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ABSTRACT

This study on the Impact of Structural Adjustment policy on the Energy Crisis and the Environment: A Gender Comparative Study of Rural and Urban Households was carried out in Kampala and Mbale Districts of Uganda, between the months of January an May, nineteen hundred and ninety five.

The major objective of the study was to analyse the impact of the structural Adjustment Programmes (SAP) on household energy among the rural and urban dwellers in Uganda. The study further aimed to ascertain the adaptation strategies of both men and women and their effect on the environment.

For data collection, ;the Participatory Rapid appraisal (PRA) or Participatory Learning and Action (PLA) methodology was employed.

The result of the study is that the structural adjustment policies on the energy sector enacted by the Ugandan government have had varying effects amongst different categories of the rural agricultural producers and the urban households. It was therefore found that some households gained while others are still vulnerable.

In conclusion, the energy crisis has had a negative impact on the rural than on the urban environment. Women-headed households who have no alternative but to continue to depend on scarce, monetized fuel wood are particularly affected.

1. BACKGROUND

In Uganda, there is extreme dependence on the land and by the majority of the people the biomass-based economy. while coffee forms the bulk of exported crop in Uganda, petroleum forms the major imported energy. However, due to the falling coffee prices on the international markets and the global recession, Uganda has experienced a moving energy debt. This has forced the Ugandan government to reconsider its policy on the energy sector. The broad government policy on the energy, as outlined in the Structural Adjustment programme (SAP 87/88) is therefore for the reduction of the imported energy burden on the Balance of Payments (B.O.Ps) by making maximum effective use of the known potential domestic source of energy.

Nonetheless, in the short-run, this regorous measures by the Ugandan government has been a source of disaccord as regards the economic and social benefits, and costs on the households. The macro-economic reform has set in motion certain meso-level changes i the factors and markets as well as in the delivery and quality of services, all of which may directly or indirectly impact on the welfare of low income households. Thus, it appears there is a counteraction between macro forecasts and micro-impacts.

In any case, the character of the micro-impacts may depend on the structure of a given community's source and forms of livelihood. In the environment of Uganda, the rural and urban are structurally different. Sixty-nine percent (69%) of the population live in the rural areas, where they are dependent on natural resources for their livelihood through subsistence agriculture. Whereas fro most of the urban Ugandans, salary is their main source. The urban dweller has two major convenient forms of energy such as kerosene and electricity which, prior to adjustment were heavily subsidized by the state. In rural Uganda, the major energy source is woodfuel (firewood and charcoal), for which government subsidies and price control were minimal or not present. Furthermore, while the convenient forms of energy are marketed by institutions (like Uganda Electricity Board (UEB) and Uganda based petroleum companies), most of the woodfuel is marketed individually. Thus, such structural differences in mode of production, distribution, consumption and expenditure patterns are most likely to be influenced independently by the adjustment measures.

Compared to the locational specific structural differences, the impact of the measures also shows gender differentiations. Even if the economic system (providing food, energy and other household non durables), does not always operate against women, and even if it appears to treat women as individuals in their own right, the structural adjustment measures don not appear gender balanced. This is because of the male-female role distinctions in legal, socio-economic spheres in which women and men operate in the household. Gender remains a fundamental principle for organising the division of labour within a family and the wide socio-economy. women's reproductive role and care taker roles and the low bargaining power within a household and the wider socio-economy limit their access to, and benefits form the adjusting economy.

However, it ought to be noted that women are a heterogeneous group. women contribute so much to the development of society but the means of production and technologies available to them are rudimentary and inefficient. Also a system in which men have a dominate and women a subordinate position may serve to increase or decrease access to potential benefits that may arise form adjustment, or intensify adjustments negative effects.

It was the purpose of this research, therefore, to investigate the impact of structural adjustment policy on the energy crisis on rural and urban households, with a gender analysis of the social dimensions of environmental degradation so that where necessary, appropriate target interventions could be made on the basis of welfare, efficiency, equity and empowerment considerations.

