

# Water Conservation Campaign: Attitude and Public Participation in Faridabad City

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**Abstract:** Water is a renewable natural resource but overutilization of water has created serious problem and today it has become a matter of great concern for its sustainability and safeguard. With growing demand of water in faridabad, the ground water aquifer as well as water supply is under great stress. It is very important and need of the hour to understand the water scarcity issue and to adopt water conservation methods. This initiative can also facilitate the implementation of appropriate policies for water demand management. Water conservation strategies and steps have been taken by the government at national, state and local level to reduce the stress to safeguard the water availability. The present research discusses the attitude and participation of households to their water conservation adoptability and campaign initiated at government level to sustain the water resource. Primary data and secondary data have been collected. The study explores the behavioural aspects of public toward the natural water resource sustainability in the present situation. The study finding could be supportive to take further steps to create awareness and involvement in water conservation activities

**Keywords:** *Water Conservation, Water Scarcity, Water Demand, Water Supply, Population Growth*

## Introduction

Scarcity of water is not only critical problem of an area and a nation but has now become a global issue. Presently, overutilization of water has increased the water scarcity problem all over the world. According to World Health organization (WHO), as a result of population growth and climate change, some regions are expected to be exacerbated and over 2 billion people live in water stressed countries (World Health Organisation, 2022). The rapid increase of urban population and water demand is a main factor contributing to increase in water scarcity specially in the urban centers. Unlike other cities, Faridabad is facing problem due to huge demand of water for industries and domestic use. Urbanisation and climate change are together exacerbating water scarcity- where water demands exceed availability- for the world 'cities. (He Chunvang, Liu Zhifeng, Wu Jianguo, Pan Xinhao, Fang Zihang, Li Jingwei and Bryan Brett A., 2021) We cannot stop cities to grow or get urbanized but side by side we have to plan our self to manage water services to fulfill their demands (Sharma S., Mukherjee M. and Khare D., 2019) As the population grow, it put more pressure on the commodities specifically water facilities. As population grow, the water demand will automatically have enhanced. This demand of water expected to grow more than 40 percent until 2050 (Jan, 2014). Attitudes and behaviour toward water usage can vary from person to person, from community to community, from business to business, and from one point in time to another (Dietz, T., Stern, P.C., and Guagnano, G.A., 1998) Attitude and behaviour are known to be alterable via technology, education and legislation. (O., 2018).

## Water Conservation Campaign in India

In India there is large spatial and temporal variation in the distribution of rainfall and availability of water. Many parts of the country are facing acute water shortage. Hence, the important initiatives under various schemes and campaign are taken by the government to promote water conservation practices in India. Among these initiatives are :

- 1). Jal shakti Abhiyan: Catch the rain launched on 29<sup>th</sup> march 2022 to include water conservation and rainwater harvesting, making inventory of water bodies, to setup jal shakti Kendras in all districts, afforestation and public awareness.
- 2). Mission Amrit Sarovar launched on 24<sup>th</sup> April, 2022 with an objective for water conservation and to develop and rejuvenate 75 water bodies in all districts of the country as part of Azadi ka Amrit Mahotsav celebration.
- 3). An awareness generation campaign in collaboration with Nehru Yuva Kendra Sangathan was launched on 21<sup>st</sup> december, 2020 jointly by Minister of Jal Shakti and Minister of Youth Affairs & Sports to create awareness through various activities like rallies, Jal Choupal, wall writing, debate slogan writing etc.
- 4). Public Interaction Programs, Mass awareness programs (Training, seminars, workshops, exhibitions, trade fairs, and painting competition etc) under Information, Education & Communication (IEC) schemes of DoWR, RD & GR are initiated to participate and to promote rain water harvesting and artificial recharge to ground water.

## Objective

1. To study the extent of awareness level through water conservation campaign in Faridabad city.
2. To assess the attitude and public participation to improve water use efficiency and to cope up with water scarcity and ensure sustainability.

