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**TIRUPUR WATER SUPPLY AND SANITATION PROJECT : AN
IMPEDIMENT TO SUSTAINABLE WATER MANAGEMENT?**

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1. Introduction

The Tirupur Water Supply and Sanitation scheme typifies an incongruity in water resource management and prioritization. It is paradoxical that the textile industry which has over extracted and polluted the water bodies in and around Tirupur for a decade now, be given first priority in designing a water supply scheme. Also ironically, the scheme draws clean raw water (nearly 125 MLD per day) from a river source, but does not conceive of a design for the discharge and treatment of the same. Pollution caused due to industrial waste continues to plague Tirupur, even as state of the art technology is being installed to extract and transport water from distant sources. The scheme, in effect, has a direct bearing on the efforts to ensure recycling of waste water and ‘zero effluents discharge’ and in turn, the broader agenda of sustainable water management and conservation.

The Tirupur Water Supply and Sewerage Project has many firsts to its credit – “it is the first project to be structured on a *commercial format*; the first *project-specific public limited company* for water and sewerage with equity participation of major beneficiaries; first *concession* by a state government to a public limited company to draw raw water for domestic and industrial uses and to collect revenues; the *first index-based user charges* and *direct cost recovery* for urban environmental services; *construction, operations and maintenance* of infrastructure and related services by experienced domestic and international operators.”¹ It is also the first investment of IFC in the water sector in the country.² The project reportedly also has a technical sophistication that is unmatched in the country. Notably, the bulk of the water supplied under this project is for industrial purposes – 115 MLD of the 185 MLD extracted supplies water 24x7, to nearly 900 industrial units. Though not representative of the average “privatization of water supply”, this case study throws light on the new and emerging legal arrangements in promoting public-private partnerships, in the water sector.

After the implementation of the project in 2005, there have been significant changes in the water service delivery in the town. Directives of the Madras High Court³ in the pollution cases have impacted the implementation of the project, raising several issues around the sustainability and viability of this PPP experiment. This case study examines the reasons behind the new project - the institutional, financial and legal aspects of the Tirupur PPP. It also examines important legal issues such as the right to water, competing interests in water, financing of projects, waste water management and the environmental consequences of the PPP. More particularly, it questions the wisdom of planning a water supply project that seeks to prioritize the needs of a polluting industry over the basic water needs of the region.

¹ Chetan Vaidya, The Tiruppur Area Development Program, Indo-US Financial Institutions Reform and Expansion Project – Debt Market Component FIRE (D), Note No.13, January 1999, retrieved at <http://www.niua.org/indiaurbaninfo/fire-D/ProjectNo.13.pdf>.

² See generally IFC Project summary, retrieved at <http://www.ifc.org/ifcext/southasia.nsf/Content/SelectedProject?OpenDocument&UNID=68985B0E317547B785256A03007C23CE>

³ Noyyal River Ayacutdars Protection Association and Others (insert full citation).

2. Background to Water Privatisation and PPP in India

Like in most developing countries, drinking water needs in the India is largely met by the public sector. The entire cycle of water treatment, production, distribution and maintenance is the responsibility of the State. Large-scale neglect of the systems and low investment in maintenance and upgrading of existing facilities has necessitated urgent reforms in the sector. Fresh infusion of funds from the Government is meager, as the larger policy design is to roll back the State in favour of the private sector in all sectors, including water services.

Despite being backed by a clear policy thrust⁴ towards privatisation of water utilities for domestic and industrial purposes in India, the progress has been slow, with less than one-tenth of the urban centres being privatized.⁵ There are nearly 32 projects, either in the pipeline or being implemented in the Water and Sanitation sector, the modes of privatization ranging from operation and maintenance contracts, management contracts, concession agreements, BOOT, BOT.⁶

The wholly privately owned BOT model has now fallen by the wayside, superseded by a distinctive new model for PSP, the joint venture (JV) or time-bound divestiture model. This new privatization model does not fit neatly into any of the categories usually used to classify PSPs, such as divestitures, concessions or leases. Instead, it combines the sale of a minority stake in the utility assets under a public-private JV ownership structure with a limited contract lifespan, usually between 15 and 50 years, with shorter contracts for smaller scale rehabilitation or extension projects.

Government of India defines a 'Public Private Partnership' project to mean a project based on a contract or concession agreement, between a Government or statutory entity on the one side and a private sector company on the other side, for delivering an infrastructure service on payment of user charges. "The emergence of public private partnerships heralds a new era of collaboration between public-private actors across different policy fields including transport, housing, and healthcare to name a few. PPPs first emerged in the United States in the late 1970s and early 1980s in response to what was seen (mainly by neo-liberal politics) as the poor performance of the public sector, and the view that the State had reached its financial limits as far as the provision of public services were concerned. PPPs were initially introduced as a more publicly acceptable alternative to privatization and hence as a tentative first step

⁴ National Water Policy, 2002, "Private sector participation should be encouraged in planning, development and management of water resources projects for diverse uses, wherever feasible. Private sector participation may help in introducing innovating ideas, financial resources and introduce corporate management and improving efficiency and accountability to users. Depending upon the specific situations, various combinations of private sector participation, in building, owning, operating, leasing and transferring of water resources facilities, may be considered".

⁵ See generally National Institute of Urban Affairs (NIUA), Status of Water Supply, Sanitation and Solid Waste Management in Urban Areas (New Delhi: NIUA, June 2005).

⁶ See generally Gaurav Diwedi, Rehmat and Shripad Dharmadhikari, Water: Private, Limited: Issues in Privatisation, Corporatisation and Commercialisation of Water Sector in India (Badwani: Manthan Adhyayan Kendra, 2006).

towards full privatization agreements.”⁷ Greater participation by the private sector corporations and the international funding agencies has transformed the privatization debate in the country.

It is widely believed that the privatization of the water sector would ensure more efficient delivery of services, bring in much needed finances to cash-strapped government utilities and free up precious resources for allocation in other important social and welfare sectors. However, proponents against water privatization argue that water is essentially a public and social good and to ensure the welfare of all citizens, it cannot be left solely in the hands of private actors. Treating water as a commodity, based on market principles will, they argue, adversely impact the human right to water and the right to life. To fully realize these rights, state obligation in delivery of this essential service is vital.

