Dr.BRR Government Degree College Jadcherla
Mahabubnagar (DIST), Telangana State, India-509301

(Accredited by NAAC with "B++" Grade,
An ISO 9001-2015 Institution
Affiliated to Palamuru University)

Department of Political Science

STUDENT STUDY PROJECT
ON
"Descriptive analysis of Implementation Mission Bhagiratha in Jadcherla Town"

VI Semester
Academic Year 2022-23

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Submitted to

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VI Semester
Academic Year 2022-23

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CERTIFICATE

This is to certify that the project work entitled Department of Political Science is a bonafide work done by B.Mounika, Md.Mahammad, T.Shiva Kumar, T.Arjun, G. Shekar, the students of VI semester BA under my supervision in Political Science at the Department of Political Science Dr.BRR Government College Jadcherla during 2022-23 and the work has not been submitted in any other college or University either part or full for the award of any degree.

Place: Jadcherla
Date: 18/5/2023

Dr. P Nanda Kishore
Lecturer in Political Science

Signature of External Examiner

Signature of Internal Examiner

DECLARATION

We hereby declare that the project work entitled with **"Descriptive analysis of implementation Mission Bhagiratha in Jadcherla Town" is** a genuine work done by us under the supervision of Dr. P Nanda Kishore Lecturer in Political Science Dr.BRR Govt. Degree College, and it has not been under the submission to any other Institute/University either in part or in full, for the award of any degree.

NAME OF THESTUDENT	CLASS	H.T.NUMBER	SIGNATURE
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CONTENT

A study on implementation of the scheme Mission Bhagiratha in Jadcherla Town

Chapter – I

INTRODUCTION

Water is an essential part of human life. Our body is made up of more than 70% of water. It is a necessity which cannot be denied. Without water not a single person can struggle for survival. Our body requires sufficient amount of water for our organs like kidney to function properly. If we do notdrink appropriate amount of water on regular basis, we may encounter several harmful diseases.

Providing safe drinking water is included in 17 sustainable development goals. The government of Telangana started the scheme called MISSION BHAGIRATHA to provide safe drinking water all over Telangana.

Bhagiratha is a safe drinking water project for every village in Telangana State, with a budget of ₹43,791 crores. The project is a brainchild of Telangana Chief Minister, K. Chandrashekar Rao, that aims to provide piped water to 2.32 crore people in 20 lakh households in urban and 60 lakhs in rural areas of Telangana. The ambitious project will supply clean drinking water to all households in the state through water sourced from River Godavari (53.68 TMC) and River Krishna (32.43TMC). The bulk supply is expected to be completed by May 2018 and intra-village, intra-locality works will be completed by December 2018.

History:

Telangana Drinking Water Supply Corporation Limited (TDWSCL) is the nodal agency for implementation of Telangana Drinking Water Supply Project in the state. TDWSP is a flagship programme of the newly constituted state of Telangana.

The State Government has embarked on a vision to provide safe, adequate, permanent and sustainable water supply to rural, urban and industrial areas by 2018. Apart from water for domestic use, the project is planned to meet the water needs of commercial entities, industrial units, Special Economic Zones, etc. The project is integrated with the existing water supply schemes. Balance surface waterrequirements is planned from the proposed Telangana Drinking Water Supply Project. The requirement of water for drinking, cooking, domestic need was taken into account at 100 liters per capita per day (LPCD) for rural areas, 135 LPCD for municipalities and 150 LPCD for municipal corporations. It is planned to supply water at the door step of every

household. The scope of the project in rural areas includes intra-village service reservoirs, construction and distribution network. It is proposed that the committees headed by village Sarpanches with woman members will manage rural water supply systems. Similarly, for urban areas, water will be supplied in bulk to specified locations and bulk metering system will be planned to ensure accountability on the part of local bodies. Telangana Drinking Water Supply Corporation Limited is formed for implementation of Telangana Drinking Water Supply Project. WAPCOS has been given the task of undertaking the consultancy services for Vetting of DPRs, Project Monitoring, Supervision and Quality Control of works under TDWSP.

NEED OF MISSION BHAGIRATHA:

Telangana State suffers from chronic drought conditions – scarcity of drinking water-deficit rainfall in6 years during last decade.

a. Severe drought leading to ecological imbalance.

b. Depletion of Ground water – by more than 3 metres in the last 10 years.