## Research Methodology

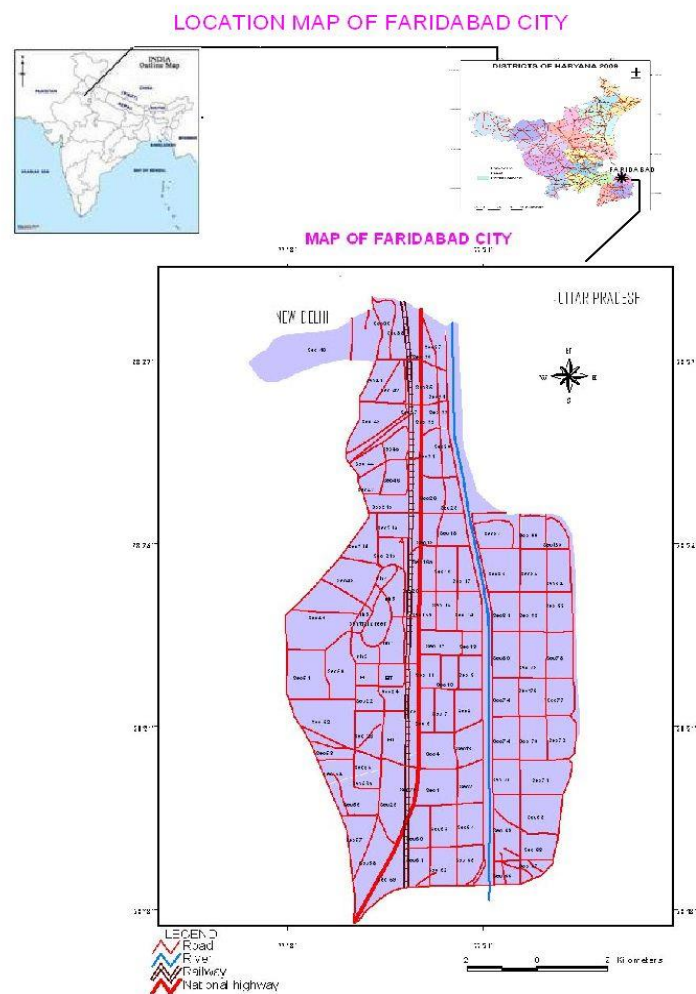
The study is based on primary and secondary data. The primary data is collected through google form and secondary data has been collected from the census and government websites. Statistical methods have been used calculate the percentage to prepare the diagrams and GIS technique has been used to prepare the Location map of Faridabad.

## The Study Area

The present study has been done in the most populous Faridabad city in the Indian state of Haryana and a part of NCR. Geographically Faridabad is surrounded by Aravali hill and Yamuna river running in its periphery It is one of the major satellite cities around Delhi and a major industrial hub of Haryana. It has been selected as one of the hundred Indian cities to be developed as a smart city under Government of India's Smart Cities Mission. It lies between 27° 39', 28° 31' north latitude and 76° 40' and 77° 31' east longitude. The climate of the district is classified as tropical steppe, semiarid and hot. Rainfall occurs mainly during three months last week of June to September due to south west monsoon contributing 542mm normal annual rainfall and 460mm normal monsoon rainfall. as per census, 2011 the Faridabad MC has 1414050 persons and now the number reaches up to 2445982 person in 2023 (projected) and

experienced 69.99 percent increase in urban population. The growth of population was 36 percent in 2011 and this population growth of the town was higher than the national growth of urban population which is crossing 31.1 percent as per census 2011. However, it can be seen that in the coming years, by 2031, the population will further grow more.

**Map -1**



**Table : 1**

**Urban Population and growth of population in Faridabad**

Year	Urban Population	Growth of Population (%)
2011	14,38,855	36.26
2023* Estimated	2445982	69.99

Source : 1) Census of India

2) Municipal Corporation Faridabad

Faridabad district share 79.51 % urban population of total population.