Project designs have since evolved from wholly private sector participation (PSP) to a joint venture model of public-private partnership (PPP). The Tirupur project is the first experiment in PPP in the water sector in the country.

While on the one hand specific projects 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.

3. Context and Objectives of the PPP

In 1995, the special vehicle New Tirupur Area Development Corporation Limited (NTADCL) was set up as public limited company, with equity holders consisting of Government of Tamil Nadu, TACID (TamilNadu Corporation for Industrial Infrastructure Development), Tirupur Exporters Association (TEA) & Infrastructure Leasing & Financial Services (IL&FS). Floated as the first public-private partnership in the water sector, this BOOT experiment has been operational since August 2005. It is responsible for the offtake, treatment and transmission of water, distribution of water to industries and the municipality for domestic consumption, and treatment of the collected sewage, and maintenance of the sewage treatment plants. The project primarily seeks to address the water needs of the industrial area in Tirupur, with bulk of the water being supplied to the industry.

The impetus for the PPP project can be traced to the severe water crisis that the industries in Tirupur faced in the mid 1990s. Faced with a booming textile industry and bracing itself for take off in the post MFA phase, the government was compelled to examine the water situation in the industrial area. Though the TWAD Board drew up a project plan, the project ultimately took shape as a public-private partnership, the costs of which is estimated at Rs. 1023 crores. The PPP must also be examined in the light of the severe environmental damage caused by the textile industry discharging effluents into the surrounding water bodies and extensively contaminating groundwater in the region. While the project focuses on the supply of water to the industry, the needs of a burgeoning township and its surrounding villages have been

⁷ Alison Mohr, Governance Through “Public Private Partnerships”: Gaining Efficiency at the Cost of Public Accountability?, International Summer Academy on Technology Studies – Urban Infrastructure in Transition, 235, retrieved at http://www.ifz.tugraz.at/index_en.php/filemanager/download/311/Mohr_SA%202004.pdf

given short shrift. Likewise, the project envisages low-cost sanitation programs but effluent treatment of industrial discharge, crucial to preventing further damage to the water bodies and the environment, has not been integrated into the project. It is worthwhile to place the entire project in its larger socio-economic and political context.

Clean water is crucial for the dyeing and bleaching units as the quality of the water impacts the process of dyeing and bleaching. There is a severe water crisis in Tirupur due to over extraction of groundwater and contamination of groundwater and other surface water bodies. Prior to the setting up of NTADCL, the water needs of the industry were being met by the supply of water through tankers, drawing water from open and bore wells in the surrounding taluks such as Avanashi, Palladam, Annur, Kangeyam and other taluks of Erode district. “Roughly between 2,000-3,000 lorries with a capacity to transport 10,000 to 12,000 litres/trip are plying around 7 to 10 trips daily to supply clean water for the textile wet processing.”⁸ NTADCL was planned in this context, to primarily meet the demands of the industry.

A. Location and Population

Tirupur, a municipal town located about 50 kilometers east of the city of Coimbatore in Tamil Nadu, is located on the banks of the Noyyal River, a tributary of the Cauvery. In addition to the River Noyyal, waterways such as Jamunai Pallam, Rajavaikkal and other local water bodies and ponds exist in Tirupur. The town is renowned as India’s leading cotton knitwear centre, accounting for over 90 % of the country’s exports in this sector.

Water to the Tirupur town is supplied from River Bhavani situated at Mettupalayam, 54 km away from the city. A total of 28.50 MLD per day is supplied by the two schemes from Mettupalayam head works. The first scheme, maintained by the Tirupur Municipality (TM), with a capacity of 7 MLD supplies to the Tirupur City, the second scheme, maintained by the Tamil Nadu Water Supply and Drainage Board (TWAD), with a capacity of 45 MLD supplies 24 MLD to the town. The remaining water is supplied to 44 wayside village panchayats. Before the setting up of NTADCL, there was no piped water supply to the industry.

According to the census, the total population of Tirupur was 2,35,666 in 1991 and increased to 2,98,853 in 2001⁹. The migrant population in Tirupur is very high, given the high employment opportunities in the hosiery industry, and this impacts directly the projections for infrastructure needs based on the resident population. The total slum population of Tirupur town as per the 1991 census was 57,780 (about 25% of the Tirupur population) distributed in 88 notified slum areas.

While the 2nd Mettupalayam Water Supply scheme was designed for an ultimate population of 3 lakhs by the year 2011, it had by 2006 already hit the 3.5 lakhs mark. Water supplied by the two schemes is not able to meet the water demands of the city.

⁸ S.Eswaramoorthi, et al., Zero discharge – Treatment Options for Textile Dye Effluent: A case study at Manickapurampudur Common Effluent Treatment Plant, Tirupur, Tamil Nadu, 7, retrieved at www.epicin.org

⁹ Prakash Nellyyat, ‘Public-Private Partnership in Urban Water Management: The case of Tirupur’, in Barun Mitra, Kendra Okonski, Mohit Satyanand, *Keeping the Water Flowing*, 149, 154 (New Delhi: Academic Foundation, 2007).

Likewise, the panchayats in the surrounding Tirupur area to which water is being supplied from the NTADCL scheme (popularly called the 'third scheme') have expressed grievances about the projected water needs and the population figures under the scheme.¹⁰

B. Socio-economic and demographic profile

The textile industry in Tirupur has transformed the socio-economic profile of the region. The industries were largely owned by the Chettiars in the early days but the gounder community has increasingly begun investing in the smaller units. It is story of the emergence of the Gounder peasant workers into a working class on the factory shop floor, morphing further to being owners of small units and now, controlling a large part of the industrial activity in Tirupur and the surrounding districts of Coimbatore. Alongside, the growth of the Gounder presence, there has been huge influx of migrant labour from surrounding taluks and districts and also from the state of Kerala. Therefore, the caste composition of the town is ever evolving and changing, but the dominant castes remain to be Brahmins, Gounders, Naidus and Chettiars.

The political profile has largely been influenced by the strong labour movement in Tirupur. CPM and CPI have a large presence alongside the regional parties of AIADMK, DMK and the others, while CITU and AITUC dominate the labour unions in the textile industry.

