

Water management strategies at household level

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■ **ABSTRACT :** The present study entitled 'Water management strategies at household level' was conducted in Ludhiana district of Punjab. A sample of 150 women was interviewed to know the extent of use of water while performing various activities and to get their suggestions to save water for future use. The findings of the study highlighted that majority of the respondents belonged to age group of 29-39 years, belonged to general and nuclear family. Further sixty eight per cent of the respondents wasted water upto 'great extent' while washing of vegetables directly under running taps and 53.33 per cent wasted water while brushing, shaving, cleaning the hand etc. most of the respondents suggested to avoid wastage of water at home. To protect the earth's most precious resource to meet the current and future human demand, paper highlighted various water management technologies to be adopted at household level to save water resources.

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Water is an essential resource for all life on the planet. Of the water resources on Earth only three per cent of it is fresh and two-thirds of the freshwater is locked up in ice caps and glaciers. Of the remaining one per cent, a fifth is in remote, inaccessible areas and much seasonal rainfall in monsoonal deluges and floods cannot easily be used. As time advances, water is becoming scarcer and having access to clean, safe, drinking water is limited among countries. At present only about 0.08 per cent of all the world's fresh water (Debu, 2014) is exploited by mankind in ever increasing demand for sanitation, drinking, manufacturing, leisure and agriculture. There are other uses, too, but most of the time, this pure and precious resource is allowed to just run down the street. Despite water being an existential need for humans, it's also one

of the most under prioritized but over abused commodity. Water is central to our lives but has not been the central point of focus in our planning while we rapidly evolve into an urban society. The water scarcity is mostly man made due to excess population growth and mismanagement of water resources. Some of the major reasons for water scarcity are insufficient use of water in agriculture, Reduction in traditional water recharging areas, Sewage and wastewater drainage into traditional water bodies, Release of chemicals and effluents into rivers, streams and ponds and Lack of efficient water management and distribution of water between urban consumers, the agriculture sector and industry (Debu, 2014). When water becomes scarce, demand management becomes the key to the overall strategy for managing water (Molden *et al.*, 2001). To reduce

water scarcity, there is great need to develop strategies to overcome these problems. To kept following problems in mind present study entitled “Water management strategies at household level” was planned with the following objectives:

- To know the extent of use of water while performing various activities.
- To get suggestions from the women to save water for future use.

■ RESEARCH METHODS

The study was conducted in Ludhiana district of Punjab state. The three areas *i.e.* Bhai Randhir Singh Nagar, Sarabha nagar and Manjit Nagar from this district were randomly selected. From each of selected area, 50 household women were selected. A sample of 150 women was selected for the study. The data were collected with the help of interview schedule and analyzed with the statistical tools like frequency, percentages and rank.

■ RESEARCH FINDINGS AND DISCUSSION

The scrutiny of data in Table 1 revealed that 54.67 per cent of the respondents belonged to age group of 29-39 years. Similar findings were reported by Gupta and Rahman (2011); Singh (2011); Singh (2012); Kalra *et al.* (2012); Thangamani and Muthuselvi (2013) and Kondal (2014) who stated that majority of the respondents in their study were from young age group. Further 32 per cent respondents belonged to the age group of 40-50 years. Only 13.33 per cent of the respondents were young belonging to age group of 18-28 years.

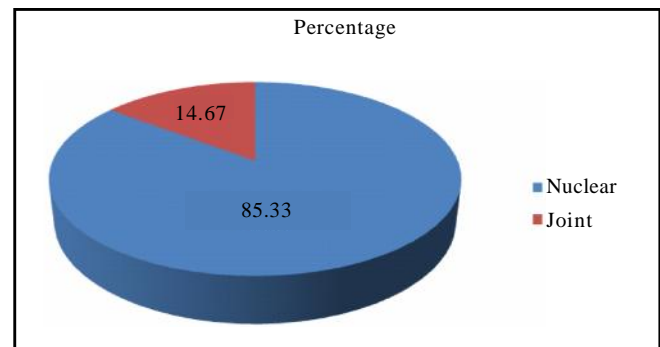
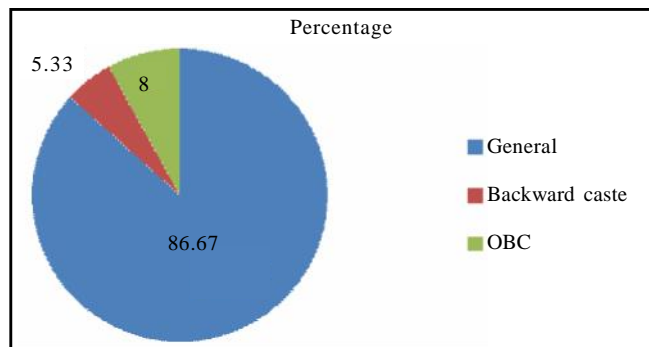
The data presented in Table 1 reported that forty per cent of the respondents were literate having educational qualification of matric while one-fourth of

