

Carbon Habits of Rural Households of Vadodara District, Gujarat, India



Home Science

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ABSTRACT

The present investigation was conceptualised with an aim to evaluate the carbon habits of the rural households of Vadodara district of Gujarat state of India. It was hypothesized that the carbon habits of the rural households will vary with the personal variables of the respondents (age, educational level, occupational status and personal income) and their family variables (family size, family income and family type). The research design of the present study was descriptive in nature. The respondents comprised of 180 rural homemakers selected randomly from the households of Undera, Dhanora and Koyli villages of Vadodara district. The data were collected by personal interviewing the respondents by the investigators on a pre-validated and pre tested interview schedule ($r = 0.894$). The descriptive and relational statistics' such as frequencies, percentage, mean, "t" test and ANOVA were computed for statistical analyses. The findings of the study revealed that slightly less than one-half of the households (46.10 percent) had overall poor carbon habits while performing different activities at home. The statistical findings confirmed that the rural household differed significantly ($t = 3.891 < 0.01$) in their carbon habits by type of their family i.e. joint or nuclear.

INTRODUCTION

Today's world is confronted with environment degradation of increasing magnitude. Man's action interfering the natural process of earth has evolved many environment threats for them and for environment too. One of the most pressing threats to environment now-a-days is climate change. It is increasingly recognized as a major challenge and it is widely accepted that greenhouse gas emissions caused by humans are having a negative impact on the environment. Virtually all human activity generates carbon dioxide or other greenhouse gas emissions that contributes to climate change such as using electricity, burning gas for heating or driving a petrol or diesel car and the production, transport and disposal of raw material and consumer goods.

Carbon Habit

According to Brock (2008), the activities that release carbon in the atmosphere are called Carbon habits. The UN secretary general Ban Ki Moon in the celebration of World environment day in 2007 stated that the world is in the grip of dangerous carbon habit. "Kick the habit" is the international slogan for event that promotes a movement towards a low carbon economy.

World environment day, conceived in 1972, is the United Nations' principal day to mark global green issues. It aims to give a human face to environment problems and solutions. The cost will be borne by all. The poor will be hardest hit by weather related disasters and by soaring price inflation for staple foods. Even the richest nations face the prospect of economic recession. The world is also in conflict over diminishing resources. Mitigating climate change, eradicating poverty and promoting economic and political stability all demand the same solution that is people must kick the carbon habit. There is an urgent necessity to educate the people and make them aware about their carbon habits that can be reduced or controlled safeguarding the environment (Brock, 2008).

The manifestation of the carbon habit not only releases vast amounts of CO_2 , it also destroys a valuable resource for absorbing atmospheric carbon, further contributing to climate change (Brock, 2008). Global carbon dioxide emission from fossil fuel burning was 3 million tons in 1751 which gradually increased to 8379 million tons in 2006. America has the largest carbon footprint in the world due to their luxurious style of life. An average carbon footprint of America is 20 tones (Lam, 2008). The highest carbon dioxide emissions were found in Qatar, Bahrain and Trinidad and the lowest carbon dioxide emission in Mali,

Somalia, Afghanistan and Burundi. The similar trend can be seen in India too. In 1751, 0.8 metric tons of the carbon dioxide emissions generated from burning of the fossil fuels rose to 1.3 metric tons in 2006. Out of 210 countries, India ranked one thirty ninth rank in the highest order of carbon dioxide emission. (U.S. department of energy's Carbon Dioxide Information Analysis Center, 2007).

The political momentum to address the adverse effects of climate change through both mitigation and adaptation is mounting (Barret and Wiedmann, 2007). Two approaches to control the climate change are adaptation and mitigation. Adaptation involves making people and places less vulnerable to the effects of climate change, such as flooding or drought or heat waves. Climate change mitigation is stopping the cause of climate change, the human generated emissions of greenhouse gases-to prevent it from happening or at least keep effects mild. Both approaches are important, because the more severe effects are expected in future and may still be prevented. Most of the attention is on climate change mitigation. Most policies addressing climate changes are about reducing greenhouse gas emissions and in order to reduce emissions, people must first be able to measure them and quantify the amount people are sending into the atmosphere (Logan, 2007). In order to do so awareness regarding the carbon habits of people is necessary. The problem if tackled at micro level i.e. family and household level it would do wonders. If carbon habits of the people are improved it would have a direct impact on green house gas emissions affecting the climate change. With this premise the present investigation was conceptualized with the following objective:

Objective of the study

- To evaluate the carbon habits of the rural households.

