

Family Vitality Utilization Design and Socio-Cultural Measurements Related with A Contextual Exploration of Rustic Haryana, India



P. Rathna, A. Ravikumar

Abstract: A study of family unit vitality utilization design was done in a town of Jhajjar area of Haryana, India in the year 2017. The family units outline secured heterogeneous populace having a place with various pay, instructive and social gatherings. There was greater accessibility and usage of strong biomass energizes as vitality assets in household segment when contrasted with the business fills. Excrement cakes, crop deposits and kindling were seen as the three primary energizes utilized for cooking, however LPG was likewise utilized alongside biomass powers. In any case, total change to cleaner powers has not occurred at this point even in family units that has been utilizing LPG for a long time. Salary was a significant factor deciding the decision of fuel for cooking; however there were some socio-social variables which were similarly significant in making fuel inclinations at family level.

Index Terms: Household vitality, rural vitality, biomass powers, wood, harvest build-up, fertilizer, LPG, socio-social rehearses

I. INTRODUCTION

In spite of fast urbanization, about 70% of India's kin still dwell in country territories and access and use of vitality assets changes significantly in a large portion of the towns of India. Townspeople still depend transcendently on conventional biomass powers like wood, fertilizer and harvest build-up to meet their vitality needs [1]. As indicated by the the National Sample Survey led in 2014–2015, 84% of provincial families depend on biomass as their essential cooking fuel. These energizes are utilized even in zones with access to present day fills [2]. Customary energizes as by and by utilized, have characteristic drawbacks. Assortment is burdensome and tedious, ignition is hard to control and cooking strategies catch just a small amount of the fuel's accessible vitality. The customary

stove called 'chulah' is most ordinarily utilized for cooking in India. Despite the fact that it is principally intended for consuming fuel wood, the equivalent has been adjusted to consume crop build-ups and manure cakes. An exceptional cooking gadget called Hara is additionally utilized in Haryana for milk stewing and for making cows feed. The primary issues related with these cooking gadgets are their powerlessness to vent smoke out of kitchen which causes critical degrees of indoor air contamination [3, 4]. The utilization of customary powers may have genuine ramifications for human wellbeing. Regardless of the innate drawbacks related with conventional energizes/stoves, dominant part of the provincial populace use them. Consequently, understanding the elements of between fuel substitutions is significant as an ever increasing number of families gain admittance to present day energizes in rustic regions. At present, the procedure of fuel exchanging in rustic territories is ineffectively comprehended [5]. The greater part of the present comprehension about between fuel substitution originates from urban contextual analyses that essentially depict the way toward moving from biomass energizes to a higher worth current fuel as a direct single direction process driven by expanding family unit pay [6]. According to capita salary builds, family units for the most part change to cleaner and progressively effective vitality frameworks for their household vitality needs (for example climb the "vitality stepping stool") [7]. In any case, the image is regularly perplexing as in numerous rustic zones, family units frequently utilize a "different model" of stove and vitality use in which families stretch crosswise over at least two stages of the vitality stepping stool and fuel substitution is regularly halfway [8]. Individuals utilize different energizes to get vitality security [9]. Other than monetary reason, there are some socio-social rehearses that impact individuals' fuel decision. The present exploration shows fuel use design at family level and factors impacting fuel decision in a town, Nuna Majra of Haryana, India,

II. METHODS

The country site chose for the present exploration was a town, Nuna Majra of area Jhajjar, Haryana, with geological directions 28 40⁰ north and 76 52⁰ east, which was arranged almost 40 km northwest way from the Indian Institute of Technology,

Manuscript published on November 30, 2019.

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Delhi. In light of the stratified straightforward irregular testing method, 250 family units were chosen for collecting essential information on a few family unit level parameters through way to-entryway study of families. Stratification of town based on standing was done to gather information from every stratum through a semi-organized survey. Different arrangements of data on financial, statistic and lodging qualities were acquired. Survey was created based on the kind of fuel, amount of fuel use, techniques for acquisition, spending example of house-hangs on fuel assets, sort of stove being used, accessibility of fireplaces, varieties of kitchen (size, ventilation), cooking practices and cooks inclination for a specific fuel. To evaluate the monetary state of the family unit, Standard of Living Index (SLI) was pursued according to Census of India rules [10]. Twenty four hour review was utilized to evaluate the time spent by every family unit part in the kitchen and the answers were affirmed by the specialist's perception according to practicality. All the essential information was coded; twofold passage was made for information cleaning and approval for further exploration through SPSS for windows form 11.5.

III. RESULTS & DISCUSSION

A. Statistic, family unit, and kitchen attributes

Table 1 – Background characteristics of households.

