water and Waste Management Industry

**Facts**

- Growing generation of municipal solid waste and wastewater
- Growing demand for water and electricity; This must be met
- Urbanization and demographics
- Growing Middle Class
- Increasing industrial developments


**Challenge**

- Environmental concerns are resulting in increased legislative pressure for additional facilities and new technologies
- Project funding needs growing but governments under pressure to restrain public spending

**Possible Solution**

- Private Sector participation in public infrastructure services – Public Private Partnerships


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## The Water Opportunity

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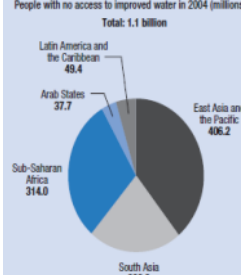


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## No Access to Water and Sanitation

People with no access to improved water in 2004 (millions)

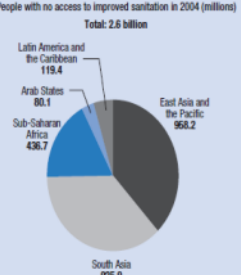
**Total: 1.1 billion**



Region	Millions
Sub-Saharan Africa	314.0
East Asia and the Pacific	406.2
South Asia	228.8
Latin America and the Caribbean	49.4
Arab States	37.7

People with no access to improved sanitation in 2004 (millions)


**Total: 2.6 billion**

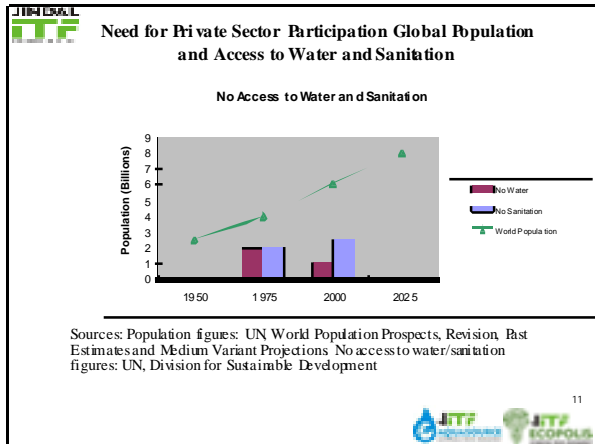
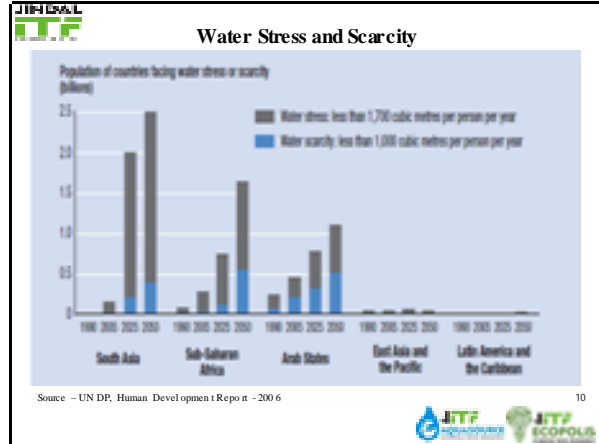
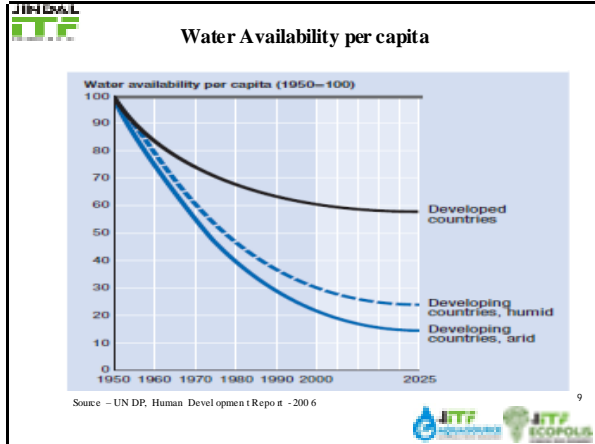


