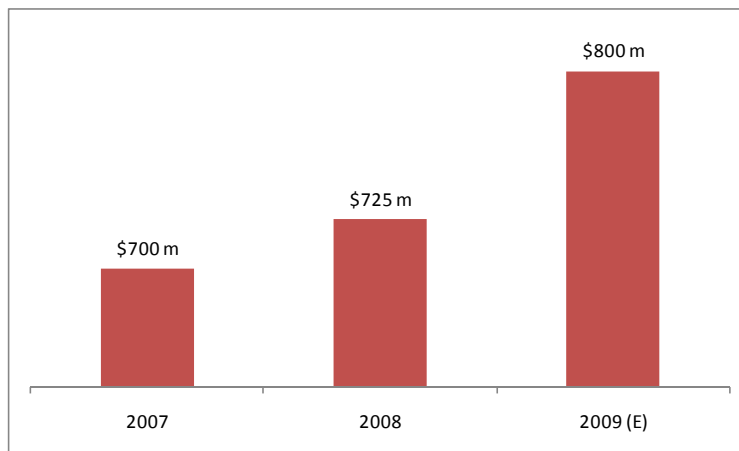


## Indian Water and Wastewater Treatment Market Opportunities for US Companies

**W**ith a market size of over \$4 billion, the Indian water and wastewater market is growing at a rate of 10-12 percent every year. Government related projects contribute over 50 percent of revenues in this market while the private sector contributes the rest. The water and wastewater treatment market segment is highly fragmented and unorganized. Imports constitute approximately \$110 million of the \$690 million market for municipal and industrial water treatment equipment.



Indian market for wastewater treatment (\*source – [www.export.gov](http://www.export.gov))

The U.S. is India's principal source of imports of water treatment equipment, with an estimated share of 40 percent. A growing population has increased the demand for drinking water and rapid urbanization has required increasing sewage treatment. Many industries have been forced to adopt water-recycling systems due to the scarcity of water. Growing public concern, media pressure and renewed legislation has left industries with no option but to install water treatment equipment.

### **Opportunities for US Companies to Export into India**

U.S. companies will find opportunities in sanitation, urban water supply improvement and municipal wastewater treatment. Additional opportunities exist in providing consulting and design services to the Indian water industry. In the area of water treatment, U.S. companies can joint venture with Indian firms to offer integrated solutions in water treatment. These solutions could include performing feasibility studies, designing, technical consulting and providing operation and on-line maintenance services.

There is also a compulsory requirement of environmental clearances from pollution control boards at the federal and the state government levels. Many existing treatment plants would need to be replaced or upgraded to meet the more stringent standards. The bottled water segment has recently established itself as a significant area of growth with a market size of \$280 million and growing at 25-30 percent per year. India's National Water Policy allocates water use priorities in the following order: drinking, irrigation, hydroelectric power, ecology, agricultural and non-agricultural industries, navigation and other uses.

<b>US \$ million</b>	<b>2007</b>	<b>2008</b>	<b>2009 (E)</b>
<b>Market Size</b>	700	725	800
<b>Local Production</b>	613	620	680
<b>Exports</b>	25	24	25
<b>Imports (Global)</b>	112	129	145
<b>Imports from US</b>	45	51	58

The Indian Wastewater Treatment Market (source: [www.export.gov](http://www.export.gov))

The government of India is currently implementing a \$100 billion project to interlink all major river networks in India. This initiative would connect water-deficient areas to water-abundant ones by interlinking 37 Indian rivers. One of the largest projects anywhere in the world, it would transfer water through 30 links across 9,600 kilometers. It would connect 32 dams and use 56 million tons of cement and 2 million tons of steel. It would bring with it a huge requirement for water management, transmission and distribution. India's water transmission and distribution networks are outdated and poorly maintained. The government has recently viewed privatization of these networks as the only option. Water companies from all over the world have established a presence in India to pursue an estimated 70 projects worth several billion dollars in 20 Indian cities.

Indian companies have limited capabilities and technology for the design of water treatment plants. There is a distinct opportunity for U.S. companies to offer technical consulting through contractual and/or joint venture arrangements.

## Key Themes

### **India's demand for water is growing at a significant rate.**

Its rapidly growing population - India currently has the world's second largest population and is expected to overtake China's by 2050 when it reaches a staggering 1.6 billion – is likely to exert increasing strain on its limited water resources. A rapidly growing economy and a large water consumption in its agricultural sector stretch India's supply of water even further. Even as the demand for water grows, it faces other supply side constraints and concerns relating to availability of fresh water primarily owing to pollution and inadequate investment in water resource management.