Rain shadow area increasing alarmingly, inadequate infrastructure and supply and Current Schemes also plagued by Fluoride affected GW sources Prevalence of contamination leading to water born diseases Poor Water quality Already covered habitations slipping back to Quality affected and scarcity habitations

3. OBJECTIVE OF THE PROJECT:

To ensure safe and sustainable PIPED drinking water supply from surface water sources at:

(i) 100 LPCD (litres per capita per day) for rural areas,

(ii) 135 LPCD for Municipalities

(iii) 150 LPCD for Municipal Corporations

(iv) 10% to meet Industrial requirements

And to provide tap connection to each household in the state . The pylon laid for Mission Bhagirathascheme is shown as below (Fig.1).

1. Senior Engineer, WAPCOS Ltd., Regional Office, AC Guards, Hyderabad-500 004.

2. Project Director, WAPCOS Ltd., Regional Office, AC Guards, Hyderabad-500 004.

The Project comprises of 26 segments in 9 districts and the Stages involved in the entire Water supply chain include;

Sourcing water from Major rivers or reservoirs fedby these rivers

a) Purify the raw water in nearby Water treatment Plant.

b) Pump treated water to the major OHSRs & Sumpsat the highest points

c) Transmit from the highest point through secondary pipeline network to all the habitations by gravity(98%)

d) Distribute to each house hold through a modern,rationalized intra village network by providing tap connections to each household.

4. DETAILS OF PROJECT AREA:

- The entire project comprises of 26 segments in 9 districts ofTelangana state are mentioned as below).
- Mahabubnagar Srisailam-Gudipally-Mahabubnagar Part-I,II Primary & Secondary segment
- Mahabubnagar Jurala segment
- Rangareddy HMWSSB-Medchal segment4 Rangareddy Srisailam segment
- Nalgonda AKBR segment
- Nalgonda NSP Tailpond segment
- Nalgonda Nalgonda-Augmentation segment 8 Medak Singur-Narayankhed, Andole, Medak 9 Medak Singur-Sangareddy segment
- 10 Medak Singur-Narsapur segment 11 Medak HMWSSB – Gajwel segment 12 Nizamabad SRSP Balkonda-segment
- Nizamabad Singur-Jukkal, Bhodan segment
- Karimnagar SRSP-Korutla, Jagtial segment
- Karimnagar MMD-Sircilla and Yellampally-Peddapallysegment
- Karimnagar L Madugu-Manthani, Bhupalapallisegment
- A Karimnagar LMD-Karimnagar, Ramadugu segment 17 B Karimnagar LMD-Manakondur, Husnabad, Huzurabadsegment
- Adilabad SRSP-Adilabad segment
- Adilabad Komarambheem-Asifabad segment 20 Adilabad Yellampally-Mancherial and Kaddem segment
- Warangal Palair segment-17 mandals in Wgl + 1mandal Kmm districts
- Warangal Godavari-Mangapet
- Warangal LMD-Manakondur extn-parkal, Ghanpur,Warangal
- Warangal HMWSSB metro segment
- Khammam Godavari-Kothagudem segment26 Khammam Palair and Wyra segments

MAIN SOURCE OF THE SCHEME:

The Telangana Water Grid would depend on water resources available in Krishna & Godavari which are two perennial rivers flowing through the state. A total of 34 TMC of water from Godavari River and 21.5 TMC from Krishna River would be utilized for the water grid.

This scientifically designed project intends to use the Natural gradient wherever possible and pump water where necessary and supply water through pipelines. The state-level grid will comprise of a total of 26 internal grids. The main trunk pipelines of this project would run about 5000 KM, and the secondary pipelines running a length of about 50000 KM would be used to fill service tanks inhabitations and the village-level pipeline network of about 75,000 KM would be used to provide clean drinking water to households.

SCOPE OF CONSULTANCY SERVICES:

The scope of services specified for consultancy services are: 2 Vetting of already prepared DPRs, designs, drawings for achieving comprehensiveness of the project. Examine and finalize the planning of the proposed water supply system, demand calculations, hydraulic designs, general arrangement of the system, structural components of the system, etc.

Vetting of DPR's as per IS codes and CPHEEO manual (1999) Vetting of Structural and Hydraulic Designs Factory inspections (MS, DI, HDPE, PCC and BWSC pipes), Valves and Electro mechanical equipments Checking Hydraulic simulation for pipe network using EPANET / Water gems software for optimization The review service shall be in phased manner based on the priority of the segments as decided by the department & Government Site inspections and field testing of various structures (Intake wells, WTPs, Pipeline, OHBR's, GLBR's, Sumps etc.) Issuing of OK card system before execution of works at site after quality checks Project Monitoring & Supervision in every phase of the project

Report if any deviations and variations observed from the approved designs / drawings to the notice of the department, the Contractor and under intimation to Engineer- in-Chief for appropriate action

Quality Control and Assurance during execution of works (random) Field tests – In lining, out coating of pipes, Hydraulic test, Ultrasonic test, Radiographic test, Sieve analysis, Slump test, compressive strength etc.

