ABSTRACT

Inductive research was conducted using questionnaires, quotes, interviews and secondary data on the drinking water infrastructure of schools in the city of Vadodara, Gujarat. The objective of the research was to identify and analyze the cost of school drinking water infrastructure that helps in sustainable and safe drinking water for school going students.

The research study has identified fixed and variable factors of drinking water infrastructure such as water tank, taps, RO system, water cooler, water motor which constitute the fixed factors: and labour, RO filter, electricity, Bleaching powder and municipal water constitute the variable factors. It was found that 23 per cent approx. schools do not rely on local water supply authority for daily water supply and 71 per cent partially rely for daily water requirement. It was also found that around 65 per cent of the schools provide RO filtered water to the students. Further it was found that the private schools were better in terms of drinking infrastructure compared to government funded schools based on hypotheses testing using t-Test and chai-square.

Economic analysis on operation and maintenance (O&M) costs identified expenditure on taps, RO filters, labour, electricity, cleaning agent (bleaching powder) and municipal water tax as O&M costs. The study introduced the municipal tax as an operating cost for the schools, as the daily supply of water is met at the expense of the tax, which is paid annually.

Moreover, the study of students' and teachers' perceptions found that teachers and students differed in their perception of their own drinking water facilities, it was also found that almost every school had a different drinking water facility for teachers, which may be one of the strongest reason for difference in opinion.

In addition, the researcher discussed the role of the private sector in supplying bottled water to schools, which is estimated at between ₹1.1 and a maximum of ₹1.21 per student per day, for small to large quantities respectively: The decision to have PPP (public private partnership) depends on willingness to pay or Willingness to Accept of the stakeholders.

Based on the findings, the researcher suggests a cost subsidy model for drinking water infrastructure and JJM (Jal Jeevan Mission) at the national level with the aim of meeting the SDG-6 targets by WHO and UNICEF at the international level.

Executive Summary

1.0 INTRODUCTION

One cannot imagine life without water on the earth. Water is an essence and fundamental to life. Water improves the condition of life and smoothens the living of humankind. It is a known fact that 60 percent of human body is made up of water and 90 percent of blood contains water being vital for the proper functioning of the human body , necessitating the essentiality of fresh water.

Water crisis is rising at such an alarming rate that it doesn't need introduction. As a millennium development goal, the United Nation has drawn the attention of the world towards the drinking water problem, data showed 748 million people had no access to improved drinking water, at international level (United Nation Organization, 2015). Ahead of World Water Day (March 22) on 18th March, 2021 the UN Water called a high-level meeting to expedite the action and doubling efforts on SDG 6 by 2030. The Sustainable Development Goal (SDG) 6 on "Water and Sanitation" in SDG report 2020 showed 2.2 billion population of the world deprived of safely managed drinking water, including 785 million lacking basic drinking water and this number will go further year by year.

The criticality of water concerns across the global are mounting worth every passing day calling for a collective resolution to redress as well as conserve drinking water in order that the coming generation are not left parching.

India's water problem is caused by the mismanagement of the water. Today, India is listed in water stressed countries not because of the water crisis but due to the inefficient management of the water resource.

Water borne diseases cost approximately USD 600 million a year in India. This is true for drought and flood affected areas, this has already one third of India's population has experienced this in a couple of previous years. As ground water across India is extracted at such a faster rate more than 60 per cent of India's 718 districts are facing extreme water depletion. (JMP, 2017). India supplies groundwater at over 30 million access points, 85 per cent of supplies in rural India and 48 per cent is fed to urban areas.

Under the JJM, providing clean water to every child in India is the objective. The water matter is given a separate Ministry under the government of P.M Modi, the Ministry of drinking water and sanitation was reformed and restructured under the Ministry of Jal Shakti and the work of Jal Jeevan Mission was placed under the Department of drinking water and sanitation.

