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WATER SECURITY THROUGH CORPORATE SOCIAL RESPONSIBILITY: A CASE STUDY OF RO WATER PLANTS BY TATA POWER DDL

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ABSTRACT

Water security is one of the most pressing issues in urban India especially for the poor. The purpose of this research is to examine the CSR approach to water security focusing on Tata Power DDL's RO Water Plants in North and North-West Delhi. In this research, I follow the ethnographic method to analyze the effects of Tata Power DDL's CSR program on JJ colonies' access to clean drinking water for the targeted beneficiaries. Questionnaires, interviews, and observation were used to measure the social, economic and environmental impacts of the initiative. According to the result, there were changes in health, hygiene, and satisfactions of the community because of safe drinking water source. However, the following was noted as comprising the challenges that CfPTs face: technological barriers; and difficulty in engaging with the community. The study also underlines the significance of public private partnership in water security and provides an insight into how such other CSR programs could be expanded. The study offers important information about the role of CSR in supporting sustainable development and water management in large cities.

Keywords: Water security, Corporate Social Responsibility, RO water plants, Tata Power DDL, Urban Communities, Ethnographic Study, Sustainable Development

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1. INTRODUCTION

Water security is a major problem in the modern world and millions of people all over the world are suffering from it. It means the dependable access to sufficient quantity of water of satisfactory quality for supporting lives, economy, and development. While water insecurity triggers economic vulnerability, social turmoil, and a critical health situation. India possesses one of the largest water resources in the form of fresh water but the problem of providing safe drinking water to the people especially in urban slum and rural areas remains a major challenge. The problem is compounded by the increasing population, high growth rate of urbanization, industrial pollution and climate change that continue to reduce the availability and quality of water (Saikia, S. J., & Banerjee, R. 2007).

The worst sufferers of water crisis and poor quality water in India are the urban poor especially those residing in the JJ (Jhuggi Jhopri) colonies (Bhadoriya, J. S., 2021). These communities are denied their basic rights such as access to clean water, they result to getting water from contaminated sources consequently developing water born diseases. The

solution to the problem is all in all complex since it involves the government departments, private companies, NGOs, and the community.

CSR has therefore come out as a major strategic approach in managing such socio-environmental issues. During the recent past, CSR in India has focused on water management by constructing water treatment plants, rain water harvesting structures and water conservation (Kellar, S. A. 2009). An example of the above discussion is Tata Power Delhi Distribution Limited (DDL), which has incorporated water security into its CSR initiatives. Tata Power DDL has also taken up a project of setting up Reverse Osmosis (RO) water plants in JJ colonies for the supply of safe drinking water. It does not only respond to water insecurity but also to the health and social well-being of the vulnerable people in North and North-West Delhi.

1.1 IMPORTANCE OF WATER SECURITY

People cannot survive without water, yet, people are ignorant with the provision, distribution and accessibility of water especially in our urban societies. Water security is defined by several aspects that are often referred to collectively; the quality of the water, the population's availability to it, and the futureIniability of the water source. Water security is crucial since it is central to sustainable development and poverty reduction since it underlines health, food production and income (Otto, D., Sprenkeling, 2022) Where water security is threatened, the outcomes are catastrophic in the areas affected. Outbreaks of diseases caused by drinking contaminated water include cholera, typhoid fever and diarrhea. It is shameful that these diseases preferentially affect the weak in the society especially children and the elderly. In addition, inadequate and unclean water supply, characterized by more than 40% of the population lacking access to hygiene facilities, keeps women and children anchored in spending half of their weekly time fetching water that in turn, denies them education and economic engagement (Singhal, M. A., 2021)

The problem of water security is even bigger in crowded cities such as Delhi. Due to population growth and the depletion of water resources through the extraction of ground water many regions experience water scarcity. Also, sources of water are not free from industrial and domestic pollutants, which thereby makes it difficult to access clean drinking water. In such cases, such social Investments such as the provision of RO water plants become worthwhile as they supplement the efforts of the government in reaching out to even the most part and least served population in the country in their provision of clean water (Wani, S. P., 2018).

