International Journal of Home Science 2017; 3(2): 430-436

International Journal of Home Science

ISSN: 2395-7476
IJHS 2017; 3(2): 430-436

www.homesciencejournal.com
Received: 06-03-2017
Accepted: 07-04-2017

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Knowledge of the homemakers regarding water footprint

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Abstract
The paper investigated the knowledge of homemakers' household regarding water footprint. Water footprint is defined as the volume of water needed for the production of the goods and services consumed by the inhabitants of a country. A sample of 120 households was selected from four areas of Bikaner city of Rajasthan. The overall water footprint knowledge highlighted that maximum number of the homemakers' (91.67 percent) knowledge was average, followed by poor knowledge (7.50 percent) and megre number of homemakers (0.83 percent) were having good knowledge. Water conservation knowledge will be helpful tool for environment scientists to reduce the negative impact of human habits on environment thus reducing their water footprint.

Keywords: Water footprint, knowledge, conservation, reduce, recycle, reuse

1. Introduction
Water is the greatest gift of nature, but unfortunately a gift that humans are squandering away. The world is fast heading towards a water crisis. Its shortage is likely to be so acute that the next world war may be fought on a sharing of water resources among various countries. The tensions are all too visible even now and at the local level even lives have been lost owing to quarrels on water sharing (Singh *et al*., 2012) [9].

The concept of the water footprint has been introduced to create a consumption-based indicator of water use (Hoekstra and Chapagain, 2007) [5]. The water footprint is defined as the volume of water needed for the production of the goods and services consumed by the inhabitants of a country. India's water footprint is below average at 980 cubic meters per capita, the massive population makes the country's overall footprint 12 percent of the world's total. India has faced dire water shortages, but on the bright side the country has adopted more rainwater harvesting than in other regions. India's higher incidence of vegetarianism (approximately 30 percent of the population) does play a role in keeping individual footprints lower. According to the WHO, a minimum of 25 liters per day is required to meet basic needs. In the US, the per capita use is ten times that, averaging 262 liters per day (FOERCH, 2007) [4]. Reducing water consumption at home has many implications: clearly, total water consumption is reduced. Thus, pressure on water sources is lowered and the development of larger water supply systems and facilities (e.g. water pumping devices, water distribution networks, etc.) become unnecessary.

Water can also be saved by simple water saving alternatives. Everyday solutions can help us in our part of water saving. If all households installed water-saving features, water use would decrease by 30 percent. The alternatives are useful for not only the environment, but also for utilities bill. A low flush toilet is just a simple way to save a load of water; if everyone started using low flushes the deadline of "unlimited water" may be extended. The average household toilet consumption is 34015.8 liters, if an individual use a low flush that number will decrease 7300 liters a year. This illustrates the power of saving a lot of water just from one simple step (Environmental Essay, 2012) [3].

Water footprint knowledge is the motivator and "action-related knowledge" and is more likely to affect behavior because it provides concrete connections of information to actions. These motivators relates to personal norms or feelings of moral obligation (Tanner and Kast, 2003) [11]. Knowledge and information regarding water footprint plays significant role in affecting

attitude, norms, habits or behavior of the households in effectively reducing water footprint. Knowledge of the urban households' regarding water footprint helps to understand their impact on the environment and more importantly, help and motivate households to reduce water footprints. By efficient utilization of water households can live sustainably by conserving water without compromising with comfort and quality of life. Thus the paper aims to ascertain the homemakers' knowledge regarding water footprint at household level.

2. Methodology

In order to fulfillment of the objective of the study, a household survey was conducted in four areas of different directions of Bikaner city. A sample of 30 households was selected from each area which comprise to 120 homemakers. The unit of inquiry was urban households and homemakers between the age group of 25-40 years were the key informers. A semi structured interview schedule was used to gather relevant information regarding homemakers' family background, personal information related to respondent, knowledge regarding water conservation pattern of the homemakers' household. Gathered data were tabulated and analyzed by using frequency, percentage, mean, standard deviation, analysis of variance and student 't'-test.

3. Results

3.1 Family Background Information of the Homemakers

Family background details of the homemakers were studied for their religion, type and size of family, age, educational and employment status, occupation, homemakers' income, household income and per capita income.

3.2 Religion

Religious and cultural practices directly affect the water consumption in a household. The data in table 1 reveals that the majority of homemakers were Hindus (80.83 percent) followed by Jains (9.17 percent). A meagre percentage of homemakers were Muslims (6.67 percent) and Sikhs (3.33 percent).