The feminization of labour is a more visible recent trend, resulting from globalization and the transformation of labour practices, around the country. This is clearly evident in Tirupur, too. Despite a conscious and sustained attempt at abolishing child labour in the industry, several units continue to employ child labour.

C. Profile of the textile industry

The first hosiery unit in Tirupur was set up in 1893. The district of Coimbatore grows good quality cotton essential for the yarn and knitting industry. Around the 1950s, south India, especially Coimbatore district grew into a major powerloom centre. The high concentration of ginning, weaving and spinning mills in the area provided the impetus for the growth of the knitwear industry in Tirupur. Till the 1960s the industry in Tirupur produced mainly gray yarn and bleached vests for the domestic market. The industry changed profile and gathered momentum in the mid 1980s, with the surge in textile exports. In 1984, the first export consignment was shipped. The 90s brought in greater demand for finished garments and this expansion saw the feminization of labour in Tirupur. It must also be noted that the rapid expansion has led to unplanned and haphazard growth of the industry.

The production process comprises of four important operations, decentralised and sub-contracted to various firms and units. These are:

- (i) knitting of cotton yarn and making grey fabric.
- (ii) bleaching and dyeing of grey fabric.
- (iii) fabrication of garments and
- (iv) printing and finishing

¹⁰ Interview with panchayat representatives at Chettipalayam.

Knitting: Knitting is the first process in this industry which is organized in three major ways:

- (i) knitting units which produce the cloth on contract basis for other employers;
- (ii) units which produce cloth for their own production of goods in their factories, and
- (iii) the units which produce for both their own production and on contract basis.

The cotton yarn obtained on the cones is mounted directly on the circular knitting machines manufactured either by several small firms in Ludhiana, Lakshmi machine works. All stages of production process are not carried out in one firm, and there are several units.

Bleaching and Dyeing: Bleaching the grey colour of the knit fabric is essential for dyeing. This process involves mixing bleaching powder in water through which grey fabric is made to pass. The process of dyeing and bleaching is very water intensive.

Fabrication: This process comprises of cutting according to the pattern and then stitching. While cutting is done manually with the help of a pair of scissors or a small cutting machine, stitching is carried out on a sewing machine, manually or electrically operated. Sophisticated indigenous and imported sewing machines are used not only for high speed stitching but also for the various stitching designs.

Printing and finishing: Printing is mainly done on the garments although it could also be done on the bleached fabric before stitching. Before the actually printing is undertaken, calendaring is done to ensure that the surface of the fabric is smooth for printing. Calendaring is the process of pressing the garment with steam. The ironing and pressing tasks are largely done by men. This is followed by the last task, 'checking' which is primarily handled by women.¹¹

D. Environmental Issues

Tirupur is located in a drought prone area and has been designated as such by the Government of India. The Drought Prone Area Programme (DPAP) of the Government of India funded jointly by the Ministry of Rural Development, Government of India and Government of Tamil Nadu has the clear objective of the (i) promotion of economic development of the village community, which is directly or indirectly dependant upon the watershed through optimum utilization of watershed and (iii) encourage restoration of ecological balance in watershed through sustained community action. It is being implemented in Tirupur since 1995-96.

Tirupur has a large concentration of bleaching and dyeing industries which generate between 100 to 120 MLD of effluents. These effluents have a high Biological Oxygen demand (BOD), Chemical Oxygen Demand (COD), color and salt content. The chemicals used include wetting agents, soda ash, caustic soda, peroxides, sodium hypochlorite, bleaching powder, common salt, acids, dye stuffs, soap oil and fixing

¹¹ Sainpath Srinivas, Case of Public Interventions, Industrialization and Urbanization: Tirupur in Tamil Nadu, India (New Delhi: World Bank, April 2000) retrieved at: <http://www-wds.worldbank.org/servlet/WDSContentServer/WDSP/IB/2000/11/17/00>

and finishing agents. The Common Effluent Treatment Plants (CETPs) and Individual Effluent Treatment Plants (IETPs) set up by the industry do not effectively tackle the salt content or reduce the Total Dissolved Solids (TDS) in the effluents. As a result, effluent with high salt content is discharged into the River Noyyal which then flows downstream to be stored at the Orathupalayam reservoir¹², which in turn impacts the agricultural lands irrigated by these waters. Water is also discharged into the River Nallar. The two rivers are natural drainage courses and are seasonal carrying water only during the monsoon period. For the rest of the year, they only carry industrial effluents that stagnate in the riverbeds and percolate into the groundwater.

Another problem is the huge amount of sludge that is generated through the process of treating water. The sludge is stored in plastic bags on the ground and covered with a thick plastic sheet to prevent the wind from carrying the pollutants. However, there is every possibility of seepage through rainwater and further contamination of the soil and water. In fact, the groundwater quality around the cluster of bleaching and dyeing units is polluted to such a level that it is unfit for domestic, industrial and agricultural activities. Further, the pollution has adversely impacted the agricultural yields in the area; increased water-borne diseases such as diarrhea, typhoid, malaria, jaundice and skin allergies; has adversely impacted the cattle, animals and birds; and the fish in these water bodies.¹³

The agriculturalists approached the Madras High Court against the polluting industries. The Tamil Nadu Pollution Control Board (TNPCB) and the High Court have directed the industries to implement zero discharge facilities within a stipulated period or face the threat of closure of the industries. It has also ordered the dyeing industries to pay 6 crores for the reclamation of the Orthupalayam dam and another 140 crores as compensation to farmers downstream of the Noyyal River. Following this order, the industries have approached the TWICL to assist in developing and financing an effluent treatment plant facility.

4. Water supply and sanitation in Tirupur

A. History of water supply and sanitation infrastructure in Tirupur

Supply of drinking water, both in urban and rural areas has been the responsibility of the local bodies. To assist the local bodies to effectively source, monitor and implement the distribution of water, statutory boards were set up by the State Governments. In TamilNadu, the Metrowater Board (for the city of Chennai and surrounding areas) and the TWAD Board, were set up. The Tamil Nadu Water Supply and Drainage Board (TWAD), set up in 1971, seeks to assist local bodies in planning and execution of water supply and drainage schemes all over the state. In its

¹² The Orthupalayam dam was constructed in 1991, at the cost of 16 crores with the intention of irrigating an area of 500 acres in Erode district and 9875 acres in Karur district. The dam has now been reduced to storing the industrial effluent from the textile industries.