### **India's changing demographics towards greater urbanization is putting increased pressure on already stressed water and waste-water treatment systems.**

The share of population residing in urban areas in India is expected to go up from 28% in 2001 to about 41% by 2021, implying an incremental addition of over 260 million to the urban population. India's urban water supply systems face a number of challenges. Apart from inadequate access to safe piped water supply these include:

- **Disparities** - The states performing poorly in providing tap water to urban households are Bihar (below 35%), Assam (35% to 47 %), Kerala (40%), UP and Orissa (both close to 50%). Nine other states including large states such as Maharashtra, Andhra Pradesh, and Gujarat, around 90% of the urban population receives tap water and ensure better service delivery. Around 69%<sup>1</sup> of large city dwellers rely on piped water as compared to 45% for smaller urban centres. The gap is even wider considering that a very large share of demand is actually met through groundwater.
- **Quantity of supply:** An assessment of the water supply status in Class I cities indicate about 37% of them receive less than 100 lpcd water supply, followed by 31% between 100-145 lpcd and rest 32% more than 145 lpcd. The water shortage appears to be more acute in the Class I cities of Tamil Nadu, Rajasthan, Haryana, where 55-68% of these cities receive less than 100 lpcd. The situation is much grimmer in case of the class II towns with 80% of the towns receiving less than 40 lpcd.
- **Inconsistent service levels**<sup>2</sup>: Even large Indian cities do not meet the service level benchmarks of 24x7 water supply & low distribution losses (less than 20%) that have been achieved by other Asian counterparts like Singapore & Manila.

The gap between wastewater generation and treatment is even more glaring. An analysis of wastewater generation, collection and treatment during the last four decades indicates that wastewater generation nearly quadrupled even as treatment capacity increased only by two and half times.

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<sup>1</sup> Report on Urban Water and Wastewater by Marie-Helene Zerah

<sup>2</sup> Benchmarking and Data Book of water utilities in India (2007) – An ADB-Gol

Industrial wastewater is the other major source of wastewater generation in the country. Industrial wastewater gets mixed with municipal waste and thus pollutes the water bodies and soil further. It is estimated that there are over 57,000 polluting industries in India generating about 15,500 mld of wastewater, only 60 per cent (generated from large and medium industries) is treated.

**In the last few years, policy actions have been taken to put in place institutional frameworks to improve public water supply and waste-water treatment systems while creating an enabling institutional framework to catalyse private sector development.**

Water is constitutionally a state subject and the role of the central government is limited to defining norms for the sector through the Central Public Health Environment and Engineering Organization (CPHEEO), Ministry of Urban Development (MoUD), Government of India, and providing guidelines and technical assistance to the states. While on the one hand specific projects for private sector participation in urban water supply have been floated and implemented in various parts of the country, on the other, reforms – both institutional and legal - are being effected in the water sector which will have significant impact on the realization of the right to water and all other aspects of water regulation and management.

**National Water Policy, 2002<sup>3</sup>** - The water policy reinforced drinking water as priority over competing water uses and advocated private participation and access to external finance for development of urban water supply system. It also recognized the need and role of private sector participation in introducing innovating ideas, financial resources, corporate management and improving efficiency and accountability to users.

**Integrated Scheme on Ground Water Management and Regulation** was approved in August 2008 by the Cabinet Committee on Economic Affairs (CCEA) to strengthen the groundwater management system, develop area specific rainwater harvesting (RWH) techniques and create a web-based groundwater information system, capacity building of scientists, planners and other stakeholders and strengthening of co-ordination and synergy amongst all other stakeholders.

**Reform-linked JNNURM scheme** – The Jawaharlal Nehru National Urban Renewal Mission (JNNURM) is an initiative directed at substantial improvement in urban infrastructure. JNNURM aims at the development of 63 identified cities with aim to encourage reforms and fast track planned development of identified cities. The focus of the scheme is on efficiency in urban infrastructure and service delivery mechanisms, community participation, and accountability of Urban Local Bodies (ULBs)/ Parastatal agencies towards citizens.