1.1. Problem Statement

The removal of subsidies on electricity by the government within the framework of structural adjustment programme coupled with constant adjustment in domestic prices of both crude and petroleum products to reflect international movements leads to a dramatic shift from utilisation of electric power and kerosene to charcoal and firewood at household level in Uganda. This is because electricity is no longer affordable by urban dwellers nor is kerosene by the rural poor.

This shift to charcoal and woodfuel for cooking brings about increased exploitation of forest resources. The increased demand for charcoal and woodfuel has increased its prices making its affordability also difficult for a majority of urban and rural dwellers whose incomes are falling due to loss in demand for their produce (Rural dwellers) and retrenchment (Urban dwellers).

with increase in price indices, the majority of the low and middle income earners cannot afford paraffin. There is a possibility for women-headed households to trade off food to buy paraffin. In such a situation budgetary planning at household level is critically affected.

With decrease in wage rates for men and increasing rate of retrenchment by urban dwellers, it is possible for men to be dependent on women's income which is already constrained. Definitely, this influences power changes at household level.

By any event, the impact of removal of subsidies on electricity and the utilisation of charcoal and fuelwood at household level is affected differently. The extent of the shift from electric power to charcoal and fuelwood varies. Furthermore, with increased demand for charcoal and fuelwood leading to increases in process, both the rural and urban dwellers devise different copping mechanisms in the context of falling incomes and gender relations.

Similarly, the extent to which removal of subsidies leads to improvisation of the rural and urban dwellers and how the immiserrization influence the environmental integrity and sustainability varies with circumstances.

Nonetheless, the exact mechanisms through which the urban and rural household energy is affected by and how they respond to the effects of Structural Adjustment and dependency on the international markets for domestic petroleum products are not knowable. An empirical understanding of how gender dynamics interact with environmental changes is also not clear -- an area which necessitated empirical investigation. Thus, the following questions became pertinent in attempting to address the problem:

1. What were the changes in household energy consumption among "general population" urban and rural dwellers, and what were their characteristics in terms of gender; employment status, income levels, geographical location, class and age?

2. What factors did account for consumption pattern changes?

3. What changes were taking place in the ratios between fossil, non-renewable and non-fossil renewable energies with respect to production and consumption among households.

4. How did households get access to resources required for production and exchange?

5. To what extent were production returns meeting the workers/producers household energy?

6. What consumption strategies and adaptive behaviours were designed to safeguard energy intake?

7. How adequate were these strategies and adaptive behaviour?

1.2. LITERATURE REVIEW

Literature addressing the incidence of structural adjustment on the energy crisis and the environment has focused on several broad themes such as: the origin of the energy crisis; factors influencing the energy crisis; poverty and gender; structural adjustment effects; socio-economic development; available alternatives to the energy crisis; Management of the crisis; and sustainable development in Africa.

A number of studies have been conducted on the Energy Crisis and the Environment. Mwambu (1992), O'Keefe (1990) and Pearson (1990) argued that the 1990s began with serious concerns about development and growth in large parts of the developing countries. The African Continent has been the main focus of many of these concerns, especially since recent years have experienced an actual decline in economic output in several countries thus leading to a gloomy outlook for removal of poverty on the African Continent in the near future.

Furthermore, Mwambu (1992) argued that the recent gulf crisis which rapidly sent oil prices to unprecedented levels has had serious impact on the poorest countries of the world and these new face energy issues which were not experienced in the past or at least which were felt in proportions that were generally manageable and tackled reasonably well during the 1970s and the 1980s.

On the contrary, Taschak (1979) observed that price hikes initiated by the Organization of the Petroleum Exporting Countries (OPEC) were responsible for the impending energy crisis, because it meant that foreign exchange costs for such inputs would become increasingly prohibitive. Added to this, Jogensen (1981) noted that there was also the fear that at on-going process adequate supplies are no longer available. Howe (1979) remarked that on realisation that there are physical limitations to the world, availability to such fuels (apart from the financial costs) has led for search for alternatives among renewable energy sources (solar, hydro-electricity, biogas and wood), not merely as substitutes for the existing requirements but also to provide for the future. /Consequently, Agarwal (1986) and Clones (1991) noted that the most important source of renewable energy presently in large use in parts of the Third World, especially Africa, is fuelwood (charcoal and firewood). This is also true in Uganda (Aluma, 1989).