1.2 ROLE OF CORPORATE SOCIAL RESPONSIBILITY (CSR) IN WATER SECURITY

CSR in India has undergone a drastic change in the last few decades. The Companies Act of 2013 laid down that certain categories of companies must spend at least 2% of their average net profit in CSR activities. This legislative drive has changed CSR from being an act of philanthropy to a business management model that organizations use to solve societal, economic and ecological problems. Since water security is an emerging problem in India, it has become an important area of CSR activity (Lambooy, T. 2011). CSR activities in water sector are construction of water treatment plants for clean drinking water, construction of toilets, promotion of rain water harvesting and creating awareness about water conservation. Such endeavors correspond to the United Nations' Sustainable Development Goal 6 that endeavors to 'Clean Water and Sanitation'. That is why the solution of the problem of water security is not only the provision of benefits to communities but also the creation of a favorable climate for the development of business, as water is a critical factor for many industries.

Tata Power DDL, in its CSR initiatives, has made appreciable progress in tackling water insecurity in the JJ colonies of North and North-West Delhi. Thus, by implementing RO water plants, thru the vehicle of Tata Power DDL, clean and safe drinking water is being delivered to the doors of these households, influencing directly the health and lives of the concerned households positively. This case is a good illustration of how CSR can be a powerful tool to help solve some of the most pressing problems of society.

1.3 OVERVIEW OF TATA POWER DDL'S CSR INITIATIVES

Tata Power Delhi Distribution Limited (Tata Power DDL) is a joint venture between Tata Power and the Government of Delhi and is one of the first to embark on power distribution in North and North-West Delhi. In addition to its mandate of distribution of power in the region, Tata Power DDL has been a leading light in social development through its corporate social responsibilities. The company operates in sectors like education, health care, skill building, and environment but has a special concern with the disadvantaged populations (Lauesen, L. M. 2014). Water security is one of the most prominent CSR programs of Tata Power DDL. Being aware of water problems faced by the residents of JJ

colonies, the company initiated the installation of RO water plants project in these areas. The RO plants are aimed at delivering clean and safe water for drinking at a cheap price so as to reach the most sensitive groups in society including women and children.

All the RO water plants that have been installed by Tata Power DDL are community based plants in which people of the community are involved in the operation of the plants. This not only makes the project sustainable, but also makes the affected community capable of sustaining the project economically by providing them with new skills to enable them get jobs (Figueroa, C., Lee, K., 2022)

2. RESEARCH OBJECTIVES

The present study aims to evaluate the impact of Tata Power DDL's RO water plants on water security in the JJ colonies of North and North-West Delhi. The key objectives of the study are:

- To assess the availability and accessibility of clean drinking water in the target areas before and after the installation of the RO water plants.
- To analyze the socio-economic impact of the RO water plants on the local communities, particularly in terms of health, hygiene, and economic benefits.
- To examine the challenges faced in the implementation and operation of the RO water plants and suggest ways to improve their effectiveness.

3. SIGNIFICANCE OF THE STUDY

This study is important as it seeks to fill the gap in knowledge with regards to the relationship between CSR and water security especially in cities that are experiencing water rationing. Consequently, this research highlights Tata Power DDL's RO Water Plants as a CSR case study and how it can support the achievement of the sustainable development goals by offering a fundamental human need: clean drinking water. Therefore, this study brings out the significance of corporate participation in responding to water security challenges in India particularly the densely populated areas such as Delhi due to the growing strain on the water resources. The study not only assesses the success of the initiative by Tata Power DDL but also the social and economic impact of this programme on the poor communities residing in JJ colonies. Based on the assessment of the impact of RO water plants to the public health, hygiene and quality of life, this research offers a useful reference for policy makers, businessmen and NGOs who are involved in water management and CSR. It also outlines areas of difficulty and success, providing a structure for other corporations to plan comparable programs that will promote community advancement and environmental stewardship. This study therefore adds to the emerging literature on the role of the private sector in delivering basic needs such as water equitably.