ELEMENTS OF WATER SUPPLY SCHEME:

The typical elements/components of the water supply scheme are as given below:

•Source/Intake:

Intake structures are used for collecting raw water from the surface sources such as river, lake and reservoir and conveying it further to Water Treatment Plant (WTP). Raw water from a surface water lake or reservoir is drawn into the plant through intake structures. Large debris like logs is prevented from entering and zebra mussel control is performed at the intake.

Steps

i.e. Aeration, Coagulation, Clarification, Filtration and Disinfection.

Aeration brings water and air in close contact in order to remove dissolved gases (such as carbon dioxide) and oxidizes dissolved metals such as iron, hydrogen sulfide, and volatile organic chemicals (VOCs). Aeration is often the first majorprocess at the treatment plant.

In coagulation, we add a chemical such as alum which produces positive charges to neutralize the negative charges on the particles. Then the particles can stick together, forming larger particles which aremore easily removed.

Clarification refers to the separation of particles from the water stream. By slower mixing, turbulence causes the flocculated water to form larger flock particles that become cohesive and increase in mass. This visible flock is kept in suspension until large enough to settle under the influence of gravity.

Chemical addition destabilizes the particlecharges and prepares them for Clarification either by settling or floating out of the water stream.

Disinfection maintains a residual to protect water supply through the supply network. Supplemental chlorine is added to maintain disinfection concentrations while the water is pumped through the distribution system. The purpose is to ensure minimum residual disinfectant levels at the farthest points of thesystem.

Transmission network:

The water in the supply network is maintained at positive required residual pressure and velocity to ensure water reachesall parts of network ultimately to the tail end consumer.

SIMULATION OF NETWORK FLOW BY USING EPANET

The hydraulic designs for raw water pipelines, treated water mains and branches as done by

Department/ TDWSCL has been reviewed to ascertain the capacity of the proposednetwork for delivering the desired quantity of water atrequired terminal heads to all the service areas/ habitations. This requires pressure boosting stations, location of reservoirs and economical sizing of the pipelines will beconsidered with due importance while reviewing the designs.

Review of Auto CAD drawings of pipeline alignments i.e,. Preparation of LS showing levels, degree of bends etc,. Site plans of intakes, WTP, OHBR and OHSRs and water distribution networks will be done.

The already prepared base maps will be collected in soft and hard copy form for review to check the planning and alignment of the scheme. Finalization of Alignment and LS Plans for Pumping Mains / Gravity Mains and other Pipeline Works including all appurtenances will be done in consultation with department officials.

EPANET is a computer program that performs extended period simulation of hydraulic flow (conservation of mass) behavior within pressurized pipe networks. A network consists of pipes, nodes (pipe junctions), pumps, valves and storage tanks or reservoirs. EPANET tracks the flow of water in each pipe, the pressure at each node and the height of water in each tank throughout the network during asimulation period comprised of multiple time steps.

EPANET is applied at different levels i.e. Primary,Secondary and Tertiary networks.

QUALITY ASSURANCE DURING THE SITE INSPECTIONS OF THE STRUCTURES AND PIPELINE WORKS BY WAPCOS

•To ensure all other civil structures construction activities such as ongoing Intake structures, treatment plant units, clear water reservoirs, raw water sumps, pumping stations, watchman quarters, compound walls, cross drain works, thrust blocks, bridges, railway crossings, NH crossings, raw water intake channels etc as per the agreement specifications duly checking the reinforcement, centering, shuttering and scaffolding before the concreting for Concreting works as per designs & drawings.

•To check all designs and drawings submitted by theagencies during the course of execution of work for various components and their translation to ground (X,Y and Z coordinates)

•To ensure that all critical components of the structures such as foundations, Floor Slabs, Bottom Slab, Side walls etc. including placement of reinforcement as structural designs and Bar bending schedules.

•To ensure the laying of pipe line net work laying works as per the approved alignment.

•To ensure the pipeline excavated trench dimensions, bedding, laying, jointing, welding, ultrasonic testing, radio graphic testing, hydraulic testing etc and all other execution activities as per the agreement specifications and as per designs & drawings.

•To ensure all the electro-mechanical equipments construction activities including electrical sub-stations, air vessels, valves, SCADA units, Telemetry etc as per agreement specifications and designs & drawings.

•To ensure proper pipeline trench restoration and carting of surplus excavated soils / debris, and proper road restoration for the project works.

•To enforce strict quality control as per the Agreement / BIS code / CPHEEO or any other relevant codes at manufacturing premises.