Since the inception to till date 2022. Under JJM, functional household tap connection (FHTP) has increased from 17percent to 49 percent. Almost all the schools and preschools in India are well established with tap water. The new government focus agenda is safe drinking water and sanitation. The detailed discussion on the JJM is discussed in the water and governing Institution in India.

Different Sources of Drinking Water

The different sources of drinking water in India are associated with groundwater i.e., handpumps, borewells, tube wells, dug wells, and also from surface water sources like rivers, ponds, lakes, streams etc. According to the National Sample Survey Organization (NSSO) 76th round shows that, for 43 per cent of the rural population groundwater is the most reliable source of drinking water. The NSSO Report also mentions that, around 58.3 percent of households still rely on hand pumps, tube wells, public taps, piped water from neighbors, protected or unprotected wells, and private or public taps for their water. The brief of highlights of Gujarat on drinking water

It is the duty of the state government to provide safe drinking water. The concern over safe drinking water has gained significant attention at global, national, state and local level due to paradigm shift in water management as the perception that "freshwater is a free and abundant resource has changed to that of water being an economic goods in scarce supply, threatened by pollution and warranting efficient use" (Gujarat infrastructure development Board). The next section discusses about the status of water as an economic good or free good.

Considering the above discussion, the researcher has laid down the objectives, Rational and significance of the research study in the following discussion.

OBJECTIVE OF THE STUDY

The overview of the study is to conduct descriptive study using inductive method and to survey the schools of the Vadodara city to Identify the problems of drinking water infrastructure and analyze the cost of the drinking water infrastructure. The following were the major objectives of the research study.

Primary Objective:

The primary objective of the research study is to identify the Drinking water infrastructure and operational and maintenance cost (O & M) of factors in the selected educational buildings of Vadodara City of Gujarat state.

Secondary Objectives:

- To identify the dependence of educational institute on municipal supply or private supply of drinking water
- To identify the educational institution lacking drinking water infrastructure.
- To compare the drinking water infrastructure at selected public owned and private owned educational buildings.
- To identify the role of the private sector in supplying drinking water in the selected educational building.

Hypotheses

To address the research objectives following hypothesis are tested using Bivariate analysis and applying t-test, chi-square, and correlation.

$H0_1$: There is no significant difference between the number of housekeeping staff and the type of school.

$H0_2$: There is no significant correlation between Number of labour and the size of the tanks.

$H0_3$: There is no significant difference between number of taps and types of schools.

$H0_4$: there is no significant difference between the number of purifiers and the types of schools.

$H0_5$: Cooler attached RO system and type of schools are not independent.

H06: Cleaning of water tanks and types of schools are not Independent.

$H0_7$ There is no significant association between number of labours used for cleaning and the type of school.

Rationale of the Study

Water shortages are witnessed across the globe and the reasons underlying are insufficient rain due to global warming and climate change, lack of water harvesting and many more. In view of the above problems, Gujarat state is also facing the heat of water crises in general and Vadodara in particular.

Due to insufficient rain, due to climate change and lack of water harvesting, Vadodara is heading towards a serious drinking water problem. According to the study conducted by Gujarat Ecological Society the quality of groundwater in the Vadodara city is deteriorating due to continuous increase in dissolved solids, salinity, and fluoride content in it (TOI, 13th July 2015). Gujarat Ecological Society conducted 141 ground water sample surveys of Vadodara city.

The Acting Director of Gujarat Ecological Society, Ms.DeepaGavali said that "in the urban area 80 to 100 percent of drinking water demand is met through groundwater, leading to unsustainable development of groundwater. With increasing high rise building dependence on groundwater has increased. A large part of the city is settled on pockets of saline water."

As we all are aware that children spend a large part of their day at school and therefore availability and access to safe drinking water becomes an important aspect to dwell upon.

Children spend a large portion of their day at school and student's class focus and academic performance improves due to adequate water intake

Therefore, pupils of Vadodara city who are also spending a large portion of their day at their school must be provided with quality drinking water, not only the fact that the students engage in the physical activities is tiring and dehydrating which needs healthy drinking water at schools. Thus, the study proposes to identify and evaluate (O & M) the hygiene factor of drinking water in the selected educational building.