4. RESEARCH METHODOLOGY

This research examines JJ colony in North and West Delhi from an anthropological perspective. One type of qualitative study that looks at how individuals interact with one another in a particular setting is ethnography. This research offers a detailed look at the attitudes and actions of regular users as well as the sights and noises they encounter. This way of gathering data offers insight into how users perceive and interact with their surroundings. Among the ethnographic methods include direct observation, diary studies, photography, video recordings, and artefact analysis, which involves examining items that a person uses on a daily basis. The user may take notes whether at work, home, or with friends and family. The sort of study being conducted may have an impact on the length of the investigations. 'After just one or two hours of observation, a research may take weeks or even months to complete. Tata Power DDL's RO water plants for corporate social responsibility are the subject of this study's analysis on water security.

4.1 SAMPLE SIZE

The research was carried out in 12 Tata Power-DDL districts in the North and North-West of Delhi, where various centres are home to the current CSR efforts. 12 districts provided a total of 4200 samples for collection.

NORTH AREA:

1. City Circle encompassing Moti Nagar (MTN), Keshav Puram (KPM) & Pitampura (PPR) Districts.
2. Town Circle encompassing Civil Lines (CVL), Shakti Nagar (SKN) & Model Town (MDT) Districts.

NORTH WEST AREA:

1. Urban Circle encompassing Shalimar Bagh (SMB) & Badli (BDL) Districts Metro
2. Circle encompassing Rohini (RHN) & Mangol Puri (MGP) Districts Suburban

3. Circle encompassing Bawana (BWN) & Narela (NRL) Districts
4.

4.2 DATA COLLECTION

Purposive sampling is being used in the data gathering process to choose a sample of JJ colony families that volunteered to take part in the planned study. In order to choose and identify the matched (matched descriptive and demographic data) sample of students who were the volunteer program nonparticipants to the participants, random stratified sampling will also be used. It is possible for a purposive sample to be compatible with focus groups inside or between them. In terms of stratified random sample types, they are useful for comparing groups as well as establishing population validity, which guarantees that attainable populations may accurately reflect the intended populations.
The Tata CSR initiative was examined and assessed in the recipient communities within the framework of ethnographic research. The project is evaluated using a qualitative framework of data gathering using employee interviews and survey surveys. The goal of the evaluation and analysis of these programs was to include 50 project recipients.

4.3 DATA ANALYSIS

Analysing the results will depend on the method used to get the insights. In both scenarios, a thorough investigation was carried out to gain a deeper comprehension of the users and how they carry out the actions under review. Patterns and trends in the data will be examined. More specifically, they are curious in the obstacles and challenges that customers faced and how this impacted different users. Data analysis techniques include the use of affinity diagrams. You may start looking for trends by using this technique to compile all of your research data into one place. Subsequently, the primary results of the researchers will be transcribed into Post-It notes and categorised according to the resources available.

5. RESULTS AND DISCUSSION

We conducted a survey of the RO plants in Tikri Khurd, Narela, North West Delhi. Rohini and Mangolpuri replies were not taken since these divisions lacked RO plants. In Narela, there are eighty-four recipients of the TATA power DDL CSR activities RO plan. Interviews were performed with households. Every day, RO water is sent to every cardholder. A 10-liter water bottle is given to cardholders. The duration of recipients' use of RO water is 0–4 years. With the Narela RO plant, all 84 respondents expressed satisfaction.
The Tikri Khurd RO Plant provides RO water, which is used daily by all 84 responders. Regarding the RO water supply, the majority of respondents did not discover any complaints, and they noted that if there were problems or grievances with the plants, the appropriate steps were done right away. From the facilities' launch four years ago, the majority of the homes in the Narela division have used the RO water. Since its founding, the RO operating team has been receiving and maintaining documentation of all beneficiaries and their personal information, and things have gone well.