	No.	Percentage
<i>Type of house</i>		
Kuchha	0	0
Semi Pucca	40	16.0
Pucca	210	84.0
<i>Availability of separate kitchen?</i>		
Yes	210	84.0
No	40	16.0
<i>Kitchen type used for cooking</i>		
Separate indoor kitchen outside the house	50	20.0
Open air cooking outside the house	20	8.0
Separate indoor kitchen and cooking in open	150	60.0
Indoor kitchen with partition from living room and cooking in open	20	8.0
Cooking in living room and cooking in open	10	4.0
Total	250	100
<i>Size of kitchen</i>		
Small	170	68.0
Medium	50	20.0
Large	30	12.0
<i>Ventilation in the kitchen</i>		
Poor	80	32.0
Good	140	56.0
Moderate	30	12.0
Total	250	100.0

Most of the family units outlined were of low to medium earnings, with the fundamental occupations either being works in government or horticultural independent work. House has been grouped dependent on the material utilized. Eighty four percent of the houses were Pucca houses, having a separate kitchen. Individuals were utilizing more than one sort of kitchen/cooking region. A blend of discrete indoor kitchen and outside cooking was accounted for from 60% of the exploration house-holds. Just 20% family units prepared their nourishment in independent kitchen, the rest cooked in open despite the fact that they had a kitchen in the house. In a large portion of the families, kitchens were respectably ventilated

by having an entryway and a window. In 32% of the family units, the kitchens were not having any window and consequently were ineffectively ventilated (Table 1).

B. Fuel attributes

A large portion of the families are using more than one sort of fuel for regular residential vitality needs (Fig. 1). Sixty eight percent family units were utilizing a wide range of energizes accessible to them (wood, crop buildup, manure cake and LPG). For warming water, 48% of them were utilizing excrement cake and harvest buildup. Numerous houses were utilizing submersion bars for warming water in winter season, however because of successive power cuts, power was not an entirely dependable source. So without power, the families depended on fertilizer cakes. Dominant part of the families didn't utilize any fuel explicitly for space warming, while at the same time cooking and warming water give it in a roundabout way. In any case, just during extraordinary winter season (December and January) fuel wood was being used by certain families for space warming. The family units that raised cows utilized excrement cakes for milk stewing and for making cows feed. Both these exercises contribute essentially to indoor air contamination levels of the family units. In rustic territories, biomass fuel use is pervasive over all salary gatherings and change to cleaner fills has been extremely moderate, with over 80% of provincial family units utilizing wood, manure, crop buildup or every one of them alongside LPG. The utilization of LPG as the essential cooking fuel was basically non-existent among country family units of the examination territory aside from the top 12% of salary gatherings. The decision of cooking fuel in rustic zones depends to a great extent on their accessibility and cost. Fuel wood from woodland assets and waste cakes from raised steers at family units were in bounty in the examination region. Essentially, a lot of harvest buildups from mustard, cotton, and vegetables were created and along these lines effectively accessible to the individuals because of serious farming practices around there. Harvest remainders are viewed as the least fortunate type of vitality sources as they consume rapidly, and the fire is generally hard to control. Still the higher level of families from rich rancher use crop squanders for cooking because of plenitude of its accessibility from their very own properties with no additional expenses.

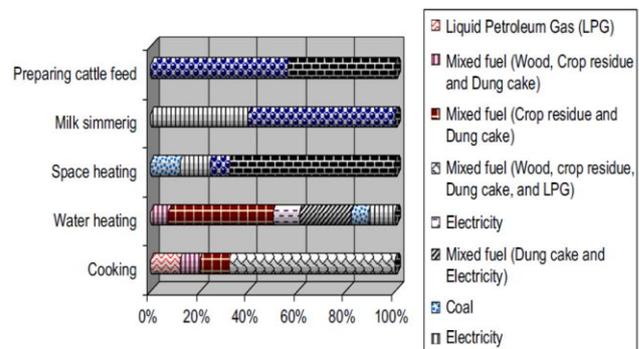


Fig. 1 – Type of fuel used for different activities at home.

C. Stove qualities

Physical access to LPG was high (76%), and supply of gas chamber was dependable in the examination town as it was well connected through street transport (see Table 2).

A few families have been utilizing LPG for very nearly two decades, notwithstanding; just 12% families utilized LPG alone for all vitality prerequisites at family level and were principally from the high-pay bunch family units. The rest of the families were utilizing LPG alongside biomass fills. Lion's share of the exploration family units utilize customary stove for biomass powers called 'chulah' for cooking.

This stove has no stack and comprises of three blocks plastered with mud to frame U shape with one side left open to nourish fuel. Strikingly, there are clear inclinations among cooking rehearse for utilizing LPG and biomass fuel. Individuals much of the time use LPG stove for planning tea and for cooking vegetables, while conventional stove for getting ready bread (Chapatti) because of their conviction that Chapatti become crispier and delectable whenever cooked in Chulah. This demonstrates because of social and social reasons, total change to cleaner powers presently can't seem to be emerged in the exploration town. No family unit was having an improved biomass stove with stack. The projects started by Government of India to improve the stove's proficiency and scatter improved models demonstrated unimportant effect in the exploration territory, and along these lines conventional Chulah still prevails in country Haryana. At the point when biomass fills are utilized in straightforward cooking stoves, they produce significant measures of dangerous toxins. In family units with restricted ventilation, exposures experienced by family individuals, particularly ladies and little youngsters who spend a huge extent of their time inside, have been estimated to be commonly higher than the World Health Organization [10] and National rules set by the Central Pollution Control Board [11]. This can prompt intense respiratory problems, especially for women and children.