Table 1: Distribution of homemakers according to their religion, type and size of family (n= 120)

S. No.	Family Background Information	f	%
	Religion		
1.	Hindu	97	80.83
2.	Muslim	8	6.67
3.	Sikh	4	3.33
4.	Jain	11	9.17
	Total	120	100
	Family Type		
1.	Nuclear	59	49.17
2.	Joint	61	50.83
	Total	120	100
	Family Size		
1.	Small family size (up to 3 members)	19	15.83
2.	Medium family size (4 -7 members)	91	75.83
3.	Large family size (above 8 members)	10	8.34
	Total	120	100
	Mean	5.38	
	S.D.	1.88	

3.3 Type of Family

The data shows that slightly more than half of the homemakers belong to joint families (50.43 percent) and rest of the homemakers were from nuclear families (49.17 percent).

3.4 Family Size

The data denotes that the average size of the homemakers' families was 5.38 members (Sd= 1.88). Three fourth of homemakers belongs to medium family size (75.83 percent). Only a small percentage of the homemakers belong to small family size (15.83 percent) and large family size (8.34 percent). Members per household play an important role in explaining variations in water consumption (Domene and Sauri, 2012) [2].

3.5 Personal Information of Homemakers

This comprise of information related to homemakers' age, education, employment status, occupation and income.

3.6 Age of the Homemakers

The data in table 2 clearly illustrates that the average age of homemakers was 32.90 years (Sd= 5.89). More than half of the homemakers (69.17 percent) were from middle age group. Rest of the homemakers was from lower age group (15.83 percent) and higher age group (15.00 percent). Household size and age of the homemakers affect per capita water consumption. Domestic water consumption which is a significant component of the total water use varies according to living standards of the consumers in urban and rural areas (Keshavarzi *et al.,* 2006) [7]. It is obvious that the higher the educational level of the individual, the more is the concern to use water for hygiene.

3.7 Education of the Homemakers

Surprisingly, the tabulated data depicts that none of the homemakers were illiterate. This may be related to urban area. Highest percentage of homemakers' falls under graduate category (51.67 percent) followed by post graduate (23.33 percent), senior secondary (11.67 percent). A megre percentage of homemakers were educated up to middle (7.50 percent) and higher secondary (5.83 percent). It is obvious that the higher the educational level of the individual, the more is the concern to use water for hygiene (Keshavarzi *et al*., 2006) [7].

3.8 Employment Status of the Homemakers

The data in table 2 clearly shows that majority of the homemakers were housewives (69.17 percent). Though 30.83 percent homemakers were employed in private sector, government jobs and in different entrepreneurial activities.

3.9 Occupation of the Homemakers

Table 2 shows that, among all the working homemakers (30.83 percent), highest percentage of homemakers were in private job (48.65 percent) as teacher and tutor followed by entrepreneur (29.73 percent) as a craft designer, beauty parlor and boutique owner and in government job (21.62 percent) as teacher, nurse.

3.10 Annual Income of the Homemakers

Data in table 2 portray that the average annual income of the homemakers was INR 1,40,400 (Sd= 68.53). More than half of homemakers come under middle income group (56.76 percent). Few of the homemakers belongs to lower income group (24.32 percent) followed by higher income group (18.92 percent).

Table 2: Distribution of homemakers according to their personal information (n= 120)

S. No.	Homemakers Personal Information	f	%
	Age (in years)		
1.	Lower age group (Up to 26 years)	19	15.83
2.	Middle age group (27-39 years)	83	69.17
3.	Higher age group (Above 40 years)	18	15.00
	Total	120	100
	Mean	32.90	
	S.D.	5.89	
	Education		
1.	Middle	9	7.50
2.	Higher secondary	7	5.83
3.	Senior secondary	14	11.67
4.	Graduate	62	51.67
5.	Post graduate	28	23.33
	Total	120	100
	Employment Status		
1.	Housewife	83	69.17
2.	Employed	37	30.83
	Total	120	100
	Occupation		
1.	Government job	8	21.62
2.	Private job	18	48.65
3.	Entrepreneur	11	29.73
	Total	37	100
	Annual Income of Homemakers (in INR)		
1.	Low income group (up to 80,000 INR)	9	24.32
2.	Middle income group (80,001 to 2,00,000 INR)	21	56.76
3.	Higher income group (above 2,00,001 INR)	7	18.92
	Total	37	100
	Mean	1,40,400	
	S.D.	68,533	

3.11 Respondents'' Household Income

Household income determines the socio- economic status of the respondents' family which leads to increased water footprint.