QUALITY OF THE WATER:

Seventy of the eighty-four respondents said the water quality is good, while the other fourteen said it is average. Of the respondents, 56 expressed their high level of satisfaction with the RO water facilities offered by TATA Power DDL, while the remaining 28 indicated their level of satisfaction with the RO water services. The majority of respondents mentioned that there has to be one additional plant in order for the Tikri Khurd to have enough water due to its big population. Depending on the size of the family, certain parts have demanded that the amount of water per household be increased. The availability of water facilities varied by area, and it was difficult for inner homes to get water from plants that were quite far away. Because of the increasing population, local beneficiaries pushed for the addition of one additional plant.
Households in the Haiderpur slum area receive drinking water from the Shalimar Bagh RO Water Plant as part of the Tata Power CSR portfolio's Sanjeevani effort. The initiative, which has been running for more than six years, generates about 20,000 Ls of water per day, and each beneficiary is given a card that allows them to use their daily allotment. Filtration removes dangerous microorganisms and excess minerals from the water, greatly improving its quality. The initiative is a huge success, and no complaints or issues have been brought up by the recipients. Every time, the water quality is acceptable, and the project gives the impacted homes the best results possible.
A big worry in the region is the water supply (WASH), especially for houses with small families. Though not nearly as much as needed, the Tata-installed RO offers some respite. More than 80 percent of recipients say they don't get enough water every day. Interventions should handle family planning and deal with bureaucratic red tape in order to address this. Geographical location is a major factor in determining access to RO services; some families utilise government pipes

or the Delhi Jal Board. Reaching all beneficiaries is problematic in some regions because to the high cost and complexity of the RO plant's implementation.

FOLLOWING PROGRAMS WERE NOTED AFTER THE SURVEY DONE WITH BENEFICIARIES:

- The RO plant was installed 4-5 years before to which 90 percent of population agreed
- 80 percent take water from RO everyday
- 20 percent have no cards because of which they don't avail services
- 90 percent told that quality of water is good
- 10 percent said that previous eater was better
- 80 percent are satisfied with RO water service
- 80 percent agreed that there are less problems in their community now

Recipients in Keshav Puram and Moti Nagar are big fans of Tata Power's RO water. The majority of customers are happy with the quality of RO water, notwithstanding sporadic problems like contaminated water. Customers in Moti Nagar are dissatisfied with the RO plant manager and demand appropriate time management for water distribution. Even after recharging their RO plant cards, they had been without water for a couple of months. Notwithstanding these problems, customers in both regions are quite pleased with the RO plant water and think it's the greatest choice in their area.

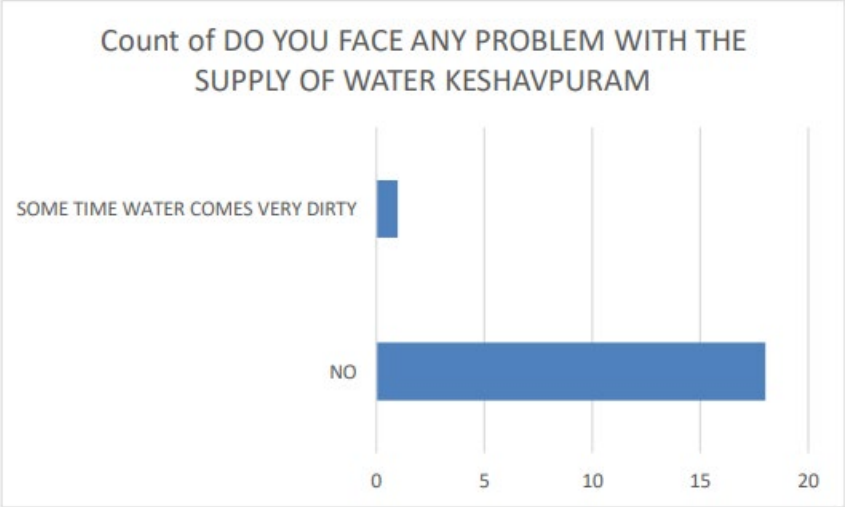

Figure 1: Facing problem in supply of water in keshavpuram

Two of the twenty respondents to the study stated that they occasionally receive really bad water, suggesting that there is an issue with the quality of the water. Nonetheless, the majority of respondents—18—stated that they had no problems with Keshavpuram's water supply, indicating that most locals find it to be usually dependable.