## Research Discussion

### Water resources Availability and Accessibility in Faridabad city

Water availability and accessibility plays the vital role for life survival on earth and to maintain ecosystem. The adequate supply of water is an important concern of an individual but certain area in the city are recorded decline in water level with the increase of population in faridabad. The ground water is the only source of water in the district. The ground water aquifers are under great stress due to increased demand in irrigation, industrial sector and domestic use. It is now need of the day to take necessary measure to arrest the declining water level and suitable methodology have to be adopted to recharge the aquifers and to take other water conservation measures and strategies. The failure of tube well is also an issue from different areas of district. Their discharge has report of decrease or to have become silty. Faridabad district is highly industrialised and urbanized. The ground water is the only source to meet the drinking water requirement. Due to these ground water resources of the study area is under stress and leading to decline in ground water level. (Rahman Tamar Abdul, Arpan Sherring and MD Ahsan Jafri, 2016) “With the city already placed in the dark zone due to depleting underground water sources, the Ranneywell project (wells in the Yamuna river belt as source of supply) launched several years ago is still to come up to the expectation of the city, whose population has swollen to over 27 lakh,” claim sources in the civic administration. (Ahlawat Bijender, 2023) The available potential of water from the underground source is limited and cannot be extended to meet the futuristic demand without taking corrective measures and creating recharging sources in the Yamuna Flood Plain area. As per survey conducted, it has been observed that potable water is available in the unconfined aquifer upto a depth of 30 metres. only. The Ranneywells are installed in the strata, where medium sand with Kankar is available for providing, filter bridge for the laterals. The depth of water table in the flood plain area has gone down from 4 metres below ground level to 10 metres below ground level causing reduction in the discharge of existing Ranneywells.

**Table -1**  
**Water Demand and Supply in Faridabad city**

Description	Present status
Municipal area	207 sq kms.
Urban Population 2023 (Projected)	2445982
Total water demand @155LPCD	379 MLD
Total water supply	277 MLD
Shortage of water supply	102 MLD

Source: Municipal Corporation Faridabad

The sustainability of Ranneywell is dependent on the flow in river Yamuna, which is reducing day by day. (Faridabad Metropolitan Authority) Currently water demand of the city is entirely met out from underground water sources i.e. 1700 deep tube wells installed in the city and 22 Ranney wells and 176 tube wells installed in Yamuna flood plain near river Yamuna. (Faridabad Metropolitan Authority)

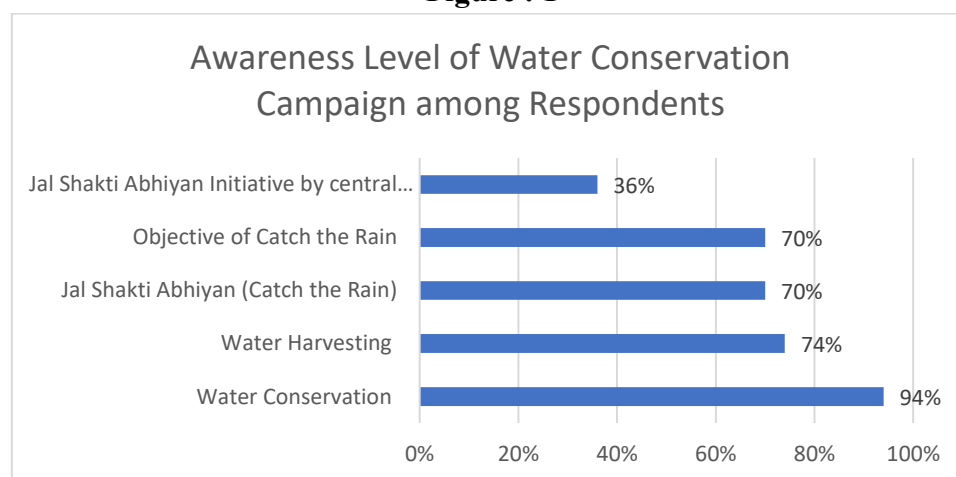
### Respondent education level, demographic and socio-economic background

The respondent demographic characteristics relates to the attitude and participation of the individual for water conservation practice. Education level prepare the individual to make balance between the basic needs and natural resources and create sense of awareness. The attitude, individual participation outlook and enhance the management skills to solve the important issues of water conservation. Most of the respondent ie 80% are from urban locality and only 19.2% belong to rural area. In term of education level, 80% of the respondents are graduate and post graduate and nearly 5% have attained Phd degree. One fifth belongs to annual income group more than 10 lakh and more than half of respondent have income less than three lakhs. The sample have a relatively high literacy level and low level of income background.