3.12 Annual Income of Homemakers' Households

The data in table 3 reveals that average income of the homemakers' households was INR 9,52,190 (Sd= 3,80,610). Less than two third of the homemakers were from middle income group (63.33 percent) followed by higher income group (20.83 percent) and lower income group (15.83 percent).

3.13 Annual Per Capita Income of Respondents Households

Per capita income of the families affects the consumption pattern of the households. Higher per capita income leads to increased water footprint (Domene and Sauri, 2012) [2]. The tabulated data in table 4 depicts that average per capita annual income of homemakers' household was INR 1,95,066.63 (Sd= 97,990.61). More than three fourth of the homemakers were from middle income group (79.17 percent) followed by higher income group (12.50 percent) and lower income group (8.33 percent).

Table 3: Distribution of homemakers according to their household income (n= 120)

S. No.	Annual Income of Household (in INR)	f	%
1.	Lower income group (up to 6,00,000 INR)	19	15.83
2.	Middle income group (6,00,001 to 1,300,000 INR)	76	63.33
3.	Higher income group (above 1,300,001 INR)	25	20.83
	Total	120	100
	Mean	9,52,190	
	S.D.	3,80,610.64	
	Per Capita Annual Income (INR)		
1.	Lower income group (Up to 1,00,000 INR)	10	8.33
2.	Middle income group (1,00,001 to 3,00,000 INR)	95	79.17
3.	Higher income group (Above 3,00,001 INR)	15	12.50
	Total	120	100
	Mean	1,95,066.63	
	S.D.	97,990.61	

3.14 Homemakers' Knowledge Regarding Water Footprint

Knowledge and information on the water footprint can increase awareness about the huge volume of water used to produce different food items and about related environmental impacts (Aldaya and Hoekstra, 2010) [1]. The knowledge of the homemakers was judged on the basis of two point continuum dichotomous knowledge test administered to them with the responses as 'Yes' and 'No'. For 'Yes' response the item scored= 2 and for 'No' = 1 score. Homemakers were judged on the basis of various aspects related to their water footprint knowledge

To test the knowledge of homemakers' regarding water conservation, 45 statements were selected, 7 statements for large scale water conservation, 22 statements for indoor water conservation, 4 statements for outdoor water conservation, 7 statements for reduce, 3 statements for reuse and 2 statements for water recycling. Surprisingly, the data showed that cent percent homemakers had knowledge about all (7) statements related to large scale water conservation. While comparing the mean scores, the highest mean score (2.00) was obtained for all the large scale water conservation statements. In indoor water conservation cent percent homemakers had knowledge about five statements and poor knowledge about three fourth of the statements. While comparing the mean score, the highest mean score (2.00) was obtained for "use of bucket for bathing saves water rather than shower", "a dual flush toilet is water conserving", "washing machine takes largest part of total household water use", "washing floor with pipe consumes huge amount of water" and "filling sink while cleaning utensils is more efficient than continuous running water from tap". The homemakers were found to have poor knowledge in 13 statements of indoor water conservation scored (1.00) for "an energy and water efficient dish water save 50 to 60 liter water", "an ordinary dish washer consumes more water than washing by hands", "10 liters water is required to wash every load of kitchen utensils by hand", "A vacuum cleaner can save 10 liters of water, if used on the place of bucket and mop", "10 liters water every day is used in washing floor", "Full load automatic washing machine saves 10 liters of water in each wash", "One can save 38 liters water of total household use by repairing leaking taps", "An individual can save 9 to 10 liter water by turning of the tap instead of consistently running water while brushing teeth", "A household use 2-3 liters of water in brushing teeth", "30 liters of water in a household is used in toilet flushing by one

person", "Replacing leaking tap immediately can save 10 gallons", "A water conserving shower head save water up to 15 gallons" and "Bathing takes 55 lb liters/ bath". In outdoor water conservation more than three fourth of the homemakers' knowledge was good about half of the statements. While comparing the mean scores of outdoor water conservation, the highest mean score (1.83) was obtained for "Water sprinklers or watering cane are more water conserving than pipe". The homemakers were found to have poor knowledge about "Use of bucket to wash a car saves water up to 264 liters/ wash" (1.00) and "Washing car weekly through pipe uses equal amount of water from using bucket to wash a car every day" (1.00). Knowledge of the homemakers about reduce, reuse and recycle was found good because cent percent homemakers answered correctly about eleven statements. While comparing the mean scores of reduce, the highest mean score (2.00) was obtained for 6 statements out of 7. The homemakers were found to have poor knowledge about "use of half flushes when there is no need of full flush saves up to 10 liters of water" (1.00). While comparing the mean scores of reuse, the highest mean score (2.00) was obtained for all the 3 statements and while comparing the mean scores of recycle; the highest mean score (2.00) was obtained in both the statements.

