

# Effect of economic status on environmental awareness and household fuel energy consumption pattern

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■ **ABSTRACT :** An ideal environment is a must for every one to retain good health, growth and development. Creation of awareness on environmental issues are therefore important tasks for generating an ethical new outlook ethics among women towards the environment as women have a unique and direct relationship with the environment. The present study had been undertaken comprising inhabitants of Sundergarh district of Odisha with 200 samples through interview schedule; with an objective to find out the degree of environmental awareness among the different income group families ,to find out the effect of economic status on the degree of awareness, to gain knowledge about the house hold energy consumption pattern of the responding families, to know about the impact of economic status on the fuel energy consumption pattern of the respondents and to co-relate between the environmental awareness and fuel energy consumption pattern of the families with respect to their economic status. Study findings revealed that women were quite aware about the environmental degradation. Economic status had got significant impact on the level of awareness. But the level of awareness predominantly did not have positive effect on house hold fuel energy consumption. Economic status did not show a significant effect on the level of environmental awareness with consideration to level of fuel energy consumption of all the respondents. Participatory approach in all the environmental sustainable developmental programme is the need of the hour. Everyone has a part and every one should and has to contribute.

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These days, environment with its diverse forms of pollution, appears daily in news papers, news magazines, radio and television broad casts. Today environment has become the concern of all the academicians, intellectuals, scientists, policymakers and Government across the continents (Kant and Sharma, 2013). An ideal environment is a must foreveryone to

retain good health, growth and development. Polluted environment and its habitathinder optimal attainment of people as well as animal life in general (Edigeir, 1998). Thus there is an increased awareness of the environmental impact (Abdeen, 2008).

Since the mid -1980s, there has been a significant increase in studies and international meetings concerning

women and their relationship with environmental factors such as energy and sanitation. Household constitute an important target group for energy conservation (Linda, 2009). In developing areas of the world, women are considered the primary users of land, forest, and water, because they are the ones who are responsible for gathering food, fuel, and fodder (Abzug, 1995). Although in these countries, women mostly can't own the land and farms outright, they are the ones who spend most of their time working on the farms to feed the family. Shouldering this responsibility leads them to learn more about soil, plants, and trees and not misuse them. Women become increasingly responsible for an increasing portion of farm tasks (Jiggins, 1994). Women's perspectives and values for the environment are somewhat different from men's. Women give greater priority to protection of and improving the capacity of nature, maintaining farming lands, and caring for nature and environment's future (Jiggins, 1994). Repeated studies have shown that women have a stake in environment, and this stake is reflected in the degree to which they care about natural resources. Both women and nature have been considered as subordinate entities by men throughout history, which conveys a close affiliation between them (Wenz, 2001). In recent decades, environmental movements have increased as the movements for women's rights have also increased (Mellor, 1997). Today's union of nature preservation with women's rights and liberation has stemmed from invasion of their rights in the past (Merchant, 1996).

A consensus has emerged on the importance of women as contributor towards conservation of natural resources and environmental protection. As the main provider of fuel, women have a unique and direct relationship with the environment (Moharaj and Ramon, 2001). Women, are first to suffer from the effects of environmental deterioration. Their role in the family and society makes them particularly concerned about the well being of the planet earth and future generations. In this context women have several roles to play : as producers, directors, consumers and administrators of water, energy, agricultural products, housing, natural resources and at last but not the least as educators of children, through whom they can transmit knowledge that can encourage national and farsighted attitudes towards food, water and energy consumption (Pati, 2000).