Table 1: Socio-personal characteristics of the respondents (n=150)

Characteristics	Frequency	Percentage
Age(years)		
18-28	20	13.33
29-39	82	54.67
40-50	48	32.0
Education		
Illiterate	2	1.33
Primary	8	5.33
Middle	11	7.33
Matric	60	40.0
Secondary	38	25.33
Graduate	21	14.0
Post-graduate	10	6.6
Caste		
General	130	86.67
Backward Caste	8	5.33
OBC	12	8.0
Family type		
Nuclear	128	85.33
Joint	22	14.67
Family size(members)		
2-6	128	85.33
7-11	19	12.67
12-16	3	20.0

the respondents were educated upto secondary. Very few percentage of the respondents (1.33%) were illiterate. Majority of the respondents (86.67 %) belonged to general category while 8.0 per cent belonged to other backward class (OBC). The findings were in line with the study conducted by Singh (2011) who reported that respondents in their study were matriculate.

Data further revealed that majority of the respondents (85.33 %) belonged to nuclear family whereas 14.67 per cent of the respondents belonged to joint family which shows that nuclear family, is now the



characteristic feature of the Indian society and is widely prevalent in urban areas. Joint family is losing its importance and people are more likely to live independently. The results were in track with the findings of Latha and Chandrakumar (2012); Kalra *et al.* (2012); Khangjarkpam (2013) and Baite (2013).

As regards as family size, majority of the respondents (85.33 %) had a family size of 2-6 members while twenty per cent had a family size of 12-16 members.

The scrutiny of data in Table 2 revealed that sixty eight per cent of the respondents wasted water upto 'great extent' while washing of vegetables directly under running taps and 53.33 per cent wasted water while brushing, shaving, cleaning the hand etc. However, more than forty per cent respondents wasted water upto 'great extent' while filling the water tanks (47.33%), washing of utensils directly under running tap (46.67%) and washing household machinery with water pipes (46.67%).

Suggestions to save water resources were recorded

through open ended questions are discussed in Table 3. The data revealed that 37.5 per cent suggested that bucket should be used for washing clothes and utensils rather under running taps while 33.33 per cent of the respondents suggested avoiding running taps when not in use and closing the tap after use.

Keeping the suggestions in view, following are the recommended water management technologies at household level.

Kitchen related work :

- Use pressure cooker for cooking food to save water, nutrients and time.
- Don't let the water run continuously. Fill one sink/bucket with wash water and the other with rinse water or quickly rinse under a slow moving stream from the faucet.
- Avoid washing of vegetables and fruits directly under the tap, rather wash in the utensils.
- Clean utensils altogether at the end of cooking.
- The used kitchen water should be directed to

Table 2 : Extent of wastage of water while performing household activities (n=150)			
Activities	Great extent	Somewhat	Not at all
Washing of clothes directly under running tap	50 (33.33)	70 (46.67)	30 (20.0)
Washing of utensils directly under running tap	70 (46.67)	52 (34.67)	28 (18.66)
Washing of vegetables directly under running tap	102 (68.0)	31 (20.67)	17 (11.33)
Filling of water tanks	71 (47.33)	68 (45.33)	11 (7.33)
Cleaning the floor with water	25 (16.67)	100 (66.66)	25 (16.67)
Bathing under shower	20 (13.33)	40 (26.67)	90 (60.0)
Running the water tap continuously while brushing, shaving etc.	80 (53.33)	40 (26.67)	30 (20.0)
Washing household machinery with water pipes	70 (46.67)	50 (33.33)	30 (20.0)
Leakage of water taps and pipes	10 (6.67)	10 (6.67)	130 (86.66)
Children play under running water	5 (3.33)	10 (6.67)	135 (90.0)