Recycling a pound of paper, less than the weight of average newspaper, saves about 3.5 gallons of water. Buying recycled paper products saves water too, as it takes about six gallons of water to produce a dollar's worth of paper. One of the best ways to conserve water is to buy recycled goods, and to recycle used stuff when it is not in use anymore or stick to buying only what is really needed (National Geographic, 2013).

Table 4: Distribution of homemakers according to their of knowledge about water conservation in indoor, outdoor and it's reduce, reuse and recycle (n= 120)

S. No.	Statements Related to Water Conservation	Knowledge				Item intensity score (weighted mean out of 2)
		Possessed		Not Possessed		
		F	%	f	%	
1.	Building of dams up-stream to store flood water for use during dry period.	120	100	0	0	2.00
2.	Reforestation of hills, catchment areas and slopes for increasing availability of water throughout the year.	120	100	0	0	2.00
3.	Prevent wastage of water through economical use in industry and homes.	120	100	0	0	2.00
4.	Reducing the usage of water and recycling of waste water for different purposes is true water conservation.	120	100	0	0	2.00
5.	Every drop of the rain water can be saved by rain water harvesting.	120	100	0	0	2.00
6.	Having a rain water harvesting tank is a method of meeting the water shortfall in a cost effective manner.	120	100	0	0	2.00
7.	Prevent water pollution by not allowing raw sewage and industrial effluents to pass into water bodies.	120	100	0	0	2.00
	Total Weighted Mean					2.00
	Indoor Water Conservation					
	Bathing					
1.	Bathing takes 55 lb liters/ bath.	0	0	120	100	1.00
2.	Every standard shower is calculated of 10 minutes.	14	11.67	106	88.33	1.12
3.	Use of bucket for bathing saves water rather than shower.	120	100	0	0	2.00
4.	A water conserving shower head save water up to 15 gallons.	0	0	120	100	1.00
5.	Replacing leaking tap immediately can save 10 gallons.	0	0	120	100	1.00
	Toilet					
1.	30 liters of water in a household is used in toilet flushing by one person.	0	0	120	100	1.00
2.	A dual flush toilet is water conserving.	120	100	0	0	2.00
	Brushing Teeth					
1.	A household use 2-3 liters of water in brushing teeth.	0	0	120	100	1.00
2.	An individual can save 9 to 10 liter water by turning of the tap instead of consistently running water while brushing teeth.	0	0	120	100	1.00
3.	One can save 38 liters water of total household use by repairing leaking taps.	0	0	120	100	1.00
	Washing Clothes					
1.	Washing machine takes largest part of total household water use.	120	100	0	0	2.00
2.	Up to half of the total used water can be saved by an efficient washing machine on the place of an ordinary one.	78	65	42	35	1.65
3.	Full load automatic washing machine saves 10 liters of water in each wash.	0	0	120	100	1.00
	Floor Cleaning					
1.	10 liters water every day is used in washing floor.	0	0	120	100	1.00
2.	A vaccume cleaner can save 10 liters of water, if used on the place of bucket and mop.	0	0	120	100	1.00
3.	Washing floor with pipe consumes huge amount of water.	120	100	0	0	2.00
	Cleaning Kitchen Utensils					
1.	10 liters water is required to wash every load of kitchen utensils by hand.	0	0	120	100	1.00