Use of energy is fundamental to human existence. It should come as no surprise that, the way mankind is using it as hearth many environmental problems have emerged in recent years. Use of fossil fuels, such as coal, oil and gas is increasingly seen as having major environmental impact such as global warming (Elliot, 1997). The voting patterns of Sweden revealed that women were against nuclear power (Merchant, 1996). Energy consumption pattern has got significant relationship with educational, vocational, socio-economic level and needs of the people (Chandra *et al.*, 2004). So in order to ensure the survival of our civilization in the next century, it is imperative to take stock of the energy resources and plan their judicious utilization. It becomes the foremost duty of women as home maker, to conserve resources. Environmental awareness act as a tool for the solution of environmental problems (Puspa, 1999). Creation of the awareness on environmental issues are therefore important tasks for generating an ethical new outlook ethics among women towards the environment (Vijaya and Mohadevan, 2004). There is an urgent need for the proper management of environmental crisis before it threatens our existence (Khan, 2013). To overcome environmental problems political actions involving human judgement, decisions and choices should be taken (Ogunbameru, 2005).

Despite scientific and technological advancement, there is no such distinct development in the role of women for conservation of fuel energy and nature. It may be due to lack of knowledge, lack of awareness, ignorance of environmental problems. So this present study aims at achieving the following objectives:

- To find out the level of environmental awareness among the different income group families.
- To find out the effect of economic status on the level of awareness.
- To gain knowledge about the household energy consumption pattern of the responding families.
- To know about the impact of economic status on the fuel energy consumption pattern of the respondents.
- To co-relate between the environmental awareness and fuel energy consumption pattern of the families with respect to their economic status.

## ■ RESEARCH METHODS

Sundargarh district of Odisha was selected to

conduct the study as this district consists of long undulating hilly tracts rise about 700ft, above the sea level with hilly ranges and isolated peaks of considerable heights with forests are present. Most of the inhabitants are dependent on forest for their living. There is a dearth of information of environmental awareness and fuel energy consumption pattern based in research studies. The present study has been undertaken comprising inhabitants with 200 samples. Interview method was selected to collect information from the home makers with the help of a questionnaire schedule. Household survey was conducted through closed and open-ended questionnaire. Families were categorized into Low Income Group (LIG), Middle Income Group (MIG) and High Income Group (HIG) with the help of quartile deviation. Environmental awareness scale that is high awareness level (HW), medium awareness level (MW) and low awareness level (LW) was prepared by the marks allotted in the questionnaire. Rating scale was prepared to find out the level of awareness of the sample respondents. The total fuel energy consumption was assessed after quantifying the fuel consumed by each family into the unit of kilocalories. After quantifying the fuel energy consumed by each family into the unit of Kilocalories; low (LLFEC), medium (MLFEC) and high level (HLFEC) of fuel energy consumption scale is prepared. The data obtained were consolidated, tabulated analyzed and presented. Percentage, mean, quartile deviation, co-efficient correlation were used to study the differences and relationship between environmental awareness and fuel energy consumption pattern with regard to economic status .

Tables were drawn on the basis of variables that were the type of area, vocation income group, level of awareness and level of fuel energy consumption. The final analysis was done with respect to the variables with the help of statistical analysis.

## ■ RESEARCH FINDINGS AND DISCUSSION

The results of the present study as well as relevant discussions have been presented under the sub headings. The details gathered on the family back ground are presented under the following tables. The data's pertaining to the area, economic status and vocation are presented in Table 1.

Table 1 reveals family distribution as per the income group, vocation and area. Maximum number of families

**Table 1 : Distribution of families on the basis of different areas, income groups and vocation**

Sr. No.		Total	
		N	%
1.	Income Groups		
	LIG	61	30.5
	MIG	88	44
	HIG	51	25.5
	Total	200	100
2.	Vocation		
	Agriculture	24	12
	Unskilled	85	42.5
	Skilled	16	08
	Service	52	26
	Business	23	11.5
	Total	200	100
3.	Area		
	Urban	100	50
	Rural	100	50
	Total	200	100

with 44 per cent were from middle income group. High income group covered 25.5 per cent of the total respondents. The rest 30.5 per cent of the families belonged to lower income group.

The vocational pattern of total population follows more with unskilled workers (42.5%), service holders (26%), and farmers with agricultural lands (12%), business holders (11.5%) and skilled workers (8%). Area wise distribution shows that 50 per cent of the respondents belong to urban families and 50 per cent belong to rural families.