Table 3: Suggestions of the respondents to save water resources for future generation (n=150)			
Suggestions	Frequency	Percentage	Rank
Use bucket for washing clothes and utensils	45	37.50	I
Avoid running taps and close the tap after use	40	33.33	II
Avoid bathing under shower and use bucket and mug for bathing	29	24.17	III
Use bucket and mop for cleaning the floor	22	18.33	IV
Remaining water should be used to water the plants	9	7.50	V
Keep check at children and teach them not to waste water	7	5.83	VI
Use alarm bell to fill the tank	6	5.00	VII
Avoid flushing the toilet unnecessarily	5	4.17	VIII
Avoid washing of car with pipes	4	3.33	IX
Wash vegetables in utensils	3	2.50	X
Use remaining water of filter for other purposes	2	1.67	XI

*Multiple responses

kitchen garden/ lawn/pots etc.

Washing of clothes :

- Soak clothes for half an hour before washing.
- Use alternate buckets to rinse clothes instead of using direct running tap.
- Use appropriate amount of detergent for washing the clothes as more detergent requires more water.
- Remaining water should be used to clean the floor and animal shed.

Flushing :

- Avoid flushing the toilet unnecessarily. Every flush you avoid, can save 18 litres of water per person per day.
- The Dual flush system is designed to discharge 6 litres (solid waste) for the full flush and 3 litres for the short flush (urinal). So, if you use the flush system according to the use you can save a lot of water.
- Upgrade older toilets with water saving models as 7.5 litres is discharged in the older versions.
- Leaking / dripping faucets and running toilets, must be fixed immediately.
- If the toilet handle frequently sticks in the flush position, letting water running constantly, replace or adjust it.

Bathing :

- Taking bath using a bucket instead of shower can save around 25 litres of water, daily. Shorten bath time by a minute or two to further save water.
- Don't keep water tap running while brushing teeth, shaving, washing the face and bathing. It may result in daily saving of 9 litres of water.
- Turning off water while shampooing or conditioning hair, can save upto 15 litres of water a month.
- Consider installing a water saving showerhead/ taps that can save upto 50 litres per person.

Cleaning the floor :

- Dry brush and spot clean the floor. Sweep up the scraps regularly and spot mop spills rather than washing the whole floor each time. Leave that to the weekly mopping instead.

Washing of machinery :

- Do not wash household and agricultural machinery (car, scooter, motorcycle, tractor etc.) with water pipes everyday instead wipe them to clean.
- Wash vehicles using a bucket with soapy water.
- Soap and water usually work well. To clean a car, 2-3 litre of water is sufficient. For special cleaning product for vehicles, read the label carefully and be sure to use a non-toxic, biodegradable detergent.

Cleaning of animal and shed :

- Don't wash animal shed with water pipes instead wipe them to clean or wash shed with water on alternate days. Use mug and bucket for bathing the animal.
- The water used for bathing animals and cleaning of animal shed should be directed towards kitchen garden/ fields.

Kitchen gardening :

- Irrigate lawns with sprinklers. Install sprinklers that are the most water-efficient for each use.
- Don't water your street, driveway or sidewalk. Position your sprinklers so that your water lands on the lawn and shrubs not the paved areas.
- Water the lawn and kitchen garden in the morning or evening when temperature is low so as to minimize evaporation
- Don't over-water your lawn. As a general rule, lawns only need watering every 5 to 7 days in the summer and every 10 to 14 days in the winter. A heavy rain eliminates the need for watering for as long as two weeks.
- Water lawns during the early morning hours when temperatures and wind speed are the lowest. This reduces losses from evaporation.
- Do not hose down your driveway or sidewalk. Use a broom to clean leaves and other debris from these areas to save water.
- Do a simple experiment to check if your garden grass needs water. If you step on the grass and it springs back up when you move, it doesn't need water. If it stays flat, it does require water.
- If you water your grass and trees more heavily, but less often, it will save water, time and energy and at the same time build stronger roots.
- Don't leave the sprinkler or hose unattended. A garden hose can pour out 2000 litres or more in a few

hours.

- Micro and drip irrigation and sucker hoses are examples of water efficient irrigation systems.
- Drought efficient landscaping (less water use plants) is a great way to design, install and maintain both your plants and irrigation system. More importantly, it will save time, money and water.
- Avoid over fertilizing your lawn or fields. Fertilizer application increases the plant's need of water.