Region	Millions
East Asia and the Pacific	958.2
Sub-Saharan Africa	436.7
South Asia	925.9
Latin America and the Caribbean	119.4
Arab States	80.1

Source – UN DP, Human Development Report - 2006

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### Indian Water and Wastewater Industry :

- India: 4% of World's Water Resources and 16% of the World's population.
- Water resources unevenly distributed. Apparent good coverage (about 80%) by way of access but severely deficient service.
- Absence of 24x7 supply. Average water supply hours range from 2 to 6 hours a day.
- Average annual per capita availability of water is 5200 m<sup>3</sup> in 1951 and 1820 m<sup>3</sup> in 2001. Expectation down to 1340 and 1140 m<sup>3</sup> by 2025 and 2050 respectively.

**Indian Water and Wastewater Industry :**

- As much as 30% of India's domestic waste water is discharged without adequate treatment (some estimate this to be as high as 40%)
- High proportion of Non Revenue Water (estimated at 60%)- Unaccounted for Water(NRW-UFW).
- Low levels of metering
- In some states industrialization is already being held back by poor water resources.
- Poor coverage of wastewater treatment – less than 20% of all wastewater is treated. In 908 towns and cities of India, home to about 260 million people, 382 M<sup>3</sup> of sewage is generated everyday, of which less than 12 billion litres is treated


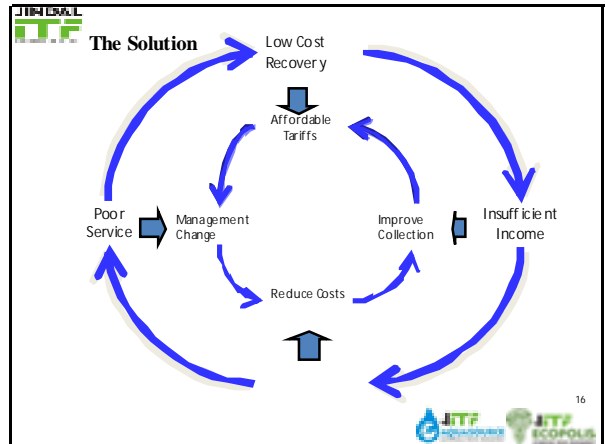
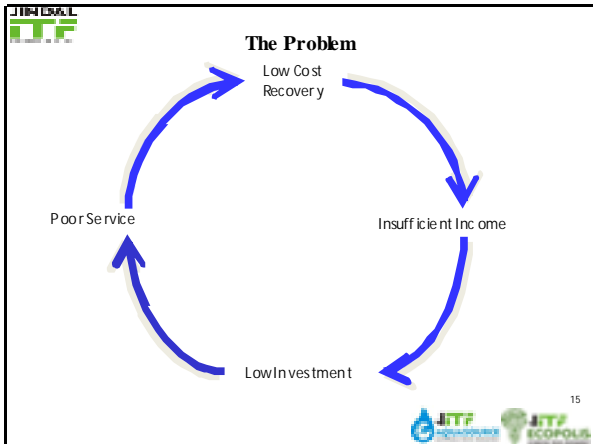
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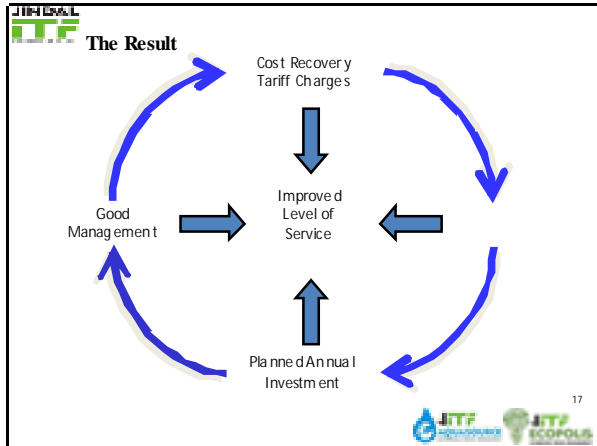