Table 2 – Stove characteristics.

	No.	Percentage
<i>Type of main stove</i>		
Simple chulah	220	88
Modified chulah	Nil	Nil
LPG stove	30	12
<i>Having LPG connection</i>		
Yes	190	76
No	60	24
Total	250	100.0
<i>When LPG stove is used</i>		
No LPG connection	60	24.0
For all cooking purposes	30	12.0
For preparing tea	10	4.0
For preparing tea and during some urgency	30	12.0
For preparing tea and for cooking vegetables	120	48.0

D. Spending time close to fire

Table 3 – Mean duration (in hours) spent by household members in kitchen/cooking area.

Age groups	Time spent in kitchen (h)
Children (0-5 years)	1.4
Children (6-15 years)	1.2
Female (16-60) years	5.0
Male (16-60) years	1.1
Female (61 and above) years	4.4
Male (61 and above) years	2.4

Gender orientation has likewise been all around perceived as a social measurement among the populace dealing with who are presented to indoor air contamination. Ezatti and Kammen demonstrated that the gender orientation impact on intense respiratory diseases in provincial Kenya is mediated through the measure of time spent in cooking [12]. In this examination it is clear that ladies matured 16–60 years invested most extreme energy in kitchen as they are associated with cooking, demonstrating that ladies are increasingly influenced by indoor air pollution, while older individuals and kids underneath five years old who remain inside, however not really in kitchen, are likewise presented to the destructive impacts of indoor air contamination (Table 3). Youthful male individuals were least presented to kitchen smoke as more often than not they are outside the home. Ladies are the fundamental recipients of a change to cleaner energizes on account of better wellbeing, yet additionally in light of taking out the drudgery of fuel assortment. The spared time can be spent on relaxation or pay creating interests. Improved cooking innovation with cleaner-consuming powers will likewise diminish the dismalness and mortality related with indoor air contamination. Be that as it may, supply conditions in country regions support the utilization of biomass for cooking in view of its low work costs and the prepared accessibility of free biomass. This recommends the successfulness of monetary instruments, for example, changing relative fuel prices or expanding salary comparative with fuel costs, in advancing a change from conventional biomass to oil powers in provincial regions would have genuine impediments. In this way, more town level vitality thinks about are expected to comprehend different components influencing cooking fuel decision at family level. In this manner, an area explicit vitality review could be helpful for creating accessible mediations for introduction decrease.

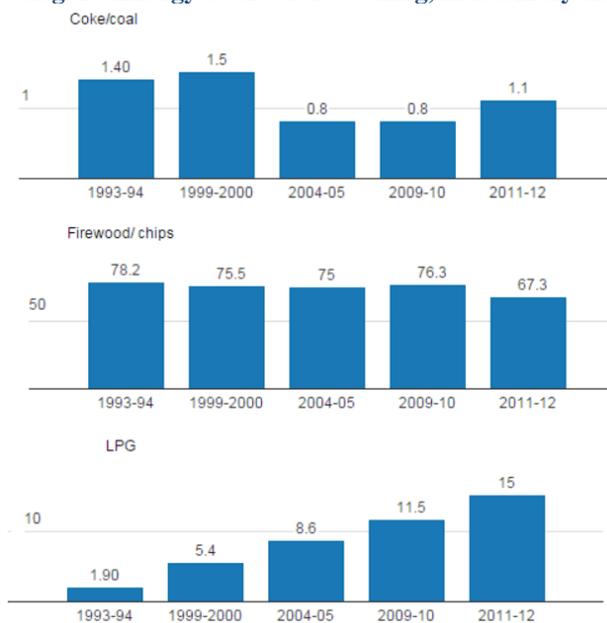
E. Random Geographical Survey

Over 67% of rustic families in India still rely upon kindling or wood chips for cooking. This is a decrease of just 12% more than two decades, as per the most recent information discharged by the Ministry of Statistics. The utilization of condensed oil gas for cooking in provincial territories has expanded from 2% to 15% of families, in this manner there is an expansion of 7.5 occasions. About 10% of rustic family units still cook with excrement cakes, a peripheral tumble from 11.5% (Fig. 2).



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Fig. 2 - Energy Source for Cooking, Rural Haryana



Figures in %

Around one million passing are accounted for yearly in India because of family unit air contamination brought about by exhaust from cooking, warming and lighting exercises, India Spend had prior announced.

IV. CONCLUSION

There are various elements influencing the example of family's fuel use. Additionally there are monetary, specialized, social, and conventional imperatives to finish changing to cleaner fills. Given the circumstance it appears that total changing to cleaner powers like LPG, biogas, and power is hard to accomplish in not so distant future. The interest of biomass powers may not vanish as quick as might be anticipated on an unadulterated fuel change approach. So we should go for feasible relief measures to diminish indoor air contamination at house-hold level. These incorporate conduct change to limit introduction, better lodging structure, more noteworthy ventilation of smoke, and utilization of stoves and powers with lower outflows.

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