Hypothesis of the study

- The carbon habits of the rural households will vary with the personal variables of the respondents (age, educational level, occupational status and personal income) and their family variables (family size, family income and family type).

Delimitation of the Study

- The study was limited to rural households of Undera, Dhanora and Koyli of Vadodara district only.

METHODOLOGY

The research design of the present study was descriptive in nature. The respondents comprised of 180 rural homemakers selected randomly from the households (60 each) of Un-

dera, Dhanora and Koyli villages of Vadodara district. The data were collected by personal interviewing the respondents by the investigators on a pre-validated and pre tested interview schedule ($r=0.894$). The likert scale with three point continuums as Always, "Sometimes", and "Never" containing 74 items was utilized to judge the good or poor carbon habits of rural households in different areas like cooking, heating water, using electrical appliances, travelling and disposing the waste. The descriptive and relational statistics' such as frequencies, percentage, mean, "t" test and ANOVA were computed for statistical analyses.

MAJOR FINDINGS OF THE STUDY

Demographic data of the respondents: The findings on the demographic characteristics of the respondents highlighted that a comparatively higher percentage of the respondents (32.2 per cent) were in the age group of 31-40 years. A higher percentage of the respondents (30 per cent) were also educated till higher secondary level. 44.5 per cent of the respondents had their personal monthly income above Rs. 3500. Slightly more than one-half of the respondents (51.1 per cent) were employed. The findings also revealed that majority of the respondents (81.1 per cent) had medium sized family. The joint families were comparatively more (60 per cent) than the nuclear families in which the respondents reside.

Carbon habits of the rural households: The carbon habits of the rural households were evaluated on the basis of practices followed (whether positive or negative practice) by the households while carrying out the activities in their households such as cooking, heating water, using electrical appliances, using transportation and disposing of waste. The comparisons made between the carbon habits the households were based on the weighted mean scores obtained by them on each practice adopted by them in carrying out these activities. The higher the weighted scores obtained, higher would the good carbon habit of the rural households. Good carbon habit means that less carbon was emitted while carrying out that activity. The findings on carbon habits of rural households while carrying various activities by them are discussed in detail in the succeeding discussions.

Cooking: While analyzing the carbon habits of the rural households while cooking, it was found that 27.7 per cent of the households sometimes and never soaked the pulses before cooking them. One-half of the households (50.1 per cent) placed the utensil on the heat source sometimes only before igniting it. Very few of the households (8.3 per cent) and some (44.4 per cent) never and sometimes only finished the pre-paraion before igniting the cooking heat source respectively. It was also found that majority of the households (82.3 per cent) were using big sized utensils on small burners. Most of the respondents (66.1 per cent) never used surface utensils either cladded or sand witched with copper material. It being a good conductor of heat reduces the average time of cooking emitting less carbon in the atmosphere. Further it was found that one-third of the household (33.9%) sometimes used surface cooking utensils made up of copper. Almost one-fifth of the households (20.6 per cent) always and 37.8 per cent of the households sometimes were re-heating the food before eating. Slightly more than one-tenth (12.2 per cent) never used pressure cooker for cooking whereas 40.00 per cent of the households used it sometimes only. 41.7 per cent and 13.3 percent of the households sometimes and never ensured to reduce the flame so that it does not cross from the bottom of the utensil. In most of the households (67.2 per cent) the food was sometimes cooked on slow flame. Almost one-half of the households (52.8 per cent) were following the practice of slowing down the flame once the water or any liquid starts boiling sometimes only. It was noticed that not a single household cooked the food in solar cooker.

Heating of Water: The findings on the carbon habits of the households while heating water elicited that none of them were using solar water heater for heating water. Majority of the households (77.8 per cent) were following the practice of closing the heat source immediately at the time of boiling of the wa-

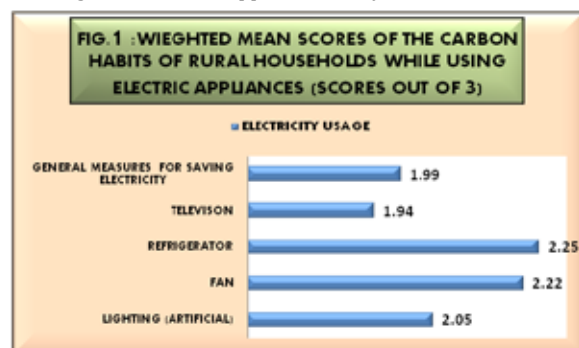
ter sometimes only. Nearly one-fourth of the households (21.1 per cent) sometimes covered the utensil while heating water.