**Service level benchmarking** – The Ministry of Urban Development (MoUD) has also formulated standardized service level benchmarks in 2008 in four important areas of service delivery i.e. water supply, sewerage, storm water drainage and solid waste management. The indicators are

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<sup>3</sup> Section 3(1-2), National Water Policy, 2002

comprehensive and address concerns related to service delivery and sustainability as well as climate change related issues in the areas of mitigation and adaptation. The intention behind the formulation and adoption of service level benchmarks is to bring about a much needed shift in focus from infrastructure creation to service delivery.

**Capacity Building and Financial reforms at ULB level:** The initiative on ring fencing of water assets has happened in the states of Rajasthan and Madhya Pradesh and accounting reforms with shifting to double entry and fund based accounting is underway in most of the Indian states.

**Given this context, the water and wastewater treatment market segment (including technologies, products and services) which accounts for the largest share (almost 50 per cent) of India's environmental services market is likely to emerge as one of the fastest growing markets globally.**

The water and wastewater treatment market is estimated at a little over USD 1.37 billion (26 per cent of the total market for environmental technologies of USD 5.29 billion) and is expected to grow at 10-12 percent. The wastewater treatment market segment is highly fragmented and unorganized. Further, the municipal and industrial water/wastewater treatment equipment market is estimated at around USD 690 million out of which imports constitute around 15 per cent at approximately USD 110 million.

Recycling of wastewater has grown significantly, following the perennially acute shortage of water that the industry experiences. Industry is being encouraged to adopt "zero discharge" technology. In the last few years there has been a considerable improvement in waste treatment compliance rates in industrial segment for large and medium sized industrial units that have been identified under the 18 categories of highly polluting industries. Following the regulation that coal-based thermal power plants should use beneficiated coal with an ash content not exceeding 34 per cent, there has been a spurt in demand for wastewater treatment technologies for coal washeries.

The industrial water and wastewater treatment market growth can be attributed to growing investments in the highly water polluting sectors such as chemicals, petrochemicals, metal processing, ferrous and non-ferrous metals processing and food processing sectors. As a result, the water treatment market is evolving from conventional treatment to becoming more open to adopt modern and sophisticated technology options for addressing these new requirements.

**A vibrant domestic private sector presence offers technology and solution providers a wide range of partnering/collaborating options to facilitate entry and fast-track their growth trajectory.**

India's water and waste water treatment sector reflects a significant level of technological capability and development. The sector is quite competitive and is dominated by joint-venture

arrangements that feature Indian firms partnering with foreign firms. There are over 250 successful foreign collaborations in India's water and waste water treatment sector. The Indian water treatment equipment industry is reasonably well established and cost-competitive for providing turnkey solutions and system integration services. Locally fabricated equipment is about 30 per cent cheaper than imported equivalents, but Indian firms have limited capabilities in designing technologies for larger scale water treatment plants and offering specialized technology solutions.

**About IMaCS Virtus Global Partners**

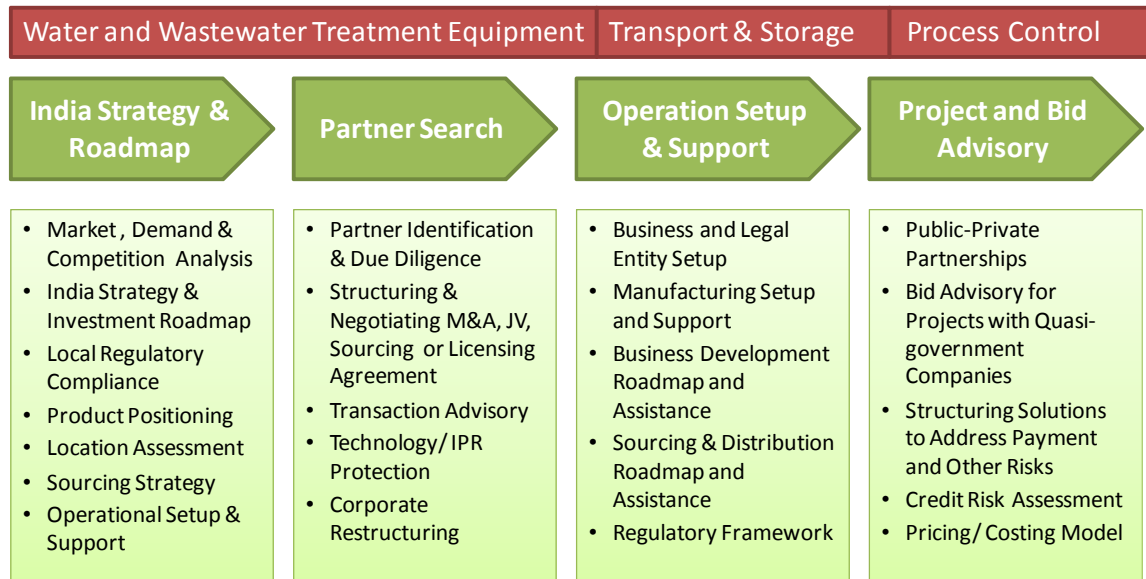
IMaCS Virtus Global Partners, Inc. (IVG Partners) offers advisory services to North American companies and private equity funds seeking India related growth, investment and sourcing opportunities. Our mission is to enable our clients to transform their business by adding India as a key part of their global footprint. Our clients benefit from our local presence, strong relationships, knowledge of local business practice, experience and financial expertise.