### Awareness level of water conservation campaign and attitude and participation of respondents

Respondent Awareness level analysis on water conservation issues shows that the awareness level of water conservation and various awareness campaign initiated by government. About three fourth respondents are aware of water conservation campaigns and their objectives but only 36% are aware of the initiative of the Jal Shakti Abhiyan -Catch the Rain by the central Government. It is interesting that 94% respondents are aware of water conservation importance. This reflects that the respondents experience the water shortage and perceive the risk of water scarcity but in reality their behaviour is indifferent for this issue.

Figure : 1



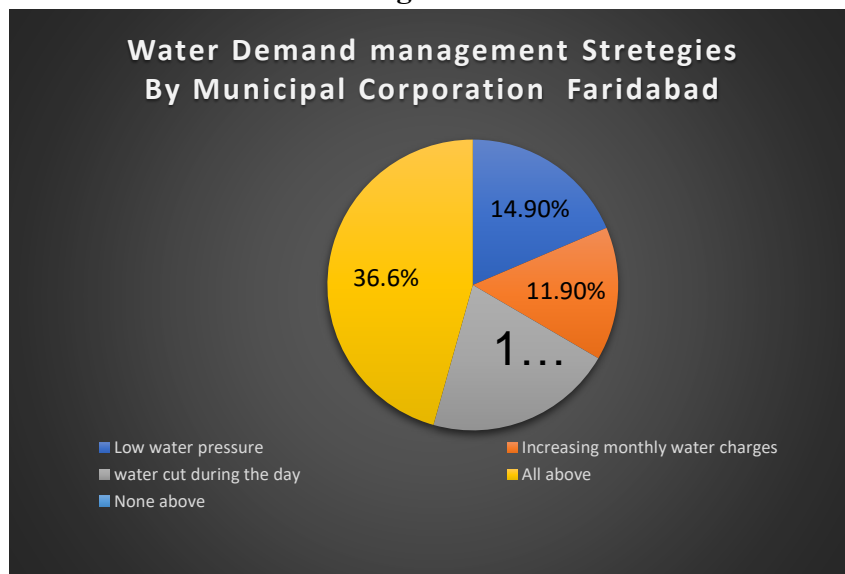
Source: Primary Survey 2023

Among the respondents many of them are college students of rural and urban background and their attitude seems to be ignorant of the issue of scarcity of water natural resource and identify as being not water -conscious

### Water Demand Strategies by FMDA and Municipal Corporation of Faridabad

FMDA and Municipal Corporation of Faridabad supplies and distribute water in the city domestic as well as industrial and commercial consumers. The management and strategies have been adopted to supply water and meet the demand of city. The water supply bylaws have also been made. On demand of consumer, water connection has been provided to every house, water meters

Figure : 2



Source : Primary Survey 2023

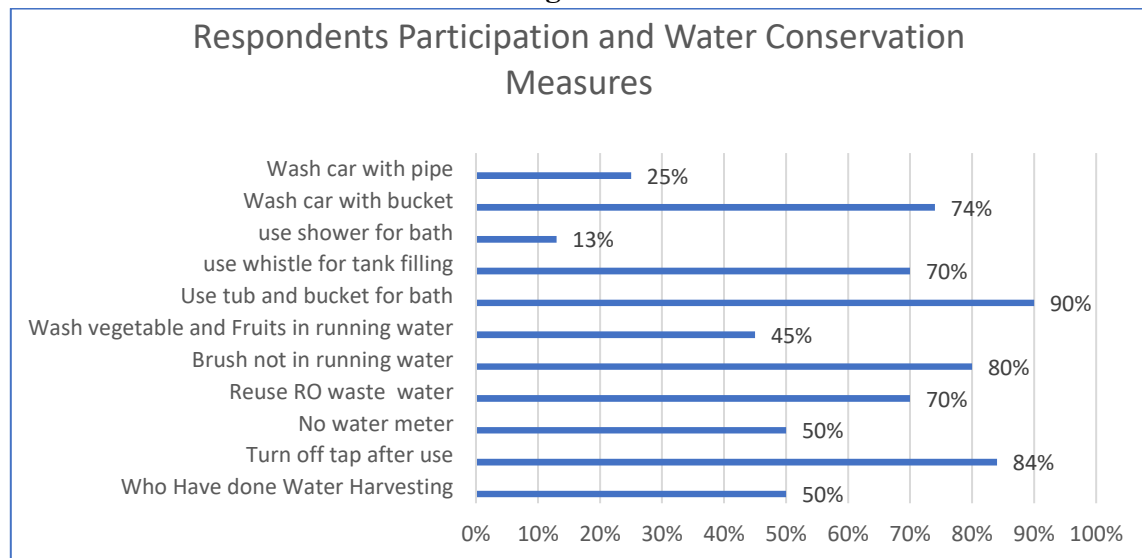
has to be installed for water supply and monthly water charges are also presented. Figure reveals that only 36.6% basically understand the demand and strategies of Municipal corporation of faridabad. 15% respondent do not understand the Municipal corporation demand management system.