While using Electrical Appliances: The carbon habits related to the use of electric appliances like fan, refrigerator, television (commonly used electric appliances) and use of artificial lighting and general measures to save electricity in the rural households were analyzed. The comparative general findings on the same highlighted that the carbon habits of the rural households was found to be poorest while using television as compared to other use of electrical appliances and electricity (figure 1). The finding about each of them separately follows:

Lighting (artificial): Majority of the rural households (75.00 per cent) used CFL tubes instead of incandescent tubes sometimes only. Most of the rural households' (69.4 per cent) sometimes only were switching off the lights when actually needed. Most of the households (67.2 per cent) used electronic choke sometimes only.

Fan: It was also found that majority of the households (70.00 per cent) switched on the fans sometimes only while leaving the room and one- fifth of the households never serviced the fan even once in a year.

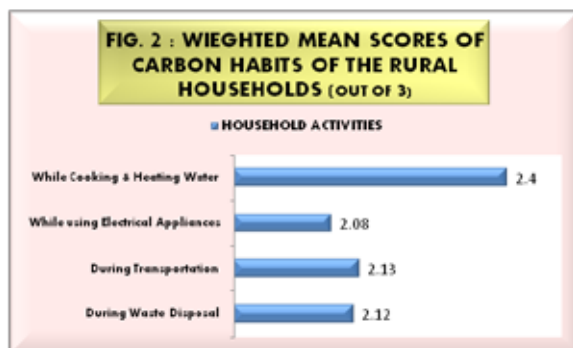
Refrigerator: The findings further revealed that the carbon habit of keeping the dishes when they were hot in the refrigerator was found in majority of the households. Only 47.8% of the households did not overload the refrigerator. The findings also found that only 42.8% of the households ensured proper earthing in all electrical appliances always.



During Transportation: It was found that majority of the households always get the pressure of the tyre checked regularly (70.6 per cent) and sometimes (73.3 per cent) only switched off their vehicle at red traffic light. One-third of the households (33.3%) never used congested routes and rush hours while travelling. It was noted that little less than one-fifth of the households (17.2%) always got the P.U.C. of their vehicle checked regularly. It was also noted that little less than one fourth of the households (24.4%) always got the leakage of the fuel checked.

Disposal of Waste regarding the carbon habits about waste disposal it was found that 40.6 percent of the household never used polystyrene or plastic cups and never avoided ceramic and clay mugs. It was found that 45.6 percent of the households never used banned or restricted pesticides and old medicines. It was found that 16.1 percent of the household always reused plastic bags for shopping. The finding highlighted that not a single household recycled household waste.

While comparing the data on the weighted mean scores of the carbon habits of the rural households it was found that their carbon habits related to cooking and heating water was better as compared to other household activities (figure 2).



Level of Carbon habits of the household

The findings of the study revealed that one -half of the rural households had poor carbon habits while cooking and heating of the water. 42.77 percent of the households had poor carbon habits while using electrical appliances. Almost 37.2 per cent of the households followed poor carbon habits while travelling. Majority of the households (68.90 percent) had poor carbon habits in disposing the waste (Figure 3).

The data also revealed that somewhat less than one- half of the rural households (46.10 percent) had overall poor carbon habits while performing different activities at home (figure 4).

Statistical findings

The 'F' ratio values for personal variables of respondents (age, education, and monthly personal income in Rs.) and their family variable (monthly family income and family size) were found to be non significant regarding their carbon habits. 't' test was computed to find out the mean difference between carbon habits of rural households and the employment status of the respondents and type of family. The findings highlighted that the households did not differ significantly in their carbon habits due to the employment status of the respondents. However, the households differed significantly in their carbon footprints due to the type of family ($t=3.891$, 0.01 level).

CONCLUSION

The findings of the present study would make the people aware about the carbon habits of the rural households of the selected locale. Simultaneously it would also serve as a guide in planning the non-formal programmes by the social welfare organizations, agencies, clubs and the NGO's in educating the masses about the carbon habits. The higher educational institutes can play a major role by initiating efforts at micro level targeting individuals and households at societal level through education and awareness campaigns in helping to combat climate change in their social /extension programmes. There is an urgent need to educate people and make them aware about their carbon habits so that the green house gas emissions can be reduced safeguarding the climate changes in the environment. The findings of the present study is an effort in that direction.

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