**Impact of New Technologies in India  
Water and Wastewater Industry Growth in India**

- Appetite in metropolitan cities to increase water standards to level in US and Europe
  - Tertiary and advanced water treatment facilities
  - Immersed membrane technology
  - Reverse Osmosis (RO)
  - Biological Nutrient Removal (BNR)

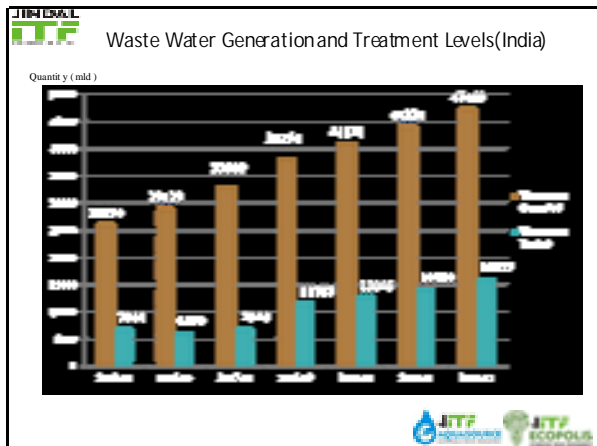
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**Municipal Waste Water Management**

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**Developments in Public Private Partnerships**

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### Defining Private Sector Participation (PSP)

- A publicly accountable body working with one or more private enterprises to provide a service for the common good
- PSP allows communities to improve the efficiency and effectiveness of utility services
- Community control over prices, standards and assets
- PSP schemes vary according to local needs and circumstances, all can contribute to sustainable development
- An 'enabling environment' is required

### Defining Private Sector Participation

- In the water and waste management sector, all PSP schemes are designed to meet, in the long-term, the needs of a community for safe water provision and sanitation and sustainable municipal solid waste management at a fair and affordable price
- Public bodies can choose to use the private sector to:
  - share risks
  - bring investment
  - provide managerial expertise
  - obtain world-class scientific and technical resources

### Public-Private Partnerships (PPP)

- Assets remain in public ownership – wholesale move of public utilities is usually not politically acceptable – but private sector partnering is
- No public sector finance required, reduced financial dependence on government
- Reduce / eliminate government funding / political intervention / decision making
- Provide access to utility infrastructure – improvement of living standards
- “Whole-project” funding available via appropriate finance packages – so no project delays
- Asset realization occurs at a fair price, delivery on time
- Optimal plant operation, skills & technology transfer
- Realistic tariffs and charges

### Forms of Private Sector Participation

- Concession Contracts
- Design, Build, Operate contracts (DBO)
- Build, Own, Operate & Transfer (BOOT)
- Build, Operate, Transfer (BOT)
- Build, Own, Operate (BOO)
- Engineering, Procurement, Construction (EPC)
- Operation and Maintenance Service Contracts (O&M)
- Private Financing

**Comparisons of PPP Options**

Type of Contract	Service/ O&M	BOOT/ DBOF	Concession	Acquisition
Client	Concessionaire	Concessionaire	Local public sector/National Regulator	Government/National Regulator
Scope	Discrete function, asset or plant	New process or partial development area	Whole system	Whole system
Demand & Customer Revenue Risk	Public	Public	Private	Private
CAPEX	Public	Private, for relevant process development only	Private	Private
Efficiency Gains	Limited to OPEX only	CAPEX & OPEX in relevant process area only	CAPEX & OPEX	CAPEX & OPEX
Regulation	Contractual	Contractual	Contractual/Regulatory	Regulatory
Public Acceptability	Good	Good	Fair	Poor
Performance & Improvement	Limited to asset covered. No development progress	Within relevant process area only	Good	Good
Notes	OPEX = operation expenditure		Periodic Review desirable	Periodic Review desirable