### Respondents' participation and water demand strategies at household level

The figure:3 reveals the level of respondent participation and water conservation measures. The percentage of respondent participation and water conservation measures is high ie 70% or more than 70% such as wash car with buckets, use tub for bath, brush not in running water turn off tap after use, use whistle for tank filling and reuse RO waste water. It is also important to note from the sample that 25% wash car with pipe, 13% use shower for bath and 45% wash vegetables in running water. This practice of respondents indicates that these people are showing indifferent attitude for water conservation practices. In spite of initiative and campaign for water conservation taken by the central and state government, 50% households have not done water harvesting in their houses. Unfortunately, residents are not serious to comply the direction of local authority. 50% houses have not installed water meter and don't cooperate local authority for the conservation of resources. Water resource board and government make

the program to involve the users to instil the sense of responsibility so that residents participate to comply with water demand and conservation measures.

**Figure : 3**

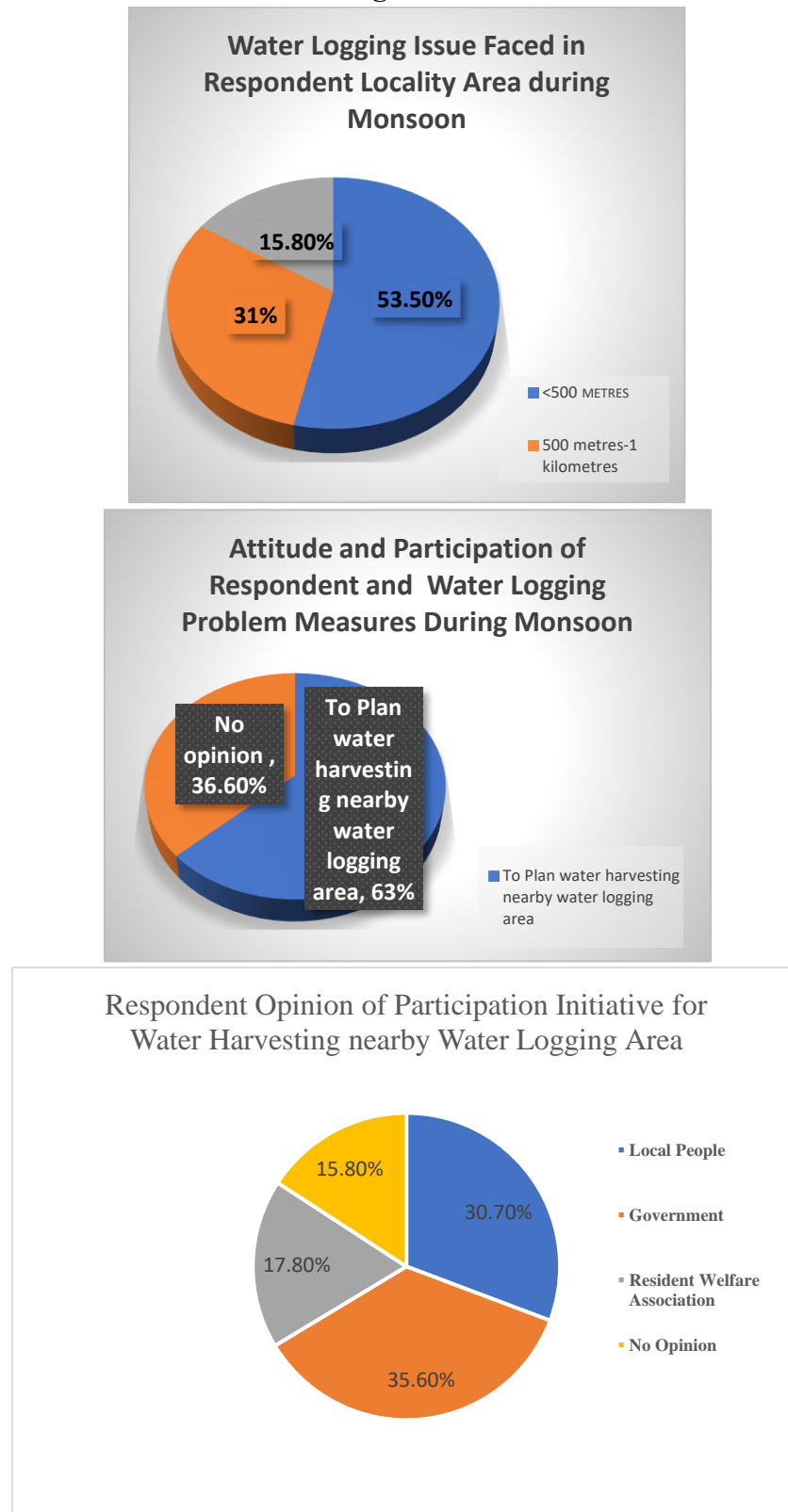


Source: Primary Survey 2023

### **Attitude and participation in water conservation Campaign measure and management**

Jal Shakti Abhiyan is introduced with an objective to use the monsoon rain water to recharge the ground water. However, the rain water in Faridabad city during monsoon cannot discharge smoothly to drainage system due to poor drain system and remain stagnant in low lying or surrounding area specially during monsoon. And this situation creates inconvenience to the people of the city and life become stagnant even with minimum rainfall. The water logging problem disrupt the city life. All pedestrian users, people travelling in different vehicles face the inconvenience in movement and become difficult to reach to destination point. Sometimes risk to fall down in open drain and manhole and people try to avoid movement without emergency situation. This prolonged water logging and water infiltration damage the roads, building foundation and other infrastructure of low-lying areas. The stagnant water results many water borne diseases and other related problems. 