Significance of the Study

This inductive study helps in drawing the attention of the stakeholders towards the drinking water infrastructure in the schools. It forms the basis for conducting the future research in the area of drinking water infrastructure of the schools at national levels and state levels. Study gives new parameters of identifying the hygiene factors in context to drinking water infrastructure. It helps in addressing future of the present generation and next generations basic need of the school going students i.e., drinking water. It also draws the attention of the policy makers towards the health of the Young India, Fit India- who are going to be future India.

Research study helps in viewing the role of public and private in supplying drinking water and developing an efficient public-private partnership model. It helps in proposing adequate operational & maintenance costs for providing improved drinking water at educational buildings. This helps in achieving the goals of Millennium Development Goal at micro level. The policy frame can be made for those schools lacking proper drinking water. Outcome of the proposed study helps in framing the policy to improving the drinking water facilities. Further, it improves the health and wealth of youth.

This research proposes to suggest the operational and maintenance cost of drinking water infrastructure in the selected educational buildings of Vadodara city of Gujarat state.

2.0 REVIEW OF LITERATURE AND RESEARCH

The chapter is divided into sections based on the closely related areas, review of literature from the globe and the review of literature selected within the country. The study doesn't cover the scientific aspect of water like chlorine, Sulphur, magnesium, and many such others, to keep the subject area in the purview Economics. The literature related to the testing of water quality, its micro- organic component and properties or the areas of pure science are not included in the review of literature.

The Review of literature is based on sub theme at threshold details the broad subject matter on water resource/ conservation/ reuse/grey water and then narrowed down to the Drinking water in Schools. The researcher has undertaken the review of research studies at broader sense to under the problematic area related to water and how those problems can be related to the present study.

Section 2.1 Water resource/ conservation/ reuse/grey water discuss the broad areas related to water problems, 2.2 Economic aspect on water discuss the cost, pricing, subsidy, funding, budget, 2.3 Behavior approach towards water/ others related area discuss the willingness to pay and accept 2.4 Drinking water details the existing body of knowledge related to present research area. 2.5 Drinking water in schools/ contamination related to existing body of knowledge specifically related to present research area. 2.6 Vadodara and water contamination discuss the research related to the Vadodara city and present research

2.1 WATER RESOURCE/ CONSERVATION/ REUSE/GREY WATER

The study under the water resource, conservation, reuse and grey water covers the related review of literature which is important from the perspective of the present research. The researcher tried to take insights from these review to develop the macro understating of the water related issues in different aspects of water problems. This gives the bird eye view of water issues in selected areas.

2.2 ECONOMIC ASPECT ON WATER

Economic aspect on water looks into the review on the subject matter of Economics like the monetary incentives on water, pricing of water , budgetary provision, government grands, government funds, water and economic development to recommend the suggestions from the existing body of knowledge.

2.3 BEHAVIOUR APPROACH TOWARDS WATER/ OTHERS RELATED AREA

The section briefs on , the behavioral approach discussed in various studies toward their willingness to pay, practices followed by the user, perception, and willingness to conserve, for sustainable and efficient use of water are reviewed

2.4 DRINKING WATER

The research study caried related to the drinking water in general is carried to know the area of the study and develop the clear understanding of the problem of the study.Why these studies are Important from Research point?To identify the knowledge gap, evidence gap and research gap the following research studies was reviewed.

2.5 DRINKING WATER IN SCHOOLS/ CONTAMINATION

In the this section the review of the literature on drinking water in schools are reviewed to further obtain information to the body of knowledge and deep insight the subject related to research problem. The reviews the drinking water related issues , infrastructural issues on school water facilities.

