

Role of leadership behavior to promote rational water utilization and conservation practices (A study of Gandhinagar city in Gujarat)

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Abstract: This study helps to largest reductions in water use especially in the rational water utilization and conservation practices. The causes of household water conservation are studied using combined survey and data collection through the questionnaire, data based on households in a community that recently experienced severe water storage. The largest reductions in water use, in absolute terms, occurred in households that had been using the most water to begin with. Smaller users often made larger percentage reductions. The most effective conservation steps involved voluntary changes in private behavior as per the Maslow's mentally revolution theory. Such steps were more likely to arise from Family members, Religion, Social leaders and reformers and Formal institutions. In another hand, Economic motives and Better-educated were also created a good effect in reduction of water use in household for examples, Economic motives were more common in poorer, less well-educated household and Batter-education were more common in younger and more affluent households. Although income and education are important variables in the model, their direct and indirect effects nearly cancel each other out, so they are not good predictors of conservation. These findings have both practical and theoretical implications.

Keywords: Leader, Leadership, Water utilization, Water conservation

I. INTRODUCTION

Some of the Earth's water supply is temporarily locked up within the many life forms found across the Earth's biosphere. This water makes up a majority of most organisms, and is a critical component, making the processes of life possible. Some organisms are made up of 95% water, while almost all the rest are more than half water.

Why is water so important to life? It all has to do with the unique properties that water exhibits. Firstly, it is the only substance on Earth that is in liquid form at the temperature commonly found on the Surface of our planet. Secondly, it is a superb solvent, meaning that other substances regularly and easily dissolve into it. This allows water to carry nutrients to cells, and carry waste away from them. In addition, water has the unique property of expanding as it freezes. Because water expands becoming less dense, frozen water, more commonly known as ice, floats. This is very important because it protects the water underneath, insulating it from freezing. Imagine what would happen if water became denser? It would sink, allowing another layer of water to freeze. Eventually all the water across the entire surface of our planet would freeze, making life impossible.

Why should we save water? We cannot live without water. Saving water helps to preserve our environment. It reduces the energy required to process and deliver water, which helps in reducing pollution and in conserving fuel resources. Saving water now means having water available in the future for recreational purposes, too.

Various types of leadership behaviors are playing significant role to save water such as family members, social leaders and reformers, religion and formal and educational institutions.

Family members

Our family members are playing most effective role to save water. Turn off the tap when you brush your teeth- this can save 6 liters of water per minute. Place a cistern displacement device in your toilet cistern to reduce the volume of water used in each flush. You can get one of these from your water provider. Take a small shower. Shower can use anything between 6 and 45 liters per minute.

Always use full loads in your washing machine and dishwasher – this cut out unnecessary washes in between. Fix a dripping tap. A dripping tap can waste 15 liters of water a day, or 5500 liters of water a year. Install a water butt to your drainpipe and use the water collected to water your plants, clean your car and wash your windows. Water your garden with a watering can rather than a hosepipe. A hosepipe uses 1000 liters of water an hour. Mulching your plants (with bark chippings, heavy compost or straw) and watering in the early morning and late afternoon will reduce evaporation and also save water.

Fill a jug with tap water and place this in your fridge. This will mean you do not have to leave the cold tap running for the water to run cold before you fill your glass. Install a water meter. When you're paying your utility provider for exactly how much water you use, laid out in an itemized bill, there's an incentive to waste less of the stuff. Invest in water – efficient goods when you need to replace household products. You can now buy water – efficient showerheads, taps, toilets, washing machines, dishwashers and much other water – saving products.

Why does saving water matter? Even though water doesn't appear in short supply in the UK, using less water actually means you are: Reducing energy use, Cleaning waste water (or 'grey water', as it's called) is energy – intensive process; so is heating the hot water that comes out of your taps. Saving money, if you're on a water meter, these tips above could save you a bob or two.