Foley (1986); O'Keefe, *et al*. (1986) argued that fuelwood is a third world crisis, and accordingly, the majority of wood-based consumers are those in the "poverty trap". However, Early (1975) argued that within the Third World, it is felt more severely in some countries than others. For example, while in African countries many have a per capita consumption of below 1.0m3, some countries like Chad, Sudan and Uganda consume over 1.5m3 of fuel. Fluerent *et al*. (1978) argued that the important factor influencing variation in consumption among countries where fuelwood is an important energy source, is the relative availability of wood. To Hosier (1984), locational availability also leads to significant variations in consumption within countries. In Tanzania, for instance, households near wooded areas were noted to consume over three times the woodfuel consumed by households in areas with little or no surrounding woodland. However, Montagne (1989) noted that the absence of fuelwood in the area greatly extended women's workload and this further affects their health which is already weakened by poverty. Foley (1986) remarked that increase in energy supply and consumption in the developing countries is not a question of providing for luxury, but a requirement for the removal of poverty. Since for the majority of the population, basic services such as health-care, education and transport require a large increase in energy supplies.

A number of studies have been conducted on the impact of adjustment on the poor. Cornia et al. (1987), Manyire (1992) and World Bank (1990) noted that low growth rates and sluggish development in the 1990s are in fact likely to increase the number living under poverty conditions and this would only be reinforced further if the energy sector cannot grow at a satisfactory rate during the decade. Jewffry (1989) noted further that the energy crisis has different rural-urban implications. On one hand, the availability of alternative energy sources is much higher in urban than in the rural areas. Also as urban demand increases and firewood sales become profitable, the quantities flowing form the rural areas rise to meet the urban requirements. However, Agarwal (1993) observed that fuels available in urban areas are largely monetised, whose prices are assumed to increase commensurate with price and market liberalisation, adjustment programmes were found to have deleterious consequences for the urban poor, especially women headed households who cannot afford cash expedition than the rural women who usually would be able to forage some crop residues. On the other hand, Buch and Bhatt (1980) noted that as distance to be covered increased, men have become involved with the fuelwood trade because few women have access to any form of transport needed to carry wood over long distances. On a further note, this shift is roles of wood collection may free women of one of their most tiresome chores, but they were quick to caution that at the same time, it may deprive women an important source of income.

Tockman (1989) observed that structural adjustment policies enacted in response to the recent economic crisis have affected the poor, many of whom live in urban areas. Aboyade (1988) noted that adjustment programmes concentrated on improving the balance of payments and managing debts rather than protecting the vulnerable and impoverished most of which are women and children. Buvinic *et al*. (1988) noted further that adjustment programmes have focus on raising the productivity of women themselves rather than on women as a part of households or families. Messiah (1986) further added that structural adjustment programmes undermined attempts to ensure and maintain an adequate livelihood for women and those in their care, especially through increasing urgent needs for cash to buy basic necessities where energy is constituted, but she was quick to caution that sociological issues were also involved. Similarly, Stryker (1989) observed that the manner in which economic structural adjustment reform influence the natural resource base of the poor is a current source of concern. He argued that most of this adjustment and reform is not directed towards solving environmental problems because the reduction of governmental expenditure limits the capacity of environmental agencies to enforce public regulations of natural resource use. Also, the change in tax and incentive structure to align domestic prices more closely with the world market usually raises the prices of exportable which increases pressure on the land. Consequently, Montagne (1989) noted that in the rural areas, women are the household members having the responsibility for domestic tasks, including fetching firewood and water. Accordingly, in the absence of developed infrastructure, women heavily depend on naturally available soil, water and woodfuel. Thus any depletion or limitation of access to these undermines ability to maintain survival of their families.