2.6 VADODARA AND WATER CONTAMINATION

For detailed study of the area of research, the researcher reviewed the relevant area of studies in the city of Vadodara. These studies give the reason to why the present research is very important from the research point of view.

Identification of Research Gap

The entire review revealed that there is plethora of studies on water scarcity, water contamination, water and health hazards, economic aspects of water, water disputes at national and international levels, water inequality, the economic aspect of water infrastructure of schools but there is paucity of studies conducted in the infrastructural aspect of drinking water infrastructure in schools in rural as well as urban areas. The literature review unfolds the research gap on the basis of which the present study was undertaken with the objective of bridging the research gap, evidence gap and the knowledge gap through empirical and perception study.

Major research work studies are confined to the contamination of drinking water and the issues of widening the gap of availability of drinking water and safety of drinking water concern for school going children. At micro level researcher has come across no research work on the drinking water infrastructure of schools and analysis of cost of it in the educational Institutions.

Thus, researcher has not come across any inductive study carried on the drinking water infrastructure of the schools of India in general and Vadodara in particular. The proposed

research would be a unique contribution in the field of cost analysis of drinking water infrastructure of the selected educational building of Vadodara city.

3.0 RESEARCH METHODOLOGY

3.1 CONCEPTUAL FRAMEWORK OF THE RESEARCH

After the review of literature, to attain the objective of the research, researcher conducted a survey to analyze the cost of drinking water infrastructure of the selected schools in Vadodara city. The survey of schools was done to identify the major factors constituting the drinking water infrastructure. These factors were classified into fixed and variable factors. After the identification of factors, the cost information was collected. For the cost analysis in the section-I of the chapter 4 and the chapter- 5 is graphically presented in

For section II of the Chapter-4, the researcher approached the school going students and teachers in Vadodara city to give their opinion on selected variables of drinking water (DW)

RESEARCH DESIGN

The research design of the study was decided on the basis of the objectives of the Research. The research carried out to collect the information on the following to address the objectives of the research.

The researcher used the Descriptive research design for Drinking Water Infrastructure of the schools, variable of packaged drinking water and Perception of the Students and Teachers on Drinking water parameters to obtaining the fundamental information for establish the connections between the variables.

For the cost of Drinking water infrastructure of the schools, Analytical research design was used for evaluation of information and the fact pertaining to research information.

3.3 VARIABLES UNDER RESEARCH STUDY

After deciding upon the research design the researcher has Identified the variable of the research study, the variables of the study are classified into four ;

Drinking Water (DW) Infrastructure

Cost of DW Infrastructure

Cost of Packaged DW

DW Parameters

The cost of DW infrastructure has 10 variable classified as fixed and variable factors. Fixed factors include the Water Tanks, Taps, RO System, Water Cooler and water motor and Variable

factors includes Labour, Purifier Filter, Electricity, Bleaching Powder. In addition to already mentioned variable, for the cost of DW infrastructure one more variable was added i.e., Municipal Tax.

For the students' and teachers' perception gives the information on variables used i.e., Quality, Quantity, Taste, Quality, Availability, Adequate number of taps, Location of water station, Hygiene (sanitizing, cleaning of water tank), Cleanliness around water station, Availability of glasses for drinking water, Cleanliness of drinking glasses, & Overall Arrangement about drinking water variables for the study

The information on variables of the cost of Packaged drinking water from the private local RO water supplier. Six different categories of quantities are under the study i.e., for quantity of 5 units of packaged drinking water, 10 units, 20 units, 40 units, 80 units and 100 units.

3.4 FUNCTIONAL DEFINITION

3.4.1 Economic Analysis

The operational definition under the Economic analysis the researcher has considers the cost analysis of the drinking water infrastructure available in the schools. The cost analysis of the variable under the study are briefly mentioned in Fig 3.6 and 3.7.