- Private Sector Participation (PSP)  
Public Private Partnerships (PPP)**
- With high levels of government investment unlikely to continue in the medium to long term, private sector investment in the water and municipal solid waste management sector will become increasingly politically acceptable
  - Concept of economically sustainable tariff gaining wider acceptance
  - Already more than 65 cities of significant size have been targeted by the government for potential PSP
  - Need for investment is high – Capital Intensive Industry

- Key Success Factors for Successful PSP projects**
- Promotion of
    - User pay and
    - Polluters pay principles
  - Supporting regulation including:
    - Use of recycled water
    - Cut - off policies
  - Fair and comprehensive arrangements - good contract with proper incentives for both parties
  - Contractual arrangements including review potential revenues
    - Take or pay (Water)
    - Put or pay (Waste & Wastewater)

**Lessons learnt from the experience of projects under way**

### Project Risk Mitigation

- Water/Sewage Volume
  - Minimum off take obligation
  - Thorough market analysis prior to investment
- Tariff Payment Shortfall/Leakage
  - Right to participate in tariff collection
- Tariff adjustment
  - Pre-approved formula by government
  - Retail tariff increase to acceptable level as precondition to investment
- Local government support
  - Creditworthiness/ financial risk
- Risks to be divided and responsibility with the best party to manage their risk.

### Benefits of properly structured PPP

Ø A well structured and implemented private sector participation in the water industry can be very successful and delivers benefits for:

- Government
- Customers
- Water and Waste Management Industry
- Environment

Ø PPP/PSP provides a vehicle for :

- Efficiency, effectiveness and delivery, while retaining public ownership of the assets

### Recommendations for a properly structured PPP

- Realistic KPI for Non Revenue Water (NRW) Measurement should be from the entry to the distribution system - i.e. from the outlet of the clear Water Tank/MBR to the customer meters
- NRW reduction over a realistic span of years to achieve rehab program and DMA's implementation (pipes old & new both are likely to burst or leak when the system is pressurized)
- Disconnection Policy : after 1 month of over dues / defaults
- Realistic Construction period in order to prevent inconvenience to the public resulting to public outcry and possible further delays

### Recommendations for a properly structured PPP:

- Every 5 year CAPEX review in connection with achieving and maintaining KPI
- Mechanism to recover additional CAPEX in the CA
- Ability and willingness to pay the Annual support Grant
- Realistic rising block tariff structure
- Risks in a Public Private Partnership should be divided and being put to the best party who is able to manage it.
- Private Sector Participation can be challenging but the rewards could be high for both Public and Private Sector



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**Some of the exemplary projects that have been developed**

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**Current Projects With JUISL**

**BOOT Projects**

<p><b>Implementations of an integrated municipal solid waste processing (Waste to Energy) complex at Okhla, Delhi.</b></p> <ul style="list-style-type: none"> <li>Capacity - 201 MW</li> <li>Concession Period - 25 years</li> <li>Revenue Model - Per unit sale of electricity.</li> <li>Project Value - Rs 204 Crores</li> <li>Status - Under Realisation</li> <li>Commissioning - Mid 2011</li> </ul>	<p><b>Bajkot Sewage Treatment Plant for Recycling of sewage water to the industries.</b></p> <ul style="list-style-type: none"> <li>Capacity - 45MLD</li> <li>Concession Period - 30 years</li> <li>Revenue Model - Sale of Industrial Grade Tertiary Treated Water.</li> <li>Contract Amount - Rs 100 Crore</li> <li>Construction Period - 28 months</li> <li>Date of Completion - Mid 2012</li> </ul>	<p><b>Common Effluent Treatment Plant at Sitapur</b></p> <ul style="list-style-type: none"> <li>Capacity - 4 MLD</li> <li>Concession Period - 30 years</li> <li>Contract Value - 14 Crore</li> <li>Commissioning - Q1 2011</li> </ul>	<p><b>Bhavrajar Sewage Treatment Plant for Recycling of sewage water to the Industries.</b></p> <ul style="list-style-type: none"> <li>Capacity - 45MLD</li> <li>Concession Period - 30 years</li> <li>Revenue Model - Sale of Industrial Grade Water</li> <li>Contract Amount - Rs. 100 Crore approx.</li> <li>Construction Period - 28 months</li> </ul>
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**Current Projects With JUISL**