•To take initiation for commencement of the civil works after satisfaction of all the start-up activities.

•To monitor the quality of the work and Maintain the records of tests of various materials such as soil, concrete, other construction materials, Electrical and Mechanical etc., at the site.

•To develop an OK Card System, a comprehensive check-list of all activities required for the construction of each component of a civil structure which would be okayed by the Engineer-in-Charge (or delegate) when the Contractor's Representative reports that that item of work is ready for execution.

•To ensure the maintenance of Placement registers at site and the same will be verified and reviewed by the consultant on daily basis. The required formats have to be designed by the

Consultant in consultation with the Department for adoption.

QUALITY ASSURANCE DURING THE FACTORY INSPECTIONS OF THE MATERIAL BY WAPCOS:

•To inspect and monitor the procurement of materials as per standards such as pipes, valves, specials, pumps, motors etc., manufactured for TDWSCL.

•To prepare and furnish a copy of Quality Assurance/ Quality control Plan to the Department for approval before the commencement of inspection.

•To attend along with the concerned departmental officials for pre-delivery quality control inspection of materials at the manufacturers work site as per guidelines issued by Department in accordance with the specifications noted in the supply order ,QAP, and the relevant Indian Standard Specifications prior to certification in the presence of department officers and the inspection shall include witnessing of tests including the hydraulic test, performance tests, visual, dimensional and physical checking to the finished product as per the relevant BIS standards and review of such inspection tests internally conducted by the supplier and as specified in TOR.

•To conduct inspection during manufacturing process for different types of pipes, specials and appurtenances as per IS specifications and as specified in the work agreements. In general for all the above pipes, specials & appurtenances, the factory test broadly as follows: Materials check for its suitability as per specifications Check for design parameters during manufacturing process,Visual inspection, Appearance and Workmanship, Dimensions of pipes, Physical and chemical characteristics, Mechanical properties / Hydrostatics characteristics / impact strength, Marking and other respective test as per relevant IS, Sampling shall be done as per relevant IS method

•Any equipment used in the testing of the Plant and Equipment in all respects comply with the appropriate safety regulations and/or requirements regarding electrical apparatus for the safety of the Plant and the men working thereon.

•All inspection and testing will be carried out in accordance with the Specification and in absence of Specification relevant Indian Standard or internationally approved equivalent standard shall be adopted. The tests shall be carried out prior to delivery of the Plant and Equipment to Site.

•The final inspection of the finished product shall be commenced within 7 days from the date of receipt of call letter from the manufacturer/ Executing agency. The date proposed for inspection at manufacturing site shall be finalized by the Superintending Engineer TDWSCL concerned.

•All the inspected and approved materials shall have a distinct identification mark of the inspection agencyand such mark shall be made on each and every piece of the item as per the purchase order, though actual tests have been carried out on the random samples as per IS sampling and testing procedure and furnish OK card from its side to the contractor for lifting of materials. Many parts of Jadcherla town are covered under this scheme. Objectives of the study: to examine the impact of mission Bhagiratha on drinking water amenities in Jadcherla Town to study whether the scheme is serving the other water needs of households.

Chapter - II

Review of literature

Assessing groundwater vulnerability in the South Platte River Basin under future changes in land use and climate June 2017 Conference: UCOWR/NIWR Annual Conference "Water in a Changing Environment" · At: Fort Collins, Co. Authors: Fatemeh Aliyari at Colorado State University Fatemeh Aliyari Colorado State University Ryan T Bailey at Colorado State UniversityRyan T Bailey Colorado State University Ali Tasdighi at Colorado State University Ali Tasdighi Colorado State UniversityMazdak Arabi Mazdak Arabi mentioned the following important points. A Water resources in irrigated river basins in the western United States face competition from agricultural, municipal, industrial, and environmental users. Increasing populations can lead to transfer of water from irrigated agricultural to municipalities via agricultural dry-up or water leasing programs. Groundwater in rural areas is particularly vulnerable as transfer of surface water rights to urban areas will likely increase reliance on groundwater resources, leading to increased groundwaterpumping. Also, groundwater recharge from surface water irrigation is likely to decline. This study assesses the spatial vulnerability of groundwater to over-exploitation and climate change in the South Platte River Basin (SPRB) in Colorado. The basin spans both urban and agricultural areas.

Water demand for regions across the basin is determined by analyzing population and agricultural factors such as crop demand and crop productions. Water supply is quantified by analyzing climate, surface water and groundwater availability under different climate, population, and land use change scenarios. Using a coupled SWAT-MODFLOW model, groundwater vulnerability in sub-basins throughout the river basin is quantified to determine regions prone to groundwater stress. Both the magnitude and trend of stress is investigated using a Groundwater Stress Index that accounts for all groundwater inputs and outputs for a given sub-basin. The assessment of regional vulnerabilities will enable decision makers to manage water resources in a sustainable fashion over the coming decades.