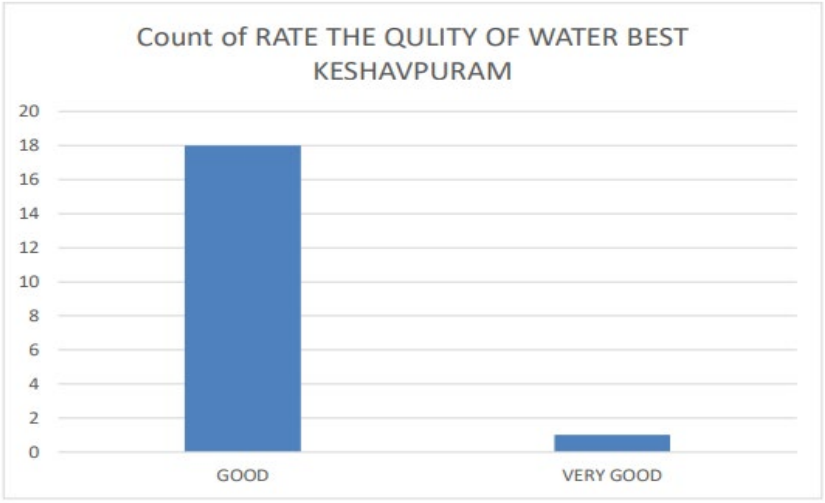

Figure 2: Rating the quality of water in keshavpuram

Of all the responders, 18 thought the water quality at Keshavpuram was "good," while 2 said it was "very good." As can be seen from this comment, most people in the neighbourhood have a favourable opinion of the water quality, with a small percentage declaring it exceptional.

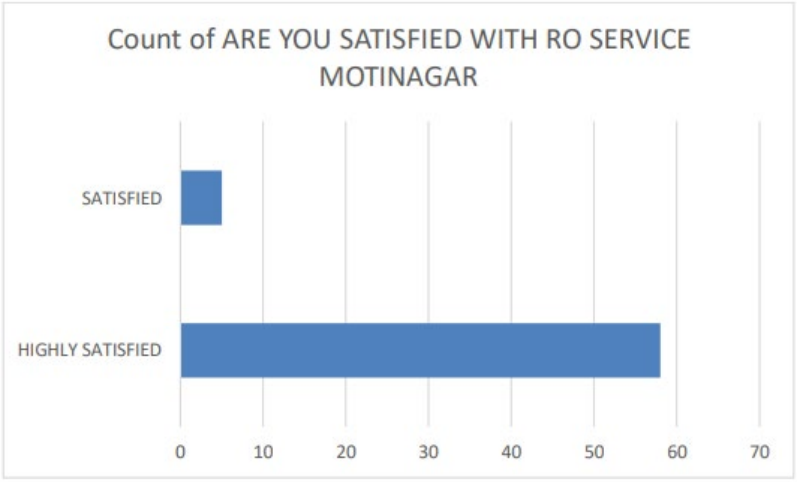

Figure 3: Satisfaction level with RO service motinagar

Five respondents to the question about their degree of satisfaction with the RO service in Moti Nagar said they were satisfied, and 58 respondents, or a substantial majority, said they were extremely satisfied. This suggests that the quality and effectiveness of the RO service in the region are receiving generally good feedback.

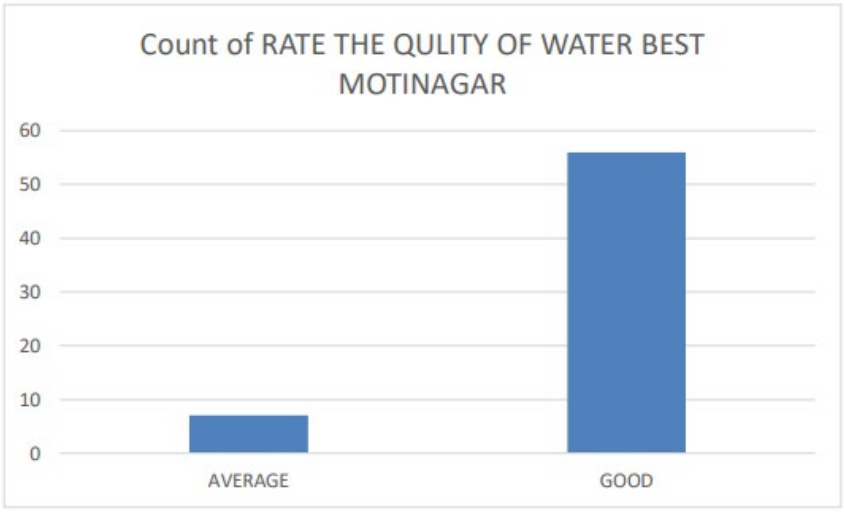

Figure 4: Rating the quality of water in Motinagar

Eight respondents characterised the Motinagar water as mediocre, while 56 respondents assessed the water as good. The study was carried out to evaluate the quality of the water in the area. This suggests that while a small percentage of individuals think there is space for improvement, the majority of people are pleased with the water quality.