Others :

- Check the leakage of water taps and pipes and immediately have them repair.
- Do not let the water tank overflow.
- Directing the excess water of house towards village pond during rainy season.
- Never put water down the drain when there may be another use for it such as watering a plant or garden, or cleaning
- Repair dripping taps by replacing washers. Dripping at the rate of one drop per second can expect to waste 10,220 litres per year which will add to the cost of water and sewer utilities, or strain your septic system.
- Keep at check the running water while children are playing. Avoid the purchase of recreational water toys that require a constant stream of water.
- Keep watching the children when they are playing water games so that water should not be wasted.
- The stored water at night should not be thrown rather used for other domestic purposes.
- Use small nozzle taps at home.
- Encourage your friends and neighbours to be part of a water conscious community. Promote water conservation in your community newsletters, on bulletin boards.
- Try to do one thing each day that will result in saving of water. Don't worry if the savings is minimal. Every drop counts and every person can make a difference. So tell your friends, neighbours and co-workers to "Turn it Off" and "Keep it Off" (Mittal and Sharma, 2016)

Conclusion and recommendations:

Water scarcity is already or is becoming, a key issue in many states in India. Many people *i.e.* poor farm families suffer every day due to lack of water and dies in the absence of it. Present study concluded that majority

of the respondents were in the age group of 29-39 years and belonged to general category (86.0%). Forty per cent of the respondents were educated upto matric level and only 5.0 of them had education upto primary level. Majority of the respondents belonged to nuclear families and had family size upto 2-6 members (85.0%). Findings of the study also revealed that respondents waste water in great extent during washing of vegetables in the kitchen (68.0%) and brushing and shaving at home (53.0%). To save our country's future, it is better to understand the water management practices and to inculcate these practices in daily routine by the all members of the society. There are great need to implement new approaches to address the growing water crisis, including reforms at the on-farm, river basin and policy level.

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■ REFERENCES

- Baite, D.J. (2013).** Impact analysis of progressive beekeepers association of Punjab. Ph.D. Thesis, Punjab Agricultural University, Ludhiana, PUNJAB (INDIA).
- Fry, Carolyn (2008).** *The impact of climate change: The World's greatest challenge in the twenty-first Century*, New Holland Publishers Ltd.
- Gupta, J. and Rahman, S. (2011).** Self help groups in India: Impact and sustainability. *Internat. J. Extn. Edu.*, **7** : 57-60
- Kalra, R.K., Anil, B., Siddique, K.H.M. and Tonts, M. (2012).** Self help groups in Indian agriculture: A case study of Farmer Groups in Punjab, Northern India. *J. Sustainable Agric.*. Online DOI: 10.1080/10440046.2012.719853-1-11.
- Khangjarkpam, S. (2013).** *Impact of farmers' group in Punjab*. Ph.D. Thesis, Punjab Agricultural University, Ludhiana, PUNJAB (INDIA).
- Kondal, K. (2014).** Women empowerment through self help groups in Andhra Pradesh, India. *Internat. Res. J. Soc. Sci.*, **3** : 13-16.
- Mittal, R. and Sharma, P. (2016).** Household tips to save water. *Prog. Fmg.*, **52** (8): 22-23.

Molden, David, R. Sakthivadivel and Zaigham, Habib (2001). *Basin-Level Use and Productivity of Water: Examples from South Asia*, IWMI Research Report 49, Colombo: International Water Management Institute.

Singh, A.K. (2012). Water management :Priorities and possibilities of investment for accelerated and stabilizing agricultural growth in Bihar, Patna. National conference on priorities and possibilities of investment for accelerated and stabilizing agricultural growth in Bihar, Saturday, 17 March 2012, Patna 17th March, 2012 pp. 12-14

Singh, B. (2011). Problems and prospects of vegetable hybrid seed production in Punjab. M.Sc. Thesis, Punjab Agricultural University, LUDHIANA (INDIA).

Thangamani, S. and Muthuselvi, S. (2013). A study on women empowerment through self-help groups with special reference to Mettupalayam Taluk in Coimbatore district. *J Business & Mgmt.*, **8** : 17-24.

■ WEBLIOGRAPHY

Debu, C. (2014). Water crisis in India – problem and its solution. Retrieved from: <http://www.mapsofindia.com/my-india/society/water-the-next-looming-crisis> .

Latha, M. and Chandrakumar, G. (2012). A study on agricultural women self help groups (SHGs) members' micro credit analysis in Trichy district, Tamil Nadu. Retrieved from <http://www.exclusivemba.com/ijemr> on 03.01.2014.

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