Religion

Water has a central place in the practices and beliefs of many religions for two main reasons. Firstly, water cleanses. Water not only purifies objects for ritual use, but can make a person clean, externally or spiritually, ready to come into the presence of his/her focus of worship. Secondly, water is a primary building block of life. Without water there is no life, yet water has the power to destroy as well as to create. The significance of water manifests itself differently in different religions and beliefs but it is these two qualities of water that underlie its place in our cultures and faiths.

Hinduism



Water in Hinduism has a special place because it is believed to have spiritually cleansing powers. To Hindus all water is sacred, especially rivers, and there are seven sacred rivers, namely the Ganges, Yamuna, Godavari, Sarasvati, Narmada, Sindhu and Kaveri. Pilgrimage is very important to Hindus. Holy places are usually located on the banks of rivers, coasts, seashores and mountains. For Hindus, morning cleansing with water is a basic obligation. *Tarpana* is the point at which the worshipper makes a cup with his hands and pours the water back into the river reciting mantras. After sipping some water, he may then apply the distinguishing mark of his *sampradaya* (tradition), and say the Morning Prayer, *samdhya*. *Sodhana* is Hindu purification and is necessary for different reasons and at different levels. Physical purification is a part of daily ritual which may, in the case of *sadhus*, be very elaborate.

Islam



In Islam water is important for cleansing and purifying. Muslims must be ritually pure before approaching God in prayer. Some mosques have a courtyard with a pool of clear water in the centre, but in most mosques the ablutions are found outside the walls. There are three kinds of ablutions. Firstly, *ghusl*, the major ablution, is the washing of the whole body in pure water, after declaring the intention to do so. Muslims are obliged to perform *ghusl* after sex which incurs a state of major ritual impurity. *Ghusl* is also recommended before the Friday prayer, the two main feasts, and before touching the Koran. *Ghusl* must be done for the dead before they are buried. The second ablution is *wudu*, the minor ablution, which is performed to remove minor ritual impurity from everyday life. This must be done before each of the five daily prayers and involves using pure water to wash the face with pure water, rub the head with water, wash the hands and arms up to the elbows and the feet up to the ankles. This comes from the Koran 5: 7/8 and is elaborated on in great detail in the Sunna. Every mosque has running water for *wudu*. The third type of ablution is performed when no water is available. In this case clean sand may be used.

Buddhism



For Buddhists symbolism and ritual is pointless because they seek spiritual enlightenment that comes from seeing the reality of unreality. Bodhidharma, thought to be the first teacher of Zen Buddhism said this in the 5th Century CE: "*This mind is the Buddha. I don't talk about precepts, devotions or ascetic practices such as immersing yourself in water and fire, treading a wheel of knives, eating one meal a day, or never lying down. These are fanatical, provisional teachings. Once you recognise your moving, miraculously aware nature, yours is the mind of all buddhas.*" Water does however feature in Buddhist funerals where water is poured into a bowl placed before the monks and the dead body. As it fills and pours over the edge, the monks recite: "As the rains fill the rivers and overflow into the ocean, so likewise may what is given here reach the departed."

Christianity



Almost all Christian churches or sects have an initiation ritual involving the use of water. The use of water is important for its own symbolic value in three ways: it cleanses and washes away dirt, fills everything it enters as God fills those who are immersed in Him and we need water to survive physically as we need God to survive spiritually. In the early church baptism was usually performed with the person standing in water and with water being poured over the upper part of the body. This was called 'immersion' but today the term refers to the method of dipping the whole body under water which is used, for example, by the Baptist and Orthodox churches. In most Western churches today the rite is performed by pouring water over the head three times (affusion) and sometimes sprinkling water over the head (aspersion). Another important significance of water for Christianity is the "living water" that Jesus described

himself as. John 4: 1-42 is the story of Jesus and a Samaritan woman to whom he offers living water so that she will never thirst again, in other words eternal life through him. Holy water is water which is blessed for use in certain rights, especially that which is blessed at the Easter Vigil for baptism of catechumens. The use of water other than for baptism goes back to the 4th century in the East and the 5th century in the West. The custom of sprinkling people with water at mass began in the 9th century. At this time 'stoups', basins for holy water from which people could sprinkle themselves on entering a church, were in common use. Holy water is also used at blessings, dedications, exorcisms and burials. Ablutions in Christianity are mainly baptism and the washing of fingers and communion vessels after the communion. This takes place in two parts. Firstly the chalice is rinsed with the wine, and then the chalice and priests' fingers with wine and water. This ablution is important because after the bread and wine has been consecrated, Christ is believed to be present.