We provide India related Strategy & Roadmap Consulting, Partner/ Target Search, Operation Setup & Support, Cross-border M&A Advisory, Project/ Bid Advisory and Transaction Advisory services.

Our team possesses a deep understanding of the business environment both in the US and India and is well connected with companies, financial institutions, governmental agencies, and private equity firms in both markets.

We have an established track record of over 15 years and 900 engagements providing advisory services to a diversified client base across manufacturing, infrastructure, energy, technology, industrial commodities, and retail. We also work with multilateral and bilateral government agencies, banks & financial institutions, and regulators. We are headquartered in New York with eight offices in India.

**Our Services**



## **Our Representative Experience**

Below is a partial list of our water related engagements in India, for our North American, European and Indian clientele:

- ✚ Conversion of intermittent water to continuous (24x7) water and increased access to clean water for urban poor in Pune, India for Environment Cooperation of Asia (ECO-ASIA)
- ✚ State Water and Sanitation Mission support for UNICEF to ensure that the State Communication and Capacity Development Unit and State Water and Sanitation Mission have the requisite systems and capacity for effective planning, implementation, and monitoring of hygiene behavior change communications activities
- ✚ Institutional reforms and capacity building for Central Public Works Department with a focus on creating and maintaining public assets, project management, and maintenance management
- ✚ Process improvement study for Delhi Development Authority with a focus on project planning, project execution, costing/ pricing, marketing & sales, after sales, and enforcement
- ✚ Mid-term evaluation of the \$220 million Kolkata Environmental Improvement Project (KEIP) funded by the Asian Development Bank based on the CBP strategy and the KEIP-CBP LogFrame
- ✚ Study of urban investment climate issues for Government of West Bengal with an analysis of incentives offered to industries, land market issues, and labor market issues
- ✚ Private sector assessment and strategy study in India for Asian Development Bank to identify sectors and areas where ADB Private Sector Operations could evaluate options for direct interventions
- ✚ Assessment and configuration of the national level cold chain infrastructure for exporting agricultural and processed food products for Ministry of Commerce & Industry.

## **Our Offices**

<b><u>New York (HQ)</u></b> 501 Fifth Avenue, Suite 302 New York, NY 10017 Tel: (646) 807-9290	<b><u>New Delhi</u></b> Buildingo. 8, 2nd Floor, Twr A DLF Cyber City, Phase-II Gurgaon 122002	<b><u>Mumbai</u></b> Electric Mansion, FL 4, Appasaheb Marathe Marg, Prabhadevi Mumbai 400 025	<b><u>Bangalore</u></b> Vayudooth Chambers, Fl 2, Trinity Circle 15-16 MG Road, Bangalore 560 001
<b><u>Kolkata</u></b> FMC Fortuna, A-10, FL 3, 234/3A AJC Bose Road Kolkata 700 020	<b><u>Chennai</u></b> Karumuttu Centre, 5th Floor 634 Anna Salai, Nandanam Chennai 600 035	<b><u>Pune</u></b> 5A, 5th Floor, Range Hills Road, Shivaji Nagar, Pune 411 020	<b><u>Hyderabad</u></b> 301, Concourse Fl 3 No 7-1-58, Ameerpet Hyderabad 500 016

Please visit our website [www.ivgpartners.com](http://www.ivgpartners.com). For further information, please contact:

- Anil Kumar in New York at [akumar@ivgpartners.com](mailto:akumar@ivgpartners.com) or +001-646-807-9290
- Ravi Chauksey in Mumbai at [rchauksey@ivgpartners.com](mailto:rchauksey@ivgpartners.com) or +91-9819234478