Design of a centralized regional water distribution system: A case study in the County of Paintearth No. 18, Alberta, Canada June 2012 · Canadian Journal of Civil Engineering 39(7):801-811 DOI:10.1139/l2012-066 Authors: Mathew T. Langford at University of Alberta Mathew T. Langford

University of Alberta Jean-Luc Daviau at University of OttawaJean-Luc Daviau University of Ottawa Zhu David at Lenovo Zhu David Lenovo acording to them Water supply to rural

communities has historically been difficult. The sparse population distribution results in large infrastructure cost per capita compared to larger urban municipalities. The challenge is to deliver this water efficiently and minimize the corresponding increase in wastewater. Urban water systems supply both fire flow and drinking water at high pressures in large pipes. One solution for rural areas is supplying only potable water using small pipes that are supplied in long spools and that can be ploughed-in, a novel method of direct-bury. This water is delivered to private cisterns at low pressure, extending the range of the system for the same input energy level. Pressure control valves are used to keep pressure positive at high points to safeguard water quality. Modelling is particularly important in rural systems, where extensive pipeline distances and elevation difference result in significant head losses and areas of high local pressure.

The water – energy nexus in drinking water treatment plants in West Bengal and Orissa. October 2015 Authors: Dhiraj Tibrewal Dhiraj Tibrewal Sudha Goel at Indian Institute of Technology Kharagpur Sudha Goel Indian Institute of Technology Kharagpur

The general objective of this study was to compare energy consumption and water quality parameters in various water supply systems (WSSs) in West Bengal and Orissa. Specifically, the objective was to determine the amount of energy consumed in delivering a unit of treated drinking water (measured as specific energy consumption-SEC, kWh/m 3) in various drinking water supply systems in the region. Additionally, water quality at every stage in the treatment plants was evaluated. Eight municipal water supply systems (WSSs) were covered in this survey and included Mukut Manipur, IIT Kharagpur, Uluberia and Kamal Nagar in West Bengal; Cuttack (High Level Tank), Naraj, Sambalpur and Buhasuni in Odisha. Primary and secondary energy consumption data in terms of electricity costs were collected from each treatment plant. Water samples were collected from the outlets of various treatment units and then transported to our laboratory and analyzed for various water quality parameters. Electricity costs were available from Cuttack and Bhubaneswar WSSs and were 47.6% and 39.5%, respectively of the total operational and maintenance costs of the water supply systems (WSS). Results of this survey show that in these eight WSSs, on an average 25.9 % of the total energy is consumed by raw water pumping and 66.2% is consumed in treated water distribution pumping. An average of 5.5% of the total energy consumption is consumed in the treatment of surface water sources. The average specific energy consumption (SEC) value for these WSSs in the two states was 0.3 kWh/m 3 and varied

between 0.173 to 0.397 kWh/m 3. Based on tariff rates ranging from Rs. 1.89/kWh to Rs. 5.6/kWh, total energy costs for treated drinking water in these eight WSSs were found to range between Rs. 0.63/m 3 to Rs. 2.14/m 3 with an average cost ofRs. 1.54/m 3 .

The Trickle-down Effect: Ideology and the Development of Premium Water Networks in China's CitiesMarch 2007 · International Journal of Urban and Regional Research 31(1):21 - This article examines the relationship between networked infrastructure and uneven development in transitional cities through a study of premium water networks in China. Beginning in the mid-1990s, select buildings and housing enclaves began to bypass municipal tap water supply systems through the construction of small-scale secondary pipe networks for purified drinking water. I focus on the early development of these premium water networks to highlight the ideological interplay between a new more market-based approach to networked supply and the existing model characterized by relatively universal and uniform access within cities. I illustrate how this dual water supply model was well suited to the ideological conditions and contradictions associated with China's economic liberalization in the 1990s. While the emergence of premium water networks can be linked to ascendant forms of market reasoning in the environmental and social spheres, I also argue that they were enabled by unresolved ideological tensions associated with China's transitional program. Rather than providing a basis for resistance in the early development of premium water supply, the socialist legacy in urban water supply left its mark more in the noticeable absence of debate regarding the distributional outcomes. By examining premium water networks in relation to the politics of ideologyin China's transitional period, my analysis highlights the complex and sometimes unexpected ways that ideologies can influence the development of new infrastructural spaces and processes of splintering urbanism.