Social leaders and reformers

The social leaders and reformers are playing most important role to change the human mentality towards the social things like education, poverty, save tree, control pollution and last but not list water uses and conservation. The usage of water is on the decline from historic highs, public water usage continues to increase. India has number of social leaders and reformers like Raja Ram Mohan Roy (1772-1833), Mohandas Karamchand Gandhi (1869-1948), Swami Vivekananda (1863-1902), Swami Dayanada Saraswati (1824-1883), Annie Besant (1847-1933), Baba Amte (1914-2008), Mother Teresa (1910-1997), Jawaharlal Nehru (1889-1964), Dr. B. R. Ambedkar (1891-1956), Ishwar Chandra Vidyasagar (1820-1891), Sardar Patel, Lal Bahadur Sastri, Subhas Chandra Bose, etc.

Here I would like to share some social leaders' quotes about the water saving in that Mahatma Gandhi said that "The earth, the air, the land and the water are not an inheritance from our fore fathers but on loan from our children. So we have to handover to them at least as it been handed over to us." "There is a sufficiency in the world for man's need but not for man's greed." Mother Teresa said that, "we ourselves feel that we are doing is just a drop in the ocean. But the ocean would be less because of that missing drop." Other social leaders are also given precious thoughts to the society related to water saving.

Formal and Educational institutions

These types of institutions such as NGOs, Offices, Schools, and Colleges etc. teach to the people about the importance of water. They conduct various programs like that Place ice cream containers under school water fountains and use excess water in the garden. Turn the tap off as soon as you've washed your hands. Put signs near the basins to remind students to do the same. Get someone to fix any leaking taps, water fountains or toilets as soon as they are reported. Make it a classroom activity to check for leaks regularly. Wash paint brushes in a bucket or ice cream container, rather than under a running tap. Raise awareness of the importance of water by creating colorful posters on water use and water saving. Fitting the taps in your school with aerators. Aerators reduce the amount of water flowing from the tap by up to 50%, while maintaining the pressure. Talk to your principal, maintenance coordinator and school council about installing rainwater tanks. Once installed, you can connect the tanks to your toilets or use the water for your school gardens or veggie patch.

II. REVIEW OF LITERATURE

India has high population country in the world. So, it is leading to increase high usage of natural resources such as water, air, fire, etc. Most of them, waste of water is the biggest issue in the India.

Quality and quantity of water is reducing in current scenario. Quality of water is decrease just because of increasing industrialization, chemical drainage, etc. Quantity of water is reducing due to the excessive use of water in household chores, agricultures, etc.

In this research, find out about the water problems as well as solutions for this problem. Family members, religion, social leaders and reformers and educational institutions are playing very important and effective role in household water consumption practice and conservation.

Objectives

1. To sensitizes the people for rational water utilization
2. To specify the role of leader for water conservation practices

III. METHODOLOGY

In the present study, the researcher is working her research study among the citizens of Gandhinagar city in Gujarat. The sample frame of the study is involves two families from each sector of Gandhinagar. This work is based on judgmental sampling with 60 main respondents who are "member of family (15 to 25 years old)". The study is divided in two sections. Section-I discuss about the rational water utilization and section-II vital role of the various leadership behavior towards the household water consumption practices.