Considering the expansion of the population and family members, more RO plants must to be installed in the regions in need. Beneficiaries expressed a high level of satisfaction with the relevant team's handling of their concerns about ROs. A few beneficiaries brought up the issue of water waste following the RO process, pointing out that if a separate counter could be installed, this water may be used for regular purposes. More water is needed for every family; more litres are needed. Since many locals are left out of the programs, it will be a wonderful step if they can be included, according to ABHA, field coordinators, and beneficiaries. A few of the recipients made recommendations on the enhancement of the RO facilities at the RO plant at Tikri Khurd. The high water demand in this area was noticed, and it should be taken into mind going forward.

The effect of water security programs implemented by Corporate Social Responsibility (CSR) organisations in North and North-West Delhi. Reverse osmosis (RO) water plant installation has improved access to safe and clean drinking water, especially in underprivileged JJ communities. The cross-sectional survey of 4200 participants from 12 districts showed a general understanding and appreciation of Tata Power DDL's CSR initiatives for the targeted vulnerable groups. The

first observation is the improvement of the availability of portable water among the residents of JJ colonies. Earlier, the communities rely on contaminated water or other sources of water which were also contaminated, and people suffered from waterborne diseases and related ailments regularly after the installation of RO plants. After the implementation of the project, the quality of water has greatly enhanced and has reduced the incidences of water borne diseases. They also perceived a general enhanced hygiene and sanitation indicating that those with children and elderly were most vulnerable to diseases associated with contaminated water.

The social relevance of the programme is also quite significant. Other than water security, the project has brought about increased community engagement. Some residents gained knowledge on clean water and sanitation through the educational and awareness creation that was conducted alongside the CSR program. The fact remains that such awareness have spread several effects where communities have embraced better hygiene approaches and have also come up with extra measures of protecting water resources. On the economic aspect, the establishment of the initiative has brought employment for the local people. The process of maintaining the RO water plants and the distribution process has employed the local workforce, which means that the JJ colonies have more people being employed and gaining skills on the job. This has helped create a small but significant source of income to the local economy especially for those who never had a formal job.

However, the project experienced some challenges during implementation such as those that are technological in nature and those that are social in that the community was initially very resistant to the project. Some of the residents were in doubt regarding the feasibility of the RO plants in the long-run because they never understood how the plants were run and maintained. These challenges were gradually addressed by conducting daily, weekly and monthly community meetings and feedback sessions. The CSR programme of Tata Power DDL has been found to be a good model for dealing with water insecurity in the urban poor areas thereby linking social justice with business advantage for the poor.

6. CONCLUSION

In this study, CSR interventions especially Tata Power DDL's RO Water Plants are identified as key in addressing water insecurity in North and West Delhi's JJ colonies. The ethnographic study shows that there has been an increase in access to clean drinking water and hence improvement in health and hygiene among the people. The quality and reliability of water produced by these plants were rated very high by the respondents and this underlined the importance of such CSR projects. In addition, the social and economic returns from this initiative such as; flow have also been established exemplified by job development and enhanced awareness on water management. But there are still issues like technology constraints, and the constant need to engage the people in order to maintain the water resources for the longer term. Consequently, this study has revealed that CSR can only be effective in improving water security through PPAs. It is useful for policy makers and companies interested in developing sound water management strategies. Further research should establish the long-term effects and attempt to replicate such programs in various contexts in order to create an overall framework to solve water security problems in various areas. It is concerning that more companies are not focused on suitable practices that will help to change the future of water supply for everyone.

CONFLICT OF INTERESTS

None.

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