¹³ See generally Dr. K. Govindrajalu, 'Industrial Effluent and Health Status- A Case Study of Noyyal River Basin' in Martin J. Bunch et al., eds, *Proceedings of the Third International Conference on Environment and Health* 15-17 (Chennai: 2003).

operation, it acts as the executing agency for the local bodies who have to pay the Board for the capital works. Once installed, the maintenance of the system is the responsibility of the local body, but in several instances, TWAD is also acting as the maintenance and operating agency.

Prior to NTADCL, the town received water from two schemes for which the primary source of water is the River Bhavani. Scheme - I was commissioned in the year 1965 to supply water to Tirupur Municipality and seven wayside villages with a design capacity of 7.0 MLD. The Scheme-II has a design capacity of 32 MLD and was commissioned in the year 1992. It supplies water to Tirupur Municipality, four town panchayats and 44 wayside villages.

The Tirupur Municipality is vested with statutory powers for the operation and maintenance of the water supply system within municipal limits. The Tirupur Municipality at present maintains the Scheme-I from the source to distribution and is responsible for supplying bulk water to 7 wayside villages covered under this scheme. The, TWAD Board is responsible for operation and maintenance of the Scheme II, which is outside Tirupur Municipality limits.

The industries in TLPA area including TM area do not have access to the reliable piped water supply. Water is an essential commodity in the cotton knitwear production process. The existing water supply system does not provide water to the dyeing and bleaching industries. The industries have largely relied on their own resources to access water supply. Private water suppliers abstract the groundwater and supply it to the industries through tankers. Prior to the setting up of NTADCL, the demand for water by the industries was so high that several agriculturists resorted to selling groundwater to the industries, impacting adversely the water source for agricultural purposes.

There is no under ground drainage system in Tirupur. Disposal of night soil is normally by way of individual facilities and liquid waste (sullage and kitchen waste) is through the open drains. The main mode of individual disposal in the town is through septic tanks, Low Cost Sanitation units and through public conveniences. About 62% of the total population is covered with sanitation facilities comprising of septic tanks and soak pits. Community facilities in the form of 36 community toilets have been provided by the Tirupur Municipality for about 8,113 households belonging mainly to the economically weaker sections and low income groups. The slum area within Tirupur Municipality currently does not have access to any sanitation facilities including toilets.

On the industrial front with over 700 industries, the contribution of industrial discharge in Tirupur is significant. This wastewater to a large extent is untreated and is discharged into the Noyyal River, dry wells or onto open lands. While there have been efforts of late to set up common effluent treatment plants and individual treatment plants, the technology used by several units is not advanced enough to effectively deal with the effluents.

B. NTADCL: A water revolution in Tirupur?

The Tirupur Water Supply Project originated in the context of domestic water supply being limited to a few hours on alternate days; industries not having access to piped

water supply and relying heavily on water tankers for water supply; available water sources – both surface and groundwater polluted heavily by the textile industry and the fast depleting ground water in the region.

The initiative for the formation of NTADCL came from Tirupur Exporters Association (TEA). TEA, a registered society of owners of the industrial units manufacturing textiles in Tirupur, supported a plan for the development of infrastructural facilities, particularly those relating to water treatment and supply and sewage treatment for the enhancement of the productivity and export potential of the industrial units in Tirupur. The Government of Tamil Nadu mandated the Tamil Nadu Corporation for Industrial Infrastructure Development Limited (TACID) to identify infrastructure projects so as to enhance Tirupur's export and industrial potential.

TACID formulated an integrated Tirupur Development Plan (TADP) in 1993-94, for the Tirupur Local Planning Area (TLPA) which envisaged several schemes including those relating to services of treatment and supply of potable water in the service area and the offtake, treatment and disposal of sewage in Tirupur Municipality. The Government of Tamil Nadu along with TACID and TEA, with a view to leveraging the resources approached IL&FS, a non banking financial services company, for assistance in raising finances for the project.

A Memorandum of Understanding was signed on 25th August 1994, between Government of India, TACID, TEA and IL&FS. The Concessionaire contract (Build-Own-Operate-Transfer) for a period of 30 years, has been granted jointly by the Government of Tamil Nadu and the Tirupur Municipality to the New Tirupur Area Development Corporation Ltd (NTADCL). In furtherance of this MoU, NTADCL has been incorporated on 24th February 1995 as a public limited company under the Indian Companies Act, 1956 with initial equity participation from GOI, TACID (representing GoTN), TEA and IL&FS. GoTN and the Tirupur Municipality have agreed to grant NTADCL a Concession, to develop, finance, design, construct, operate, maintain and transfer on strictly commercial principles on an integrated basis, the water treatment and supply facilities and sewage treatment facilities including the right to draw water from the river Cauvery.

Under this concession agreement, NTADCL undertakes, either by itself or through its subsidiaries, to implement the project, on strictly commercial principles on an integrated basis, to:

- (a) provide a water abstraction, treatment and distribution service by undertaking to develop, finance, design, construct, own, operate, maintain and transfer to GoTN or its nominee, the Water Treatment Facility for the purpose of supply of Potable Water to TM and other purchasers, outside the jurisdiction of TM at the Water offtake points;
- (b) provide sewage offtake, treatment and disposal service by undertaking to develop, finance, design, construct, own, operate, maintain and transfer to GoTN or its Nominee, the Sewage Treatment Facility, for the purpose of offtaking, treating and disposing Sewage, delivered by TM at the Sewage Offtake points.
- (c) develop, design, finance and construct the Water Distribution System and the Sewerage system, which would be transferred to TM by NTADCL upon the issuance of the Construction Completion Certificate.

The agreement provides for recovery of costs and operation and maintenance through a composite water and sewerage charges. The tariff structure provides for annual revision linked to indexation and any unusual increases are to be approved by the Price Review Committee. The base project return is 20% pa on 185 MLD project cost.