2.	Filling sink while cleaning utensils is more efficient than continuous running water from tap.	120	100	0	0	2.00
3.	An ordinary dish washer consumes more water than washing by hands.	0	0	120	100	1.00
4.	An energy and water efficient dish water save 50 to 60 liter water.	0	0	120	100	1.00
	Total weighted mean of indoor water conservation					1.29
	Outdoor Water Conservation					
	Garden					
1.	Water sprinklers or watering cane are more water conserving than pipe.	99	82.5	21	17.5	1.83
2.	Proper requirement of watering is up to 6 to 8 liters/ meter square.	13	10.83	107	89.17	1.11
	Car Wash					
1.	Use of bucket to wash a car saves water up to 264 liters/ wash.	99	82.5	21	17.5	1.83
2.	Washing car weekly through pipe uses equal amount of water from using bucket to wash a car every day.	13	10.83	107	89.17	1.11
	Total weighted mean of outdoor water conservation					1.235
	Reduce					
1.	Turn off tap when brushing teeth.	120	100	0	0	2.00
2.	Taking short showers less than 5 minutes keeps individual's water footprint low.	120	100	0	0	2.00
3.	Uses of half flush when there is no need of full flush saves up to 10 liters of water.	0	0	120	100	1.00
4.	Fixing leaky taps and pipes as soon as they occur is a water conservation measure.	120	100	0	0	2.00
5.	Replacing a older shower heads with a water efficient shower head can save water.	120	100	0	0	2.00
6.	Using bucket for cleaning takes less water while cleaning home.	120	100	0	0	2.00
7.	Using water efficient taps in kitchen reduces water consumption.	120	100	0	0	2.00
	Reuse					
1.	Kitchen water can be re- used in kitchen garden that can curtail the extra water used in watering the garden.	120	100	0	0	2.00
2.	Water from washing machine can be re- used for car was and cleaning the outdoor areas of house.	120	100	0	0	2.00
3.	Every drop of rain water can be re used for different activities through roof top rain water harvesting system.	120	100	0	0	2.00
	Recycle					
1.	Re-distribute rain water in garden and parking areas of the building.	120	100	0	0	2.00
2.	Re-cycle the industrial waste water.	120	100	0	0	2.00
	Total Weighted Mean					1.92
	Total Weighted Mean Score of Conservation					1.57

3.15 Overall Weighted Mean Score of Respondents knowledge

Overall knowledge of the homemakers was based on the water conservation. The summated weighted mean score in related aspect was 1.57.

3.16 Level of Homemakers' Knowledge

Overall knowledge scores of the homemakers were based on the average score of knowledge that is 130.58 (Sd= 3.22). Three categories were formed related to water conservation knowledge of the homemakers i.e. poor, average and good. The overall habit score on the three aspects related to water footprints highlighted that maximum number of the homemakers' (91.67 percent) knowledge was average, followed by poor knowledge (7.50 percent) and megre number of homemakers (0.83 percent) were having good knowledge. Thus it can be observed that both the knowledge and habits of the homemakers were in compliance to each other.

Table 5: Distribution of homemakers according to their level of knowledge related to household water footprints (n=120)

S. No.	Level of Knowledge (in scores)	f	%
1.	Poor (83-126 score)	9	7.50
2.	Average (127-133 score)	110	91.67
3.	Good (134-166 score)	1	0.83
	Total	120	100
	Mean	130.58	
	S.D.	3.22	

3.17 Relationship between water knowledge of the homemakers with household, personal and situational variables

Analysis of Variance was computed to find out the variation in the water knowledge of the homemakers with household, personal and situational variables. The calculated 'F' value in Table 6 was found to be significant regarding the water knowledge of the homemakers related to personal variable i.e. homemakers' income (F=2.461; sig. level=0.05). It can be concluded that the knowledge of the homemakers regarding water footprints vary with their personal variables.

Table 6: Analysis of Variance for personal, household and situational variable with the knowledge of homemakers related to water footprint (n =120)

S. No.	Particulars	Sum of square	Degree of freedom	Mean of square	F- Ratio	Level of significance
	Household Variables					
	Family size					
1.	Between Groups	30.88	9	3.43	0.959	0.478
	Within Groups	393.49	110	3.58	NS	
	Household income					
2.	Between Groups	485843185068.91	9	53982576118.77	0.353	
	Within Groups	16843934722931.10	110	153126679299.37	NS	0.955
	Per capita income					
3.	Between Groups	40571931035.95	9	4507992337.33	0.449	0.905
	Within Groups	1103882657736.04	110	10035296888.509	NS	
	Personal Variables					
	Age of Homemakers					
4.	Between Groups	229.63	9	25.51	0.718	0.692
	Within Groups	3911.17	110	35.56	NS	
	Education					
5.	Between Groups	6.39	9	.710	0.445	0.907
	Within Groups	175.31	110	1.594	NS	
6.	**Homemakers annual income**					
	Between Groups	108499768820.17	9	12055529868.91	2.461**	0.014
	Within Groups	538874119179.83	110	4898855628.91		
	Situational Variables					
7.	**House Ownership**					
	Between Groups	.214	9	2.380	0.159	0.997
	Within Group	16.452	110	.150	NS	
8.	**Housing Type**					
	Between Groups	17.451	9	1.94	0.856	0.567
	Within Group	249.141	110	2.265	NS	