Other premium spaces include the Disney-owned community named "Celebration" in Florida that provides completely private water, road, fire and security and government infrastructure because the"superior" level of infrastructure was not within the means of local government to provide (Graham & Marvin, 2001, p. 275). Boland (2007) examined premium water networks in major cities in China, observing that, from the 1990s, select buildings and housing estates began to construct private secondary pipe networks for "premium" drinking water. She notes that the emergence of 300 premium systems by 2003 was driven by effective marketing campaigns by bottled water companies; fears of the quality of publicly provided water; and new coalitions of municipal water supply companies, property developers, engineering consultants, and government officials (Boland, 2007).

Boland (2007) examined premium water networks in major cities in China, observing that, from the 1990s, select buildings and housing estates began to construct private secondary pipe networks for "premium" drinking water. She notes that the emergence of 300 premium systems by 2003 was driven by effective marketing campaigns by bottled water companies; fears of the quality of publicly provided water; and new coalitions of municipal water supply companies, property developers, engineering consultants, and government officials (Boland, 2007). Another measure undertaken by the Bracks government aimed at transparency and social sustainability was to create an Essential Services 1975", 2007). The Constitution states that "if...a public authority has responsibility for ensuring the delivery of a water service, that or another public authority must continue to have that responsibility" ("Constitution Act 1975", 2007. Victoria is the only state to take this step.Splintering Urbanism and Sustainable Urban Water Management in Sydney and Melbourne Article

De Swaan's pathways to infrastructural integration have their analogues working in the opposite direction. Whereas community action contributes to infrastructural integration when improvised constellations are incorporated into broader state structures, community action can also work in the opposite direction, for example when wealthy households abandon overburdened public infrastructures to tap into "premium water networks" (Boland, 2007), giving rise to a fragmented infrastructure where the quality of provision reflects resident status. Cascades can likewise lead to fragmentation rather than integration.

This section analyses how these circumstances have propelled the development of alternative, private water provision systems underpinned by different sets of interdependencies. These alternative sources of water provision allow wealthy households to buy into "premium water networks" (Boland, 2007) and reduce their dependence on the pipe network. The main means through which residents reduce their dependence on the pipe network (and those who continue to depend on it) are water tanker trucks, boreholes, sachets, and poly tanks.

From fragmentation to integration and back again: The politics of water infrastructure in Accra's peripheral neighborhoods. Arguably, the SSTEC is planned to function effectively as an eco-enclave

with its own exclusive set of 'green' features that enhances the supposedly ecological lifestyles of its inhabitants including water-filtration and purification technology imported from Singapore. Yet as Caprotti et al. (2015: 495) observe, such premium water infrastructure technology in the SSTEC 'effectively exists in isolation from the water-provision network of

the wider Tianjin municipality, constituting a separate urban space that is constructed as healthy and eco in comparison to, but not to the benefit of, the surrounding urban environment' (see also Boland 2007). In this regard, the complex spatial-temporal dynamics that constitute the SSTEC are often disregarded and the construction of the eco-city often relies on externalizing the environmental cost elsewhere Indeed if Brenner and Schmid (2011) is right that urbanization has now reached planetary scale, then it is imperative that we consider sustainable urbanism beyond the city that is interlinked by complex networks of urban ecological interdependency rather than to be fixated on or to celebrate the singular case of the flagship 'eco-city'. Where premium ecological spaces for living are being carved out and fixed in the urban built environment through highly selective forms of infrastructure provision, the formation of such buffered space s not only externalizes environmental chaos beyond their walls but also wilfully denies the relational and scalar politics of urban sustainability (see Boland2007; Caprotti et al. 2015).

Political Ecology of Chinese Smart Eco-cities: Space, Scale and Governance in the New Urban Era

Many of the property developers that have built residential accommodation in the city market the green building standards used in construction, as well as the use of solar water heating, the provision of filtered water, air filtering equipment, the use of energy from renewable sources, and the like. This focus (on the eco-city dweller and their domestic space and associated technologies) has been critically investigated and described as the construction of "filtered communities" (Boland, 2007).