Agarwal *et al*. (1993) in exploring the socio-economic implications of the severity to its impacts, noted that the shortage of fuelwood is not a hardship by all equal measures. He further contended that implications

are more serious for the poor who usually depend for supply, on what they can gather freely, and commercial energy supplies is the acute problem of energy for them. Hence, if they cannot gather firewood, their nutrition suffers, while the well-off either purchase firewood if available at the price or substitute it with other fuel. To strengthen this, Kizito (1993) observed that due to exorbitant tariff changes being imposed by Uganda Electricity Board (UEB) on consumers, most city residents had to abandon electricity and turned to firewood. Thus, this shades light on the social differentiation question on the energy crisis and tendencies of different social groups to use different energy sources. Hence, social differentiation in access to means may largely account for the energy crisis.

On attempts to introduce commercial energy, Tanzer (1979) noted that dependence on fuelwood is closely related to the dynamics of supply-demand that operate between the oil-importing areas. Accordingly, the unequal access to non-oil-rich third world countries vis-a-vis the rest of the world constitutes the international dimensions of a country's internal crisis.

Aluma (1989) noted that energy production, supply and utilisation have diverse implications for Uganda's socio-economic development and environment. He further argued that while economic growth indirectly depends on the availability of energy, the multifaced process of energy use ranging from harvesting to end-use can have adverse effects on the environment. Furthermore, Eckholm (1976) and Digerness (1979) noted that denotation of forests (desertification) can have a range of devastating consequences both for society and for the individual.

At the social level, these relate to effects of soil erosion, flooding, climatic micro-effects, the spread of deserts, drying of previously perennial streams due to the rapid siltation of rivers and reservoirs. For the individuals, in addition to the direct implications of ecological destruction are the direct ones relating especially to decreasing supplies of wood for fuel. As a result, Stryker (1989) noted when confronted with environmental degradation that reduces the availability of fuelwood or water, poor women often have no other recourse but work harder in an effort to just stay even. Buvinic and Margaret (1988); Motagne (1989) noted that intense exploitation leads to killing of live trees and shrubs rather than the harvesting of dead wood left from the growth and regeneration of trees. O'Keefe et al. (1986 observed that where adequate fuel is not obtainable, there have been noticeable changes in consumption patterns. Floor (1977) noted that in the African Sahel, some families had to reduce the number of meals cooked. Agarwal (1986) noted a shift to less nutritious food; for example, in Sudan, to conserve firewood, families were shifting away from beans because they take long to cook. similarly, due to fuel shortages, families in the same region were noted to shift from millet to rice because rice takes less time to cook. On a further note, necessity was also driving people in some areas to shift to foods which can be eaten raw, or eat partially cooked food (which could be toxic) or eat left over (with the dangers of food rotting and food poisoning). Hence, he had to caution that all this increases the vulnerability to ill health and infection.

A number of technical fixes to over dependence on fuelwood for domestic, institutional and energy needs despite the diminishing supplies have been used in the past. These include: energy residues, improved stoves, fuelwood plantation and communal wood lots. French (1986) remarked a considerable potential energy value form crop residues. On the other hand, he observed the underutilization of residue fuel occurs for several reasons. first, wood is available in most areas. This wood is usually a residue form wood biomass management. Secondly, most residues are inferior fuels - they smoke, smell and burn too fast and thus make management difficult. Thirdly, simmering is difficult on residues, so that bulk meals can be undercooked. Fourth, residues are frequently seen as socially inferior fuels. Finally, even when wood is scarce, people may still be prepared to forage for wood. Even in the scarcity situation, people do not move rapidly down energy ladder form wood to residues. Rather, they minimise wood before the switch to residues occur. Thus, residues are a fuel safety net that people are generally reluctant to use. similarly, O'Keefe and Munshows (1990) further noted that increased use of residues is not technically viable unless technological combinations are considered and residue use for household energy was not a viable energy strategy. where residues are used as a last resort in sites of fuel deficit, any intervention would probably destroy the energy safety of the poorest of the poor.

Consequently, Shanaham (1986) noted that in petroleum importing regions, fuel security rather than fuel switching is the way household energy is managed. Fuel switching is a risk minimising but not a benefiting strategy and the concept of energy ladder implies a fuel transition as individual household income increased. He further argued that the richest households, in urban areas have access to all technologies, but the poorest, especially female headed sector generally in rural areas, have limited access to both fuel and fuel technologies.