NS- Non Significant
*Significant at 0.05 level of probability
** Significant at 0.01 level of probability

Analysis of Students''t' test revealed that 't' values were non significant regarding the knowledge of the homemakers related to household variable, personal variables and situational variables. Knowledge of an individual depends on the educational level and thinking power of an individual. So family type, employment status and house ownership was found to be non significant.

Table 7: Students t- test value' for personal, household and situational variable with the knowledge of homemakers related to water footprint (n= 120)

S. No.	Variables	Mean Difference	t- value	df	Level of significance
1.	**Household Variables**				
	Family Type	0.308	1.048 NS	118	0.297
2.	**Personal Variables**				
	Employment Status	0.441	1.403 NS	118	0.163
3.	**Situational Variables**				
	House Ownership	0.150	0.379	118	0.705

NS- Non Significant
*Significant at 0.05 level of probability
** Significant at 0.01 level of probability

4. Conclusion

Hence, it can be summarised that homemakers' income plays important role in increasing their water footprint knowledge. Augmented household income and updated knowledge of the homemakers affect their consumption habits. These are helpful in increasing the homemaker household water footprint. Consequently, to live comfortable and quality of life it is the need of the hour to reduce households' water footprint for sustainability.

5. Implications

The paper will be an ideal resource material for social workers, environment scientists, extension, geographers and family resources management specialists, water equipment manufacturer to improve homemakers' knowledge regarding water conservation. It will be useful for geographer to estimate the total amount of water used by an individual by making choices about their indoor, outdoor, travel, food they eat, buy and throw away. Water conservation knowledge will be helpful tool for environment scientists to reduce the negative impact of human habits on environment thus reducing their water footprint.

6. References

1. Aldaya MM, Hoekstra AY. The water needed for Italians to eat pasta and pizza. Agricultural Systems. 2010;

103:351-360.
2. Domene E, Sauri D. Urbanisation, and Water Consumption: Influencing Factors in the Metropolitan Region of Barcelona. Urban Studies, 2012; 43(9):1605-1623.
3. Environmental Essay. Water Consumption Hadi Darras. 2012. Cited from http://www.studymode.com/essays/Environmental-Essay-Water-Consumption-Hadi-Darras-930918.html
4. Foerch W. Water Conservation, Encyclopaedia of Environment and Society. 2007, Pp. 1919- 1922.
5. Hoekstra AY, Chapagain AK. Water Footprints of Nations: Water Use by People as Function of their Consumption Pattern. Water Resources Management. 2007; 21:35-48.
6. Hoekstra AY, Mekonnen MM. The Water Footprint of Humanity. Proceedings of National Academy of Sciences. 2011; 109(9):3232-3237.
7. Keshavarzia AR, Sharifzadehb M, Kamgar Haghighia AA, Keshtkara S, Bamdada A. Rural Domestic Water Consumption Behavour: A Case Study in Ramjerd area, Fars Province, I.R. Iran. Masters Thesis submitted to Water Department, College of Agriculture, Shiraz University, Shiraz, Iran, 2006.
8. National geographic. Water Footprint Calculator: Methodology, 2013. Cited from http://environment.nationalgeographic.com/environment/freshwater/change-the-course/water-footprint-alculator/?rptregcta=reg_free_np&rptregcampaign=20131016rw_ membership_r1p_intl_se_w#close-modal.
9. Singh KK, Singh B, Singh SP, Kumar A, Chatterjee S, Singh SK. Water Crisis and its Sustainibility. In: Singh, S.P. Environmental Economics. APH Publishing Corporation (ed.), New Delhi. 2012, pp. 89-91.
10. Streeter AK. We use how much water? Scary water footprints, country by country. 2009. Cited from http://www.treehugger.com/clean-water/we-use-how-much-water-scary-water-footprints-country-by-country.html.
11. Tanner C, Kast SW. Promoting Sustainable Consumption: Determinants of Green Purchases by Swiss Consumers. Psychology and Marketing. 2003; 20:883-902.