The EPC1 contractor (River intake well and pumping station; water treatment plant and booster pumping station; transmission main-56 kms; master balancing reservoir) is Hindustan Construction Co. Ltd. and EPC2 Contractors (3 Feeder Mains – 93 kms; water distribution stations; distribution network; distribution network to wayside villages; sewerage system – 124 Kms; low cost sanitation) are Mahindra & Mahindra and L & T Ltd. The O & M contract has been awarded to United Utilities, U.K and Mahindra & Mahindra.

The other related contracts apart from the concession agreement include Concession Agreement, Bulk Water Supply Agreement between NTADCL and Tirupur Municipality, Shareholders' Agreement, Common Loan Agreement, Engineer Procure Construct Contract, and Operation & Maintenance Contracts.

Bidding Process: NTADCL selected a consortium for the design and construction of the project facilities and their operation and maintenance over the concession period, through an international competitive bidding process. Global tenders were called for, and after selection the O&M contract was awarded to a consortium led by the Mahindra Group, with Bechtel Enterprises and United Utilities International, UK, being the other members of the Consortium. While ownership of the project assets lay exclusively with NTADCL in its capacity as the concessionaire, the consortium has an equity share in NTADCL.

Project capacity: The key features of the project are: 56 k pipeline from the Cauvery river; a water distribution network of about 350 km; raw water and sewerage treatment plants; pumping stations; and conveyance facilities. The intake of water is at the river Bhavani and a water treatment plant is located at the water source. The clean water is then transported 56 kms (through steel pipes which are 1400 & 1200 mm dia) to the Master Balancing Reservoir. The villages located alongside the pipeline – Kanchikoil (2.7 MLD), Perundurai Chennimalai (8.4 MLD), Uthukali (3.9 MLD) – and the Netaji Apparel Park (1.0 MLD) are being supplied water. The water from the Master Balancing Reservoir is then supplied to the distribution stations through three feeder mains. Feeder Main-I supplied to the Tirupur Municipality and Feeder Mains II and III supplies to the Tirupur Local Planning Area.

When fully operational, this water supply and sewerage system will supply 185 million litres per day to about 900 textile firms and over 1.6 million residents in Tirupur, Tamil Nadu and surrounding areas. About 125 million litres per day (MLD) of water is to be supplied to knitwear dyeing and bleaching industry, 25 MLD to residents of Tirupur including 60,000 slum dwellers and 35 MLD to the region's remaining rural towns, villages and settlements.

C. Institutional and Financial Aspects

It is believed that the lack of budgetary resources prompted the local industry to spearhead the implementation of TADP on a commercial format. A special purpose

vehicle (SPV) to access commercial funding was formed and the New Tirupur Area Development Corporation Limited (NTADCL) was created for this purpose. NTADCL was the SPV and project sponsor. The project itself was split into three separate contracts, two awarded on an engineer, procure and construct (EPC) basis and one to operate and construct (O&M) the finished facility. The EPC1 (engineer, procure and construct) contractor was the Hindustan Construction Company and the Mahindra & Mahindra/Larsen and Toubro joint venture responsible for the EPC2 contract. The O & M contractor is Mahindra Water Utilities Ltd. – a Mahindra/United Utilities JVC.

Project funding was a mixture of debt and equity, an approach which involved a number of sources including public money, various commercial interests, financial institutions and international funding agencies. The financing structure is as follows: equity: Rs. 322.7 Crores (US \$ 69 million); senior Debt Rs. 613.8 crores (US \$ 132 million); subordinate debt: Rs. 86.5 Crores (US \$ 18 million). The total amount of Rs. 1023 Crores (US \$ 220 million): EPC Cost – 650 crores, owners cost – 127 crores, contingency cost – 93 crores, interest during construction – 142 crores and initial working capital – 11 crores. The project cost is to be financed through a debt: equity ratio of 1.5:1 viz Equity - 322.70 Crores, Subordinate Debt - 86.50 Crores, Debt - 613.80 Crores.

Assistance came from the Infrastructure Leasing and Financial Services (IL&FS) and from the US Agency for International Development (USAID) with loan guarantees over 30 years for \$ 25 million (US). The World Bank provided a line of credit to IL & FS and the ADB through its private arm ADIQUA Holdings has a 27 % stake in the project¹⁴.

5. Legal Aspects and its implementation:

A. Legal Contracts:

It may be worthwhile to highlight some of the important and relevant sections contained in the Concession agreement. The contract provides that NTADCL shall abstract raw water from river Cauvery upto a maximum of 250 MLD. Out of this, it shall allocate 48.70 MLD of raw water for domestic and non domestic purposes within the TM, upto a maximum of 165 MLD for industrial units for non-domestic purposes outside TM in the service area and up to a maximum of 36.30 MLD of raw water for domestic purposes to wayside panchayat unions along side the main water transmission line and villages in the Tirupur Local Planning Area.

The agreement also gives NTADCL the absolute right to re-allocate the above-mentioned quantities of raw water in the event that stated quantities for domestic purpose are not off taken or not paid for by the TM and way-side villages to other purchasers within the “service area.” NTADCL shall be liable to supply the net quantity of potable water remaining after deduction in the quantity of transmission

¹⁴ The equity ownership is as under: TWICL -31.56 % ; ADIQUA- 27.05%; LIC - 6.01%; GIC- 6.01%; New India Assurance - 1.13%; UTI - 1.13%; NICL - 0.90 %; OICL- 0.68 %; TIDC - 0.68 % ; Mahindra Infrastructure Developers LTD - 4.51% ; Mahindra Construction - 2.25 % ; Mahindra Holdings - 2.25 % ; WSA Engineers - 4.51% ; Others - 11.33%

losses from the abstraction point to the water offtake points. NTADCL shall at its sole discretion supply or otherwise dispose of the potable water remaining after the offtake of the contracted quantity of potable water by TM, way side villages and the industrial units.

The terms of the agreement requires the GoTN to issue notifications under the Tamil Nadu District Municipalities Act, 1920, and under the Tamil Nadu Water Supply and Drainage Board Act, 1970, specifying NTADCL as the entity with exclusive rights to abstract raw water, develop, finance, design, construct, own operate and maintain the Water Treatment Facility, pipelines and waterworks in order to provide Water Treatment and Supply Services within the Service area.