3.4.2 Drinking Water

BIS (Bureau of Indian Standards) has set specifications in IS–10500 and subsequently the revised edition of IS 10500: 2012 in Uniform Drinking Water Quality Monitoring protocol. Some parameters apart from those mentioned in IS 10500: 2012 may also be measured if the States deem it necessary. This standard has two limits i.e., acceptable limits and permissible limit in absence of alternate source. If any parameter exceeds the limit, that water is considered unfit for human consumption.

The operational definition in the present study considers the water supplied by VMC after treatment and as per BIS norms and considered as standard drinking water available for drinking.

3.4.4 Institution

Institutions in the present research covers the selected school of Vadodara city falling into the Vadodara Municipal Corporation (VMC) limits.

3.4.5 Stakeholders

The stakeholder in the present research includes the students, teachers, non-teaching staff, VMC and water concerned authorities.

3.4.6 Drinking Water Infrastructure

The operational definition of the drinking water infrastructure consists of the factors which contributes or related directly and indirectly with the drinking water available to its stakeholders.

3.4.7 Drinking Water Infrastructure of Schools

The operational definition of the drinking water infrastructure of Schools includes the Variables under the study in Fig 3.3

3.4.8 Packaged Drinking Water

Water derived from the various sources including surface water, ground water or sea water and subjected to treatment like decantation filtration, demineralization, mineralization and reverse osmosis is defined by Department of Consumer affairs.

3.4.9 Packaged Drinking Water Supplier

The operation definition of packaged water supplier included the local RO water suppliers of the Vadodara city.

3.4.10 Bottled Water

Bottled water included 20 liters of RO treaded water for drinking in plastic container or Water Judge.

3.5 LOCALE OF STUDY

The research study was carried in the Vadodara city of the Gujarat. The research study the variables within the VMC limits of the Vadodara city.

3.6 TIME SPAN

The time period of the research study was between 2018 and 2022.

3.7 METHODS OF DATA COLLECTION

3.7.1 Primary Data

The information on the variables under the study are collected through:

Selected schools were approached using Scheduled questionnaire, field observation to collect data on DW infrastructure

Multiple instruments used to collect the cost data includes interview on cost of fixed and variable factors of drinking water infrastructure and, field observation for daily wage labour market.

Quotation from the supplier on different quantities of packaged bottle

Questionnaire filled by the students and teachers for their perception on DW variables

3.7.2 Secondary Data

The information on the variables was also collected through following methods:

Online- Government web source- www.Gem.gov.in for obtaining the price of Variable and fixed cost of the drinking water infrastructure, mgvcl.gov.in for the price of electricity charges

Public Records - vmc.gov.in for obtaining information on Water Tax variable

Business Catalogs

3.8 POPULATION SAMPLE

Population for the present study comprises of selected schools of Vadodara city.

Selected Packaged drinking water supplier of Vadodara city.

Selected school going students and school teachers of Vadodara city

3.9 SAMPLE UNIT

- The sample unit of the selected 80 schools of Vadodara city.
- 11 water suppliers
- 152 students and 47 teachers

3.10 SAMPLE METHOD AND SAMPLE

The convenient sample method was used to collect the data on DW infrastructure of the selected schools.

Interview method was used to obtain the cost on DW infrastructure of the schools

Convenient sampling method was used for collecting data on the cost of packaged drinking water from the local Packaged DW suppliers. The objective of the sample collection to know the representative price of the packaged drinking water and not to study the market of packaged drinking water.

Convenient sampling method was used to collect the data on students and teachers' perception.

3.11 STATISTICAL TOOL

For attaining the objective of the research Descriptive statistics and Relational statistics. Under the Descriptive statistics the tools used were Frequency Distribution, Percentage, Mean, Standard Deviation, Correlation with hypotheses testing using t-Test, Chi-square for Drinking water infrastructure variables objective of the research study. Under analytical research design tools used for analysis purpose was the Bar Chart, Pie Chart and Trend line.

Statistical Tools For Research Study

Frequency distribution, percentage, Mean , Standard deviation, Bar Chart, Pie-Chart, Trend line Chart were used to study the DW infrastructure, packaged DW, and perception of students and teachers.