Table 2 shows the effect of economic status on the level of awareness. The level of awareness had been assessed with the help of a rating scale of different parameters of environmental awareness such as attitude of the people to the state of environment of the world and in their own locality, opinions on environmental regulations, attitude to environmental movements, attitude to nature, opinions on possible actions of the respondents, if she witnessed a case of environment pollution, personal actions to protect the environment at home, action at community level to protect the environment, knowledge about the degradation of environment such as soil and land erosion, deforestation, spread of cities and towns across the land, knowledge about the prevention and effect of water pollution, indoor and outdoor air pollution, sound pollution, assessment

of the respondent's personal ability to change their own environment, actions to protect land and soil, personal actions to drink clean water and conserve water, attitude towards Gotland Non Govt. Organizations in helping for better environment. HW, MW and LW represents high, medium and low level of awareness, respectively.

Table 2 shows that HIG families were not coming under the category of low level of awareness and LIG families were not coming under high level of awareness. Among HIG families 74.5 per cent were under the category of HW and 25.4 per cent were under MW category. On the other hand 67.0 per cent, 19.3 per cent and 13.6 per cent of middle income group families were having medium, low and high level of awareness, respectively. 55.7 per cent and 44.2 per cent of low income group families were coming under the category of LW and MW, respectively. This shows economic status has got significant impact on the level of awareness. Chi-square test also shows a high degree of association between the two variables. The findings with respect to the positive and significant relationship between family income and awareness level of the respondents were in line with observation of Dasgupta *et al.* (2006) and Singh and Jamal (2012).

Table 3 presents the household fuel energy consumption of different income group families. The total fuel energy consumed by the selected households had been broadly divided into two broad category that is consumption through electricity, other than electricity

which covers Wood, Kerosene, Coal, Bio-Gas, LPG, petrol, diesel. The total quantity of different types of fuels used for different household purposes were calculated, and presented under a uniform unit that is in terms of kilo calories (Kcal). After quantifying the fuel consumed by each family into the unit of Kcal, they are organized to get frequencies. With the help of the cumulative frequencies the lower level of fuel energy consumption (LLFEC), the medium level of fuel energy consumption (MLFEC) and the higher level of fuel energy consumption (HLFEC) were calculated.

The Table 3 shows that the low income group with a low level of awareness consumed more fuel energy that is 56.72 per cent than the respondents with medium level of awareness (43.28%). It was found out that the household energy consumption was maximum by MIG with MW category that is 72.39 per cent than MIG with LW (19.23%) as they had access to both paid fuels like gas and electricity and also to free fuel like fuel wood and twigs of their back yard trees. High income group families with high level of awareness consume 79.23 per cent of total energy consumed by HIG families as they were using all types of fuels for cooking, lighting and vehicles and posses modern gadgets like TV, AC, washing machine, cars etc. This shows level of awareness predominantly do not affect the house hold fuel energy consumption.

The Table 4 shows that with consideration to the level of fuel energy consumption of all the three income

**Table 2 : Effect of economic status on the level of awareness**

Level of awareness	HIG N (%)	MIG N (%)	LIG N (%)	Total N (%)
HW	38 (74.5)	12 (13.6)	0	50(25)
MW	13 (25.4)	59 (67.0)	27 (44.2)	99(49.5)
LW	0	17 (19.3)	34 (55.7)	51(25.5)
Total	51(100)	88(100)	61(100)	200(100)