The concession agreement provides for total cost recovery along with returns during the period of the concession. If there is a shortfall, the Concession shall stand extended, so as to ensure recovery of the outstanding total cost of project and return. Upon termination of the concession period, NTADCL shall transfer the facilities to GoTN and TM. An extension of the concession period can be granted by the GoTN if the total cost has been recovered. However, the GoTN is not obliged to extend the concession period beyond 38 years from the financial closure.

Additional Allocation

NTADCL shall, at any time during the concession period have the right to make one or more requests to GoTN in writing, to increase NTADCL's water drawal rights above the existing rights of 185 MLD upto 250 MLD, if in the opinion of NTADCL, the demand for potable water by industrial units outside TM is likely to exceed the allocated 100 MLD for non domestic purposes. NTADCL shall submit its request to GoTN and the GoTN shall on receipt of such request supported by the above details provide NTADCL with additional raw water abstraction rights within the abstraction area within two months from the date of the receipt of the request, provided NTADCL at the time of request is not in breach of any of its obligations under this Agreement.

Financial and Project Information

NTADCL is required to send to GoTN during the construction period and the operation period, the following documents and information at the intervals described below:

- (a) annual audited accounts of NTADCL delivered within 180 days of the end of each fiscal year;
- (b) un-audited financial statements of NTADCL delivered within 60 days of the end of each quarter;
- (c) the construction budget and operations budget for the project to be delivered within 30 days of approval by the Independent Engineer and the Independent Auditor;
- (d) notification of any material adverse effect in the financial condition of NTADCL and/or the project promptly following such occurrence; and
- (e) the project plan for the implementation of the project which shall comprise of the order in which NTADCL shall carry out various activities involved in the Construction of the facilities and/or the system or part thereof, repairs and

refurbishment of the existing system within a period of 90 days from the construction commencement date.

Water charges:

Under the agreement, GoTN and TM grant to NTADCL the right and entitlement to determine the price of potable water and the price of sewage treatment, connection fee and security deposit in accordance with the terms of this Agreement. The charges shall be more specifically, in the nature of :-

- (i) the water charge and
- (ii) the sewage charge

NTADCL may at its discretion for reasons of commercial expediency charge prices which are less than the amounts to which it is entitled to charge in accordance with this agreement. NTADCL may, at its sole discretion, also provide a rebate in the charges if the purchasers make prompt payments thereof prior to the due dates.

Besides the Water charge, NTADCL is entitled to collect a one time connection fee, reconnection fee and security deposit. NTADCL shall be at liberty to determine by negotiations, the amount of connection/reconnection fee and security deposit. However, these charges are subject to the prior approval of the GoTN and the TM. The agreement states that the charges will be in the nature of price paid for services rendered and are not in the nature of any tax or fee. The rates of price of potable water and price for sewage treatment shall be determined by NTADCL and reviewed periodically.

NTADCL shall be entitled to levy a surcharge on the price of potable water supplied for non-domestic purposes to industrial units at a rate to be determined by the prices review committee to set off foreign exchange rates. The price review committee would determine the amount of surcharge per kilo litre of water based on the report of the Independent Auditor.

B. Implementation and Legal issues

1. Pricing

The Government Order MS No, 260 RD (WSI) dated 9th December 1998 provides for collection of water tax (user charges) by the local bodies and the O& M costs to be paid to the TWAD Board. "As per the G.O. and in practice, this water tax is a fixed amount of Rs. 360/- per year collected only from those who hold individual house service connections (HSCs). The common water collection points (otherwise known as Public Fountains) are meant for the poor who cannot afford to pay for water. This positive discrimination is there in favour of the poor. This practice is already in vogue in many of the way-side village panchayats in Tirupur. Water is supplied by the TWAD Board from a combined water supply scheme pumped from Mettupalayam (which is locally popular as the 2nd Scheme). The Village Panchayats are paying the O & M cost to the TWAD Board. The Panchayats pay at the rate of Rs. 3.50 per 1000 litres. This is very much subsidized by the Government and it would not cover the entire O & M cost to the TWAD Board. Given the polluted ground water and considering the essentiality of water service the government is subsidizing water. As

of now as per the condition, given to the NTADCL, they also charge on par with TWAD Board rates only (i.e., Rs. 3.50 for 1000 litres).¹⁵

NTADCL charges differing prices for water used for domestic purpose and water used for industrial use. The charges are Rs. 3 per kilolitre (KL) for villages, Rs. 5 per KL for domestic use in the Tirupur Municipality and Rs. 45 per KL for industrial and commercial consumers. The industries are required to provide a bank guarantee to NTADCL thus ensuring offtake of water. Every year the bank guarantee has to be renewed and it is linked to the amount of water drawn by each industry. The collection of water charges for domestic use continues to vest with the Tirupur Municipality. The Municipal laws were amended to provide for the distribution of water in the Tirupur Municipality.

The water supplied to the dyeing and bleaching units initially charged Rs. 45 per 1,000 litre of water supplied to the industry. This was however, reduced to Rs. 23 per 1,000 litre in July 2006, as the demand for water and offtake by the industry was very poor. The project was implemented with an assessed quantum of water of 108 MLD per day but it is reported that the actual water drawal by the Tirupur industries even after one year is estimated at 75 MLD on normal weekdays. The water rates have again been revised in February 2007 to Rs. 35 per 1,000 litre. NTADCL is offering a 10 per cent discounted rate for those industries whose monthly off take of water is more than the agreed quantum. The discounted rate extends to the entire quantity of water drawn and not just the excess offtake of water.¹⁶ The project thus gives incentives to increased water withdrawal, marginalizing optimum and sustainable utilization of existing water resources.