Correlation T-Test & Chi-square were used for comparison between private and government funded schools. Likert scale and Cronbach's Alpha is used to measure the student & teachers' perception.

For the Cost analysis of the DW infrastructure the Bar charts, Pie- chart and Trend analysis were used.

Validation of questionnaire was done with expert and Likert scale questionnaire uses Cronbach's Alpha for internal consistency of Scale.

3.12. LIMITATIONS OF THE STUDY

Every study is inadequate by certain factors. The present study, being a quantifiable one, is exposed to time constraints. Added, the results of the study cannot be generalized due to the small size of the sample. Thus, more research at a larger scale involving larger number of respondents is required to gain better understanding into the existing research field.

Major limitations of this study are: Proposed research is limited to the selected educational building of Vadodara city in Gujarat state; the size of the sample makes it narrow. Study is time bound and has limited scope and doesn't give a macro view. It may not be suitable to make generalization of the findings. This is mainly because of its limited sample size and study area being limited only to one city in Gujarat. This study is based on primary data generated through scheduled questionnaire, and observation and collected from the respondent at different schools, water supplier as such, its findings depend on the accuracy of data.

The study is based on the response of the school authority and the supplier of Packaged drinking water of Vadodara city given the geographical resources, due to which generalization made may not be wholly true. The Researcher, being an outsider and external analyst, clearly has no access to the internal information. Therefore, it is hard to describe the inside view of schools and quality of water supply in the study, cost information obtained from the various sources. Covid -19 had restricted the data collection sample method and size.

4.0 SECTION-I

4.1 DRINKING WATER INFRASTRUCTURE IN SCHOOLS

Finding of the Study

The Primary Objective 1: To identify the Drinking water infrastructure in the selected educational buildings of Vadodara City of Gujarat state.

Findings.

Water Tanks

- Schools are found with traditional water storage tanks using concrete and plastic tank. the reason for using concrete tank is due its durable nature and plastic tanks are cost effective with ready installation.
- Majority if the schools used 1000, 2000, 5000, 10000, liters capacity tanks to meet their daily requirement.
- The majority of the schools use RCC water tanks over plastic

Taps

- It was found the lever on -off taps are more chosen over other types of tapes due to its sustainable nature, on the other hand semi- automatic push taps are also trending in schools due to the water saving nature of the taps but not ensure the sustainability.

Purifier

- High risk of water contamination and health hazard increased the use of water purifier not only in household but also outside the households. Schools are taking precautions to provide clean and safe water to its students, around 23 per cent of the schools found without water purifier system in their existing water infrastructure.

Water cooler

- To improve the drinking water infrastructure water coolers are playing important roles. It was found that 55 per cent school with RO purifier have installed water coolers along with it, which makes it important part of drinking water infrastructure.

Under variable factors of drinking water infrastructure

Labour

- The size of the water tank and labour used to clean it are not dependent. So, the labour used to clean can be standardized.
- Labour is required half yearly to clean water tank.
- Average number of the labour required was only 4 every 6 monthly.

Purifier Filter

It was found in the conclusion of 4.4.2 that majority of the RO system replace their filters on quarterly basis but monthly replacement was required.

Electricity

- Electricity was not given much importance while talking about drinking water infrastructure. But it is known fact that in the absence of electricity, entire drinking water infrastructure is inactive as there is no alternative to electricity.The finding from the section 4.4.3 that only 35 minutes on an average was the consumption electricity for running motor. The RO system and Water cooler has significant usage of electricity.

Bleaching powder (cleaning purpose)

- From the conclusion of the 4.4.4 it was found that there was no standard cleaning material found for cleaning water tanks. The frequency of cleaning the tank was found average half yearly which can be the one of the reasons for considering bleaching powder so important part of drinking water infrastructure. The only known source for cleaning was found was "Bleaching powder" as cleaning agent for water tanks.