80 percent water logging problem is faced in less than 500metre to 1 kilometre of respondent locality. This water can be used for water conservation under Jal Shakti Abhiyan campaign and rain water harvesting and water logging problem can be solved. 63% respondent suggest to plan water harvesting nearby waterlogging area as water logging problem measures while 37% have no opinion. This shows the level of resident's attitude and participation concern of water conservation. 31% respondent gave their opinion for water conservation initiative and measures may be taken by local people, 36% by the government and 18% resident welfare association. Rest 16% have no opinion or indifferent attitude and participation. 83% respondent have given their opinion to volunteer for the water conservation but 17% have not shown any interest for this issue.

Figure : 4



Source : Primary Survey 2023

## Conclusion

The present finding reveals that residents of Faridabad are aware of water conservation and experience the water shortage and perceive the risk of water scarcity but in reality, their attitude participation behaviour is indifferent for this issue and implement of water conservation campaign.

The city faces the problem of water logging in different parts of the city, creates inconvenience to the people of the city, damage the public property and life become stagnant even with minimum rainfall for many hours. This is due to poor drainage system and this water can also be used to recharge the ground water.

Here the central government initiatives can be a solution of these all problems and it can also be realised that positive attitude and participation towards the issue is very important. For this mass scale awareness campaign has to be done in school and colleges.

## Abbreviations

MLD : Million litre per day

LPCD : litre per capita per day

FMDA : Faridabad Metropolitan Development Authority

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