The concession agreement provides for recovering over a period of time the capital cost and the cost of operation and maintenance. "Charging for water so as to 'recover capital cost incurred in constructing facilities' is generally viewed wrong because in a welfare state it is a state obligation. Charging the Operation and Maintenance costs is widely accepted and there are some Village Panchayats in Tamil Nadu that has the practice of collecting user charges from house service connection (HSC) holders. It is a responsibility the local body is supposed to carry out with the support of the user community. Reports in several village panchayats is that even if the user charges were collected from all HSC holders, the local bodies would not be in a position to meet the full O & M costs. One component i.e., water pumping charges (electricity bill) would eat up the entire user charge collection in one gulp."¹⁷

The project does not envisage cost recovery to be effected through the water supplied to the municipality and the panchayat areas. It seeks to cross-subsidize the water supply for domestic purposes with the water charges obtained from industry. Thus, for the project to be viable the industry has to offtake more and more water to effectively subsidize the domestic consumer. It must be noted however, that the pricing does not take into account the environmental costs of pollution and treatment of the same. In the absence of standards for pricing of water in the country, it is vital that the policy

¹⁵ See Eswaramoorthi, note 8 above, p. 4

¹⁶ G. Gurumurthy, Dual Pricing of industrial Water Supply in Tirupur, *Business Line*, 03 February 2007.

¹⁷ G. Palanithurai and R. Ramesh, Public Private Partnership in Drinking Water Supply, Paper presented at the NIRD Foundation Day Seminar, November 2006, p. 4.

and law limit and balance the cost recovery principle and profit motives, with the human rights needs and the ecological costs.

2. Water Quality and Supply

The water being supplied from NTADCL to the Village Panchayats is only once in 15 days. The supply of water from NTADCL is clearly inadequate. No new investment for storage and distribution has been made for the supply of water to the domestic consumer by NTADCL. It is contended that the census figures relied on for estimating the projected water supply requirements is that of 1991 instead of 2001, according to Panchayat sources interviewed at Tirupur.¹⁸ While there is no scope for augmentation at the present head works located in Mettupalayam, no new plans after NTADCL, are in the offing to meet the drinking and domestic water needs of Tirupur. Further, the absence of adequate sources of water and polluted ground water sources poses a challenge to future water management plans for Tirupur.

Besides, the cost of pumping water has also increased with the increase in electricity bills. It has gone up from Rs. 1.60/- to Rs. 3.40/-. Nearly 60% of the panchayat budget is spent on pumping water from the borewells. Further, water to the several public taps, found in Tirupur Village Panchayats and the slums within the TM, are not being supplied water from the third scheme. The contractual agreement does not bind NTADCL to address the water needs of TM and the surrounding villages, but the costs of setting the project adversely impacts the available financial resources with the Government to meet the water supply needs.

Residents complain that the quality of the water supplied is distinctly poorer than that supplied by the first and second Tirupur schemes. Though unconfirmed, reports from the ground indicate that the water required for the bleaching and dyeing industry is essentially unchlorinated water. The same raw water is being supplied to the TM and panchayats. Opinions to the counter, believe that the water supplied from the first two schemes do differ in taste from that of the third scheme but it is only a matter of acclimatization to the new water supply.

The concession agreement grants NTADCL the exclusive rights to abstract raw water, develop, finance, design, construct, own, operate and maintain the Water treatment facility, pipelines and waterworks in order to provide water treatment and supply services within the service area. Given this and the fact that no new future projects in the service area can be conceived of and executed by the Tirupur Municipality or the TWAD Board, even when faced with a situation of dire need, brings to fore the need for constitutionally mandated rights protecting access to available water resources in a given region.

3. Waste Water Recycling

Following the orders of the Madras High Court, the industries have been forced to set up Reverse Osmosis plants to stem the discharge of effluents into water bodies in Tirupur. It must be noted that the NTADCL project was conceived of at a time the issue of pollution and management of waste water was a serious concern, with many studies indicating extensive damage to soil fertility and pollution of water bodies. It is therefore unconscionable that the project was not conceived of more holistically.

¹⁸ Elected representatives at the Chettipalayam Panchayat.

Supply of water ought to be viewed with its eventual discharge as waste and management of the waste water. Hence costs must also be determined commensurate with the environmental costs of waste management and recycling.

Experts estimate that the pricing of water would change dramatically if the cost of managing a water treatment plant and a waste water recycling plant are factored in. It is believed that the O & M cost of sewage reclamation plant may be about Rs. 8/KL and hence the total water pricing of domestic water ought to be about Rs. 11 to 13/KL (water supply cost of Rs. 3/KL or Rs. 5/KL, reclamation cost of Rs. 8/KL) and Rs. 80/KL (i.e. water supply cost of Rs. 45/KL as per NTADCL estimation and Rs. 35 /KL for RO +Evaporator +Crystalliser O & M costs).¹⁹

Not only has the project exempted the users from the environmental costs, the Government has now stepped in to rescue the industries from bearing the costs of treating the effluents, as ordered by the High Court. The Tamil Nadu Government has planned a comprehensive Rs. 700 crore marine disposal scheme for the State's textile dyeing industry cluster. Textile Ecosolutions Company Limited, a public-private partnership, has been incorporated to lay a pipeline 310 km long from Tirupur to Nagapattinam.

To make the NTADCL project viable, the offtake of water by the industry has to increase. This runs counter to the High Court directive requiring the industries to recycle the waste water and achieve "zero discharge" levels. If, nearly 95% of the water taken is effectively recycled and reused, it would strike a huge blow to the effective functioning of NTADCL, which can only survive and make profits, if there is a consistent and upward demand for the water supplied. In the absence of effective laws to prioritize effective water management in the country, the absurd scheme to transport the effluents through a 310 km pipeline to be discharged into the sea may well be carried forth, ensuring NTADCL's future and zero liability of the industries for the pollution of the environment.