Furthermore, the focus on technologies (such as water and air filtration) that keep residents safe from environmental pollution has been analyzed as exemplifying a subtle discursive and material message that the eco-city is "eco" primarily for its residents rather than for the external environment (although these technologies clearly also have the potential of reducing residential units' environmental impacts) . The eco-city's domestic spaces can be seen as part and parcel of new "filtered communities" enabled by the city's green regulations. Nevertheless, the lived reality of residents of these spaces is less one of enjoyment of ecologically modernised living conditions (Spaargaren& Mol, 1992), and more one of concern over the diffuse and often invisible risks still present in the new city (Beck, 1992). While many residents commented on their positive enjoyment of the city's green spaces and spatial layout, domestic spaces were seen by many as interfaces with environmental inputs (water, air) that could deliver risks and negative externalities directly

to residents in their own homes. Social sustainability and residents' experiences in a new Chinese eco- city Both project teams argued their need for more resources to increase the value of this offering of a rich and green public amenity space, because of its context. However, the value of these green features was limited by the different understanding of value and liability or waste within the urban bureaucracy, where rewilding was viewed as most valuable in sum when nature is filtered, ecology is sanitized, and local residents are held apart from the responsibility of tending to local ecologies (Boland 2007;Curran and Hamilton 2017) Off-cycle Comparing model sustainable neighbourhoods in France and Canada Many analyses, based on the hypothesis that the decentralization of power and the participation of stakeholders are conducive to achieving a more reasonable and effective solution, indicate that good water governance requires the effective decomposition of decision-making power and the active involvement of stakeholder groups. The term "lowest appropriate level" implies not a recipe for a full decentralization at all costs but a delegation of locally adapted decision-making power to the appropriate level for optimal results, with some decisions being made by local or regional stakeholders (local governments, entrepreneurs, farmers, fishermen, etc.) while others being still under the control of the state or provincial levels. In other words, decentralization does not have an ideal fixed level. ...

Rethinking Environmental Bureaucracies in River Chiefs System (RCS) in China: A Critical LiteratureStudy

Bray (2005) and Lu (2006) stress that in the Maoist city, danwei were crucial in the provision of services like housing, electricity and water networks, community canteens, social halls, kindergartens, clinics, schools, bathrooms, libraries, sport fields, guesthouses and shops. The quality of these services varied with the size and nature of the work-units, and while facilities were generally designed for danwei residents alone, smaller danwei would share facilities (Lu 2006;Boland 2007;Chan et al. 2008;Saich 2008). After the reforms this all changed, when national expenditures on services decreased dramatically due to the poor economic performance of state-owned enterprises (Zhang and Kanbur 2005). ...

Enclave urbanism in China: A relational comparative view

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Everyday practices and technologies of household water consumption: evidence from Shanghai Article They argue that, given the 'relative paucity' of centralized networks in the South, UPE must broaden its focus to be relevant for Southern cities (Lawhon et al., 2014). The focus on centralized networks is said to produce a cataloguing of 'failed examples' as opposed to real engagement with what is happening in Southern cities (Lawhon et al., 2014: 501); to fail to explore the potential multiplicity of urban infrastructural ideals (Boland, 2007); to overlook the significance of water's biophysical properties (Zérah, 2008); to obfuscate the lack of standardization within the formal system (Gopakumar, 2014); and to neglect a variety of water supply systems beyond the network, at both the household and community levels (Verdeil, 2004). The focus on water networks as defined by Northern theoretical frameworks has also created practical problems for improving service access, increasing spatial segregation (Jaglin, 2008), and limiting the potential to foster a diversity of supply alternatives (Pflieger and Matthieussent, 2008)

Worlding Water Supply: Thinking Beyond the Network in Jakarta

... Thus, many of the property developers that have built residential accommodation in the city market the green building standards used in construction, as well as the use of solar water heating, the provision of filtered water, air filtering equipment, the use of energy from renewable sources and the like. This focus -on the eco-city dweller and their domestic space and associated technologies - has been critically investigated and described as the construction of 'filtered communities' (Boland 2007). Furthermore, the focus on technologies (such as water and air filtration) that keep residents safe from environmental pollution has been analysed as exemplifying a subtle discursive and materialmessage that the ecocity is 'eco' primarily for its residents rather than for the external environment (although these techno logies clearly also have the potential of reducing residential units' environmental impacts)

Furthermore, in this journal, infrastructures have been conceived as sociotechnical lattices that emerge as political sites of negotiation, relations, ideals and ideologies (McFarlane and Rutherford, 2008). Debates in this journal have covered topics such as connections with water systems (Boland, 2007;Giglioli and Swyngedouw, 2008;Gopakumar, 2014), sanitation (McFarlane, 2008b, transportation (Siemiatycki, 2006), energy (Monstadt, 2007), shrinking processes (Moss, 2008), global finance and road tollways (Torrance, 2008) and technology (Gandy, 2005) and the city, but these have not necessarily emphasized how the researcher crafts the steps and relationships in the infrastructure study process. Therefore, past research must acknowledge how new knowledge is rewoven into the cityscape and extend its scope to include a discussion on how investigations include and exclude specific phenomena in the study of infrastructure Experimental Infrastructure: Experiences in Bicycling in Quito, Ecuador: Experimental Infrastructure

The basis of such practices rest on inequality and associated risks escalating in China (Qi and Oberwittler 2009;Zhang and Mo 2005). The inequality and risks in turn originate from mercerization to make people competitive and aggressive (Boland 2007). Consequently, the middle tier demands safety, privileges, and differences from others to align with inequality in society. ...