The secondary objective 1: to identify the dependence of educational institute on municipal supply or private supply of drinking water

Finding

- For Drinking water 22.5 per cent of the schools depends on the VMC water supply.
- From the descriptive analysis of the data on the other source of daily water requirement reveals that 23.8 percent and 71.3 percent of the schools are not completely dependent on VMC for Daily requirement of water supply; Collectively 94.1 percent of the schools are partially dependent on Ground water and water Takers.

The secondary objective 2: to identify the educational institution lacking drinking water infrastructure factors.

Finding

- The descriptive analysis of data and the feedbacks of the principals are obtained on their minimum requirement towards the demand for drinking water. The empirical

study found that schools are lacking with RO water purifier in the schools, water cooler.

The secondary objective 3: to compare the drinking water infrastructure at selected public owned and private owned educational buildings.

Result:

- Results of the Hypothesesshowed that Drinking water infrastructure of Private schools is found to be surpassing that of the Government schools.

The primary objective 2: to identify the drinking water infrastructure operational & maintenance of cost.

Finding

The operational cost of the drinking water consists of Labour cost, cost of fillers, cost of taps, cost of electricity, bleaching powder cost and water Tax are identified as operational and maintenance cost.

SECTION-II

4.2 STAKEHOLDERS PERCEPTION ON DRINKING WATER PARAMETERS

This part of the chapter discusses about the perception of the stakeholders regarding the drinking water facilities in their school. Stakeholders' perception was measured on various parameters related to drinking water facilities. A better understanding of the practices/facilities affecting stakeholder perception can contribute to improving drinking water facilities in schools.

At the end of the second part, on the basis of opinion of students and teachers regarding drinking water facility in their school, it is concluded that there is a difference in the opinion of students and teachers. Students rated their drinking water facilities as "average" while teachers rated them as "good". The researcher found that there is a difference of opinion between teachers and students regarding drinking water facilities. During the visit to the school, the researcher found that the school had separate arrangements for drinking water for teachers and students. This can be a strong reason for the difference of opinion.

Most schools had packaged drinking water from a local RO water supplier in a 20-liter water jug (plastic insulated thermos water camper) for the teacher. During an informal discussion on the burden bearing the cost of bottled water, it was revealed that some teachers contribute for themselves and some schools are bearing the burden which is very nominal.

5.0 ANALYSIS OF PACKAGED DRINKING WATER SUPPLY

5.1 INTRODUCTION

In the previous chapter the drinking water infrastructure of the selected schools was analyzed and the perception of the students and teachers towards the drinking water amenities were discussed. The context of the present chapter deals with the analysis of packaged drinking water from the market, where the school's daily requirement of the packaged drinking water is analyzed which show the cost per day per students for different categories of the schools.

Secondary Objective -4 *To identify the role of the private sector in supplying drinking water in the selected educational buildings.*

Findings

- The PCCD per student for all the quantities of the bottles ranges between ₹ 1.21 approx. and ₹ 1.10 without including delivery cost and found the difference of 0.10 paise
- The delivery cost within 3kms, 10kms and 20kms for smaller quantities are significant and will cost more for procuring 5 units to 20 units of bottles.
- The delivery cost within 3kms, 10kms and 20kms for larger quantities are significant and no cost for procuring 40 units to 100 units of bottles

The findings of the chapter shows that the role of private sector in supplying packaged drinking water can play a vital role for providing safe drinking water to its stakeholders. The prices of the packaged drinking water which was obtained from the local water suppliers gives the information about PCCD per student. The PPP (Public Private Partnership) model can be developed for the supply of RO Water in the schools which will standardize the Drinking water infrastructure of the school.

6.0 Suggestion Conclusion And Recommendation

Based on the findings, the researcher suggests a cost subsidy model for drinking water infrastructure and JJM (Jal Jeevan Mission) at the national level with the aim of meeting the SDG-6 targets by WHO and UNICEF at the international level.