4. Competing Water Needs

The water being supplied by NTADCL does not satisfy the needs of a large section of people in Tirupur. The water is being supplied only once in 15 days which lasts for about 3 to 4 days. With the booming population and increased migration, the existing projects are woefully inadequate. While the water needs of the industry are being met, the water supply for domestic purposes are not being met by NTADCL. The government and more particularly the TWAD Board have no new projects in the pipeline to address the water needs of the community. Given that the industrial offtake is poor, would it be viable for NTADCL to sell the excess water to the domestic consumers? The rates that industrial water fetch currently are different from those that are charged from domestic consumers. The perception on the ground, in Tirupur, also questions the prioritization of water supply by the project. "The analysis of VP functionaries in Tirupur is that the scheme is primarily meant for the industries in Tirupur, secondarily for the slum dwellers most of whom are workers in the industries, and the remaining water is distributed to the way-side VPs. The reasons for the variation in the degree of importance, is obvious. The workers in the industries, most of them migrants from poorer rural areas of Tamil Nadu, should be relieved of

¹⁹ Interview with Mr. Kuttiappan, LVK Enviro Consultants, Chennai.

the water crunch so that they can work for the industries. Thirdly, the way-side VPs the water passes through, if by-passed, would become a persistent head ache to the TWAD Board and to Tirupur Municipality by agitations and protests.”²⁰

More importantly, the concession agreement provides that the absolute right to reallocate the raw water in the event that the stated quantities for domestic purpose are not off taken or not paid for by the TM and way-side villages or not paid for by the TM and way-side villages to other purchasers within the service area. Further the agreement provides that NTADCL shall at its sole discretion supply or otherwise dispose of the potable water remaining after the offtake of the contracted quantity of potable water by TM, wayside villages and the industrial units. The contract therefore does not lay down that failing offtake by industry, the priority shall be to supply water for domestic needs, in the local area. In other words, if the maximum of 85 MLD (out of a maximum of 250 MLD) for domestic purposes has been saturated, but there is available balance in the water allotted for industrial use, the Company is not obligated under the contract to supply the excess to the TM and the way-side villages.

It is interesting that the Concession contract provides for additional allocation and reallocation of water, in favour of NTADCL and industrial purposes. If there is excess water after supplying to the municipalities and the wayside unions, NTADCL under the contract can reallocate the water or “otherwise dispose of the potable water remaining after the offtake.” In effect, the contract does not bind NTADCL to use the available excess water for the water starved populations of the town and surrounding areas. The lack of clearly stated policy ensuring equitable distribution of the limited available resource and the lack of positive discrimination in favour of the poor is clearly evident in the structuring of the contract.

5. Human Right to Water

Despite three water schemes being operational, a large section of the poor in Tirupur buy water for their basic needs, through a tanker or from those who have a piped water supply. Women in the K.V.R Nagar slum in Tirupur supplement their meager share of the public water supply with water from a well, which due to the pollution is not of potable quality and can be used only for purposes of washing, etc. There are no set timings for the supply of water in this slum area and the women have to wait long hours. In Sukumarnagar, an unauthorized slum in Tirupur, there are no facilities for the supply of water. They obtain water from private tankers and the price can vary from Rs. 2/- per pot to Rs. 4 /- per pot. Given this scenario and the growing demand for water for domestic use in Tirupur, the lack of positive discrimination in favour of the poor in designing the Tirupur Water Supply throws up several questions about recognition of the basic human right to water.

The right to water as a basic human right is a derivative right from several other fundamental rights entrenched in international rights instruments, such as right to life, the right to an adequate standard of living, right to food and shelter, and the right to physical and mental health. The concept of human right to water is to obligate states to ensure that populations have safe, affordable and adequate access to water through policies and strategies that create a conducive environment (be it social or economic) for such access. General Comment 15 (ECOSOC) obligates states to realize the right

²⁰ See Eswaramoorthi, note 8 above, p.5

to water. It states that in implementing the right to drinking water, state parties have to be non-discriminatory and maintain equality. Further, states are obligated to prevent the infringement of these rights by third parties, including private companies operating water utilities. It provides that when water is distributed by the private sector, "[s]tates parties must prevent them [the private sector] from compromising equal, affordable, and physical access to sufficient, safe and acceptable water." This obligation includes, inter alia, adopting the necessary and effective legislative and other measures to restrain, for example, third parties from denying equal access to adequate drinking water, and polluting and inequitably extracting water resources. Tested against these international norms of availability, quality, non-discriminatory accessibility and information dissemination, NTADCL clearly is in violation of the human right to water. Aside from this, the PPP abets the further pollution of the environment and no measures are being taken to arrest this trend.

6. Changing Structures

In the absence of a specific law and a regulatory authority governing concession contracts that details guidelines for adequate service, the user's rights and liabilities, the tariffs policy, the bidding process, requirements of a concession contract, the duties of the granting authority and concessionaire, and appropriate conditions for intervention and termination of the concession, the importance of transparency and accountability needs to be highlighted further. Changing structures and complex contractual relations emphasizes the need for information in the public domain, in order to protect the rights of the citizens. Though the Planning Commission has issued some guidelines in the recent past to govern the public private contracts, it does specify clear policy on public participation and accountability.

"Principles such as transparency and fairness often associated with the state, have been brought into question by the creation of institutional linkages with private sector organizations within which the delivery of public services is now being managed. Indeed, there is growing evidence that the contractual relations of public private partnerships have led to a clear weakening of traditional notions of accountability "reflecting both a shift to new lines of accountability (private sector shareholders) and a vicious circle of monitoring and distrust between partner organizations."²¹

In practical terms, once control has been ceded to private interests, regulatory agencies have had great difficulty imposing controls on how these projects go forward. NTADCL has not proven to be an exception to this generalization. While there is no information that is put out by the Company in the public domain, it does not even have a Public Information Officer to assist the general public. Further, it has been guarded in entertaining requests for information about the project. In the absence of transparency, the issues of accountability, inevitably, needs a greater scrutiny. Thus, a more stringent and a new regulatory legal framework is essential to cope with the changing structures, impacting the rights of the people.

²¹ *see* Mohr, note 7 above, pg 241

6. Conclusion

The success of the Tirupur PPP project depends entirely on the offtake of the water by the industries and indirectly, it actually discourages water recycling through full treatment of wastewater. Water is a precious resource and the emphasis ought to be on sustainable use and conservation. The present design of the project, on the contrary, encourages further expansion of the water market and copious use through discounted pricing strategies. There is a need to limit consumption, fix higher responsibility on the polluters and prioritize equitable distribution of the resource. The Tirupur Water Supply and Sanitation project represents a classic case of reductionist engineering, sidelining sustainable water use planning and conservation efforts.

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ANNEXURE – A