BOT Projects	EPC Projects	O & M Projects
<p><b>Development of Water Supply System in Nara Raipur</b></p> <ul style="list-style-type: none"> <li>Capacity - 102MLD</li> <li>Concession Period - 8 years</li> <li>Revenue Model - Bulk water supply to the client on monthly basis</li> <li>Contract Amount - Rs 150 Crore</li> <li>Construction Period - 27 months</li> <li>Date of Completion - Jan 2012</li> </ul>	<p><b>Water supply project for JSPL, Anup Nagar</b></p> <ul style="list-style-type: none"> <li>Raw Water Intake Pump House &amp; Cross Country Pipeline</li> <li>Pipeline - 3.5 Km MS twin line</li> <li>Contract Amount - Rs 294 Crore</li> <li>Construction Period - 14 months</li> <li>Date of Completion - Q1 2011</li> </ul>	<p><b>Cross country raw water pipeline and pumping system for 1000 MW power plant at Bhatina, India's longest water supply cross country pipeline.</b></p> <ul style="list-style-type: none"> <li>Pipeline - 84 KM</li> <li>O &amp; M Period - 10 years</li> <li>Contract Amount - Rs 3195 Crore</li> <li>Construction Period - 12 months</li> <li>Status - Completed</li> </ul>

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**Current Projects With JUISL**

EPC Projects		
<p><b>Development of Water Supply Project in Jamshedpur, Bihar</b></p> <ul style="list-style-type: none"> <li>Capacity - 1544MLD WTP</li> <li>Contract Amount - Rs 29.08 Crores</li> <li>Project Type - EPC</li> <li>O &amp; M Period - 6 months</li> <li>Construction Period - 18 months</li> <li>Status - Awarded</li> </ul>	<p><b>Development of Water Supply Project in Munger, Bihar</b></p> <ul style="list-style-type: none"> <li>Capacity - 1362MLD WTP</li> <li>Contract Amount - Rs 28.57 Crores</li> <li>Project Type - EPC</li> <li>O &amp; M Period - 6 months</li> <li>Construction Period - 18 months</li> <li>Status - Awarded</li> </ul>	<p><b>Development of River water intake system and raw water intake system for Jindal Iron Limited.</b></p> <ul style="list-style-type: none"> <li>Pipeline - 623.8 Km, 1500 I.D. 600mm dia</li> <li>Contract Amount - Rs 69.8 Crores</li> <li>Project Type - EPC</li> <li>O &amp; M Period - 5 years</li> <li>Construction Period - 15 months</li> <li>Status - Awarded</li> </ul>
EPC Projects		
<p><b>Development of Water Supply Project in Purnea, Bihar</b></p> <ul style="list-style-type: none"> <li>Pipeline - 6.5 Km, 300mm dia DI pipeline</li> <li>Contract Amount - Rs 27.7 Crores</li> <li>Project Type - EPC</li> <li>Construction Period - 6 months</li> <li>Status - Awarded</li> </ul>	<p><b>Effluent Disposal system, Magadh SEZ</b></p> <ul style="list-style-type: none"> <li>Pipeline - 11 Km, DI pipeline</li> <li>Contract Amount - Rs 30 Crores</li> <li>Project Type - EPC</li> <li>Construction Period - 6 months</li> <li>Status - Awarded</li> </ul>	<p><b>STP Recycling system for JSL Iron Ore Project</b></p> <ul style="list-style-type: none"> <li>Capacity - 10MLD STP</li> <li>Contract Amount - Rs 3.08 Crores</li> <li>Project Type - EPC</li> <li>Construction Period - 6 months</li> <li>Status - Awarded</li> </ul>

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Thank you

Q & A