Research area – Gandhinagar city, Gujarat (universe – 30 sectors)

Randomly selected 60 respondents from each sector (male and female in equal ratio, 1 from each household)

IV. RESULTS AND INTERPRETATIONS

In the study, the data gathered through survey. With questionnaire method researcher get the data and as per the collected data prepare the following table:

1. Are you agree with water is wasting in your household utilization?

Parameters	No. of respondents		Percentage
	Male	Female	
Yes	25	28	88.33%
No	5	2	11.67%
Total	30	30	100%

This table is representing that 25 male respondents out of 30 and 28 female respondents out of 30 are agree with the water wasting in their household utilization. In short 88.33% respondents agree with water wasting in household consumption practice.

2. How many buckets of water do you use per day?

Buckets	No. Of respondents		Percentage
	Male	Female	
Less than 30	7	5	20%
30 - 50	19	21	66.67%
More than 50	4	4	13.33%
Total	30	30	100%

This table is concerned with the daily household water consumption. As per the research highest respondents (66.67%) are used 30 to 50 water buckets per day.

3. Highest water wasting household consumption practice (Give the rank)

Household consumption practices	No. of respondents								Percentage			
	R 1		R 2		R 3		R 4		R 1	R 2	R 3	R 4
	M	F	M	F	M	F	M	F				
Showerheads and Toilets	17	18	5	6	5	5	3	1	58.33%	18.33%	16.67%	6.67%
Running tap water	2	2	7	8	9	10	12	11	6.67%	25%	31.67%	38.33%
Washing machine and dish washer	3	9	10	5	10	6	7	10	20%	25%	26.67%	28.33%
Gardening and Cleaning Vehicles	8	1	8	11	6	9	8	8	15%	31.67%	25%	26.67%
Total	30	30	30	30	30	30	30	30	100%			

Third table is presenting that showerheads and toilets is most water wasting household consumption activity. As per the result, 17 male respondents out of 30 and 18 female respondents out of 30 (58.33% respondents) are given the first rank to showerheads and toilet. On other hand only 4 respondents out of 60 (6.67%) are given the first rank to running tap water means running tap water is less water wasting rational utilization practice.

4. Are you agree with water conservation is necessary?

Parameters	No. of respondents		Percentage
	Male	Female	
Yes	27	28	91.67%
No	3	2	8.33%
Total	30	30	100%

Above table is regarding that water conservation practices is necessary. As per the table 27 male respondents and 28 female respondents are agree with the water conservation is necessary means 91.67% respondents are agree.

5. Effective dimension for leading about the water saving

Dimension	No. of respondents		Percentage
	Male	Female	
Family members	21	23	73.33%
Religion	2	4	10%
Social leaders and reformers	3	1	6.67%
Formal and educational institutions	4	2	10%
Total	30	30	100%

Above table is presenting Role of leadership behavior to promote rational water saving. Family members, religion, social leaders, social reformers, formal and educational institutions are the main heads for leading about the water saving. All of them Family members are playing most effective leadership role to save the rational water. This table is presenting that family members is the most effective dimension. 73.33% of male and female respondents are agreeing with this.

6. Family members' inspiration

Family members	No. of respondent		Percentage
	Male	Female	
Mother	16	17	55%
Father	8	8	26.67%
Grandparents	4	4	13.33%
Others	2	1	5%
Total	30	30	100%

As per the previous table, family members are playing most effective role as a leader towards water saving. This table is presenting family members like mother, father, grandparents and others inspire the respondents to water conservation. All of them mother is the most effective leader. 16 male out of 30 and 17 female out of 30 respondents (55%) are inspiring by mother. Inspiration of grandparents is only 13.33% because Gandhinagar city is research area for this study and most of nuclear family in the city.

7. Which theory adopted by dominant leaders (family members) towards saving water?

Theory adopted by Family Members	Family Members		
	Mother	Father	Grandparents
They are ordered their children (Autocratic Leadership)	21	25	2
They are involved the children in saving water practice (Democratic Leadership)	19	18	23
They gives authority to their children (Laissez-faire Leadership)	3	12	15
They are motivates and encourages the children (Coaching Leadership)	17	5	20
Total	60	60	60

The above table is followed that the leadership theory adopted by family members likes mother, father and grandparents towards saving water. 35 % respondents are agree with the mother are ordered their children and only 5% respondents are agree with the mother gives authority to the children. 41.67% respondents are agree with the father followed autocratic leadership and 8.33% respondents are concerned with the father motivates and encourages their children. In grandparents case, 38.33% respondents said that they are followed democratic leadership and 33.33% respondents are agree with the grandparents motivates and encourages their children. Only 3.33% respondents are concerned with grandparents are ordered them.