Political-Economic Coalition Among Entrepreneurs, Professionals, and Cadres in Guangdong, China

In 2009, there were 118 water treatment plants in Shanghai and a network of pipes delivering treated water to all parts of the municipality except a few rural areas. Despite a patchwork system, piped water was extended to virtually all city residents in China by the 1980s (Boland, 2007) and there is little differentiation of localities in public service provision according to socio-economic status (Wu, 2005). Thus, all residents of Shanghai have access to drinking water near or very near their homes, and virtually all have access to piped water, though the suburban water plants and some pipes are old (Hou, 1999). ...

Impact of the Three Gorges Dam, the South–North Water Transfer Project and water abstractions onthe duration and intensity of salt intrusions in the Yangtze River estuary

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Constructing Water Shortages on a Huge River: The Case of Shanghai

The importance of this critique becomes apparent when one engages with the specifics of different cities in different places. Boland's research on urban water supply networks in China, for example, is illustrative of the relevance of Robinson's critique: whereas water supply systems in socialist China were highly fragmented, and differentiated according to socio-economic criteria (such as workers blocks or units), trends of simultaneous integration and fragmentation of water supply networks can be observed in 'post'-socialist China (Boland, 2007). The systemic fragmentation of

water supply networks in many global cities of the South -built under a range of ideological regimes - is not sufficiently acknowledged, nor adequately explained by a 'splintering urbanism' hypothesis.

Splintered networks: The colonial and contemporary waters of Jakarta

The last decade or so has seen a veritable profusion of social science studies of urban infrastructure networks. These debates, some of which have taken place in this journal (see Graham, 2000a;Gandy, 2005;Siemiatycki, 2006;Boland, 2007;Monstadt, 2007), have focused on the technological fabric of the city from a variety of disciplinary or theoretical perspectives. They have analyzed the relations between the provision of and access to these networks and the overall functioning of urban areas in a diversity of contexts in countries of the North and South (see Grahamand Marvin, 2001).

Political Infrastructures: Governing and Experiencing the Fabric of the City.

Hypothesis:

Mission bhagiratha scheme improved the drinking water amenities in Jadcherla town

Chapter - III
Methodology

Methodology

The data was collected from two sources. The primary data was obtained by collecting information by using self designed interview schedule. The secondary data was collected from journals, books and from websites. A detailed account of methodology that was applied in this study is given as follows:

The Jadcherla town selected for the present study. Selection of Sample

The Sample for the study comprised of households containing Male and Female belonging to the age group of 20-60 years. Total cases to be studied were set as 20 cases for this study. Purposive quota sampling technique was used for the present study.

As the present research study is qualitative in nature therefore Interview method was used to collect the data

Based on the nature of the research study the data collected from the sample subjects and analyzed.

Chapter - IV
Finding of the study

Finding of the studies:

1. The drinking water supplied under this scheme is sufficient for the entire family members.

2. Drinking water is supplying to the households regularly.

3. Before this scheme was implemented the people had to dependent on water plants for thedrinking water.

4. 75 percent of the respondents are satisfied with the sanity of the water.

5. The objective of this scheme is not fully realized, as the members of the households are buyingthe water from the water plants.

6. Still some of the rural areas of Jadcherla are away from this scheme.

7. The authorities will have to conduct awareness among the people about the scheme to tap thepotentiality of this scheme.

Limitations of the study:

1. The study is only limited to Jadcherla Town.

2. Purposive quota sampling technique was used for the present study.

Suggestions to the Future researchers:

1. Future researchers may focus their research on rural surroundings of Jadcherla Town.

2. They may include scientific methods to check the quality of the drinking water supplied under thisscheme.

3. Future researchers may included authorities related to this scheme in the study

Chapter – V
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మిషన్
భగీరథ

Questionair:

Name:

Age:

Residence:

Gender:

1. How many members are there in your family?
2. At present from where you are getting the drinking water?
3. Before Mission Bhagiratha scheme was implemented from where did you get the drinking water?
4. Do you think that the drinking water supplied under this scheme is pure?
5. When was this scheme implemented in your area?
6. Are you using the water supplied under this scheme for your other water needs?
7. Is the water supplied under this scheme daily?
8. Are you still buying the drinking water from water plants?
9. How much water bill you are getting?
10. Any suggestions for the betterment of this scheme?


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