$X^2=117.746$ :  $df=4$  :  $p>.01$

**Table 3 : Household fuel energy consumption of different income group families**

Sr. No.	Household	Fuel energy (Killo Kalories )		Consumption
		LIG N(%)	MIG N(%)	HIG N(%)
1.	LW	26950338.96 (56.72)	13976718.59 (19.23)	0
2.	MW	20563464.27 (43.28)	52606665.34 (72.39)	8320879.668 (20.77)
3.	HW	0	6087406.664 (8.37)	31750413.47 (79.23)
Total		47513803.22(100)	72670790.59(100)	40071293.14(100)

category, that is HIG, MIG and LIG are maximum under MLFEC WITH 12 per cent, 21.5 per cent and 17 per cent, respectively. 8 per cent of LIG families with 8 per cent were under high level of fuel energy consumption as they have access to wood from the forest (free of cost) and they were also using conventional chulha for cooking which consume more fuelwood having more calories. Chi-square test also does not show an association between the two variables. Economic status do not significantly affect the level of fuel energy consumption of the total respondents.

The Table 5 reveals that among all the families of HW level; 10.5 per cent of HIG were under MLFEC and 4.5 per cent of MIG with MW level were consuming low level of fuel energy. This shows at HIG families with high awareness level did not have effect on their level of fuel energy consumption.

With consideration to MIG families with HW, MW and LW only 4.5 per cent, 6.5 per cent and 0.5 per cent were under LLFEC. Thus MIG with high awareness did not have an effect on their level of fuel consumption.

LIG families were not under HW category. LIG with MW and LW level were maximum at 8 per cent and 9 per cent at MLFEC, respectively. So economic status do not show a significant effect on the level of environmental awareness with consideration to level of fuel energy consumption of all the respondents.

Another research by Gomez-Granell and Cervera-March, 1993 also shows that the knowledge of their respondents about environmental matters is superficial;

their awareness of the environmental consequences of their everyday behaviour is low; the media sensitizes public opinion, but does not increase the degree of understanding of environmental issues.

### Conclusion:

The analysis of the data revealed that seventy five per cent of women were quite aware about the environmental degradation. Economic status has got significant impact on the level of awareness. High income group families with high level of awareness consume 79.23 per cent of total energy consumed by HIG families as they were using all types of fuels for cooking, lighting and vehicles and possess modern gadgets like TV, AC, washing machine, cars etc. This shows level of awareness predominantly do not affect the house hold fuel energy consumption. So economic status do not show a significant effect on the level of environmental awareness with consideration to level of fuel energy consumption of all the respondents. There was no substantial difference between the women of different economic status, in their contribution towards the development of environmental sustainability. The women with a very limited knowledge and awareness cannot put hand towards sustainable environment. Participatory approach in all the environmental sustainable developmental programme is the need of the hour. Everyone has a part and every one should and has to contribute for a better environment.

**Table 4 : Impact of socio-economic status on the fuel consumption pattern of the people**

Level of fuel energy consumption	HLFEC N (%)	MLFEC N (%)	LLFEC N(%)	Total N (%)
HIG	13(6.5)	24(12)	14(7)	51(25.5)
MIG	22(11)	42(21.5)	23(11.5)	88(44)
LIG	16(8)	34(17)	11(5.5)	61(30.5)
Total	51(25.5)	101(50.5)	48(24)	200(100)

$X^2=1.844$  :  $df=4$  :  $p<0.5$

**Table 5 : Effect of economic status on environmental awareness with consideration to fuel energy consumption**

Level of fuel energy consumption	HW			MW			LW			Total N(%)
	HIG N(%)	MIG N(%)	LIG N(%)	HIG N(%)	MIG N(%)	LIG N(%)	HIG N(%)	MIG N(%)	LIG N(%)	
HLFEC	10(0.5)	02(01)	0	03(1.5)	18(09)	06(03)	0	02(01)	10(5)	51(25.5)
MLFEC	21(10.5)	01(0.5)	0	03(1.5)	28(14)	16(8)	0	14(7)	18(9)	101(50.5)
LLFEC	07(3.5)	09(4.5)	0	07(3.5)	13(6.5)	05(2.5)	0	01(0.5)	06(3)	48(24)
Total	38(19)	12(6)	0	13(6.5)	59(29.5)	27(13.5)	0	17(8.5)	34(17)	200(100)

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