8. Other inspiration resources

Resources	No. of respondents		Percentage
	Male	Female	
News Papers and Magazines	13	13	43.33%
Poster and Advertisement	6	10	26.67%
Drama and Films	11	7	30%
Total	30	30	100%

The table is presenting inspiration resources towards saving water and conservation practice. News papers and Magazines are most effective (43.33%) inspiration resource.

9. Do you collect rain water in your home?

Collect Rain water	No. of respondents		Percentage
	Male	Female	
Yes	7	5	20%
No	5	3	13.33%
Sometimes	18	22	66.67%
Total	30	30	100%

The above table is regarding conservation of rain water. 12 respondents out of 60 are agreeing with the water conservation and 8 respondents are not collecting the rain water. On other side 66.67% (40 out of 60) respondents are conserving rain water sometimes.

V. CONCLUSION

Water usage and conservation is the most sensitive issue in the world. We will be that water is precious resource. Safe and pure safe water is very less on this earth. Its level is decreased day by day due to our

improper utilization of this resource. It has created worldwide problem not only for human race but also whole universe. It is life but we are becoming careless. So, our elders had developed moral behavior to adopt the practice of optimum use of water and carry conservational efforts as a part of natural life. They had developed various practices and guiding principle for proper utilization of water and conservation practices as per local situation. They not only guided to present generation but have control over the efforts.

In present era our society is blindly following the path modernization. They are becoming greedy day by day to adopt materialistic life style. After satisfaction of yet the current needs, the race does not reach at an end but grow more again by looking others physical prosperity. Maslow is absolutely right that human being turn to higher need after satisfaction of lower need. This life style has created undue pressure on water resources. People had adopted such domestic means that are the cause to maximize water consumption. Second side, people are not careful and have time, not have desired sensitivity to conserve the water. In this concern, the other issue is the lacking of social control, less respect towards our formal and informal leadership that control over the behavior of people.

As per the research, out of 60 respondents of Gandhinagar, 53 persons were agreeing with the water waste in household water consumption practices and the most water wasting practice was showerheads and toilets (58.33%). 91.67% respondents were concerned with water conservation is necessary. Family members, social leaders and reformers, our religious and formal and educational institutes were leading for water conservation. One of most inspirable dimensions is family member it's 73.33%. In the family, mother plays vital role for water consumption practice is 55%. The family members are followed different leadership style towards saving water like ordered the children (autocratic leadership), not ordered but involved the children (democratic leadership), gives authority to the children (Laissez-faire Leadership), motivates and encourages the children (Coaching Leadership). Father and Mother are mostly used the autocratic leadership. On the other hand grandparents are followed democratic leadership and coaching leadership. For water conservation, other resources are also playing effective role such as news paper, magazines, poster, advertisement, drama, films, etc. and in these factors news papers and magazines are inspiring more to the people about water conservation it is 43.33%. This study is concerned with the 66.67% respondents are conserved the rain water in the home.

Suggestions to Water Conservation

- Shower bucket.
- Cut your showers short.
- Skip the shower from time to time.
- Flush with less.
- Turn off the tap while brushing your teeth and washing your hands.
- Don't run the dishwasher or washing machine until it's full.
- Fill up your sink with water, instead of letting it run the whole time that you're scrubbing.
- Shrink your lawn.
- Water outdoors plants in the early morning.
- Head to the car wash.
- Choose efficient fixtures.
- Fix your leaks.
- Install a rain barrel.
- Reuse grey water.
- Keep an eye on your bill to spot leaks.

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