A lot of controversies have been raised with improved stoves as representing a way of increasing efficiency with existing supplies and thus increasing the effective fuel energy available to the household. McCall and Skutch (1987) observed that the difference in efficiency of an improved stove and an over fire is marginal when tests run indoors, thus noting that all such claims about improvements in efficiency need to be viewed with caution. Agarwal (1986) also noted that in reality, many poor households live at a low energy consumption; that a more efficient stove that requires less wood for no overall decrease in firewood use; the same amount may continue to be used but the household may be able to cook more food and or cook more nutritious food. Recent evaluation in Zimbabwe on improved stove programmes indicates that women attempt to employ fuel conservation techniques as far as they can, and are not unaware of the dangers of indiscriminate tree felling. The imperatives of daily life are factual, however, and the need to prepare one cooked meal a day is more immediate than the threat of future deforestation.

CODA and Partners (1990) further observed noted that although improved stoves are economically beneficial, their availability may not imply their being used. People may still prefer buying the traditional and inefficient type. They further observed that stove programmes have largely failed not because of lack of technical expertise but because they were placed in an inappropriate development context. More stove programmes are concentrated where the existing stoves are usually non-monetary items. O'Keefe and Munslows (1990) noted further that, the combination of local artifact, improved with local materials by local engineers and mass production clearly has more potential in urban areas where there is evidence of wood scarcity, where fuel and technology are already monetary goods. Similarly, Mwambu (1992) noted that where "appropriate" technology is designed for the rural woman, it is typically directed at her domestic work rather than her production. He further argued that designing "a perfect" stove for a rural woman is useless when she cannot produce enough household food to warrant the use of the stove. Manyire (1992) noted that the extension workers, who are predominantly men, do not regard women as part of their clientele. He further observed that the woman is denied access to both the technology and technological skills to improve her productivity. Besides, extension services seem to assume the male will be the "go-between" between the extension work and women. Therefore, households which are female headed both in rural and urban areas have nobody to play the role of the go-between. In male-headed households in Africa, men do not cook.

A further oversight in this context has been tree planting schemes. Forestry management involves protection and enrichment of existing forests as well as of new tree-planting schemes. Among the underlying principles in protection and environment would be the maintenance of the long-term balance of tree cutting and regrowth, ;and the recognition of the multiple use aspects of forestry. O'Keefe and Munslow (1990) observed that peri-urban schemes are undertaken because the wood energy problem manifests itself most acutely in towns and environmental benefits of plantations substantially increase quality of life in urban areas. On the contrary, Henry et al. (1994) noted that, the economic considerations are more complex than an initial appraisal would suggest.

French (1988) argued that wood remains the available option to other fuels but was quick to caution that the economic viability of plantations required an assessment of prices of competing fuel resources. Consequently, O'Keefe (1990) observed that if the government was to grow trees and sell them at current wood prices, huge subsidies would be required because a small part of the protected deficit would be met from sales revenue. Added to this he noted that Zambia refused a World Bank forestry fuelwood programme for Lusaka because one of the conditions for the programme was that stumpage fees in rural areas would be population. UNDP/world Bank Study in Mozambique reported similar failure in peri-urban plantation model because it was considered to be a continuation of colonial practices. In rejecting the idea, potential negative effects were: forest plantations are expensive; people are displaced particularly

small women farmers who will provide market garden produce and establishing villages for forestry workers would increase pressure on a limited financial resources.

Fortunately, agroforestry for sustainable development and gender specific analysis dimensions of environmental degradation have recently been recognized to offer good prospects for trickling the fuelwood problem. Pearson and Stevens (1990) noted that intercropping woody biomass with agricultural crops has long been a practice in many parts of Africa. Accordingly, mono-cropping as a case with forest plantations ignores the strength of the African traditional systems, which have been developed over a long traditional systems, which have been developed over a long period of time to cope with the special environmental conditions faced by Africans. Agarwal (1990), Joekes (1992) noted that because women are often disproportionately reliant on natural resources, they have a relatively high awareness of the environmental problem which affects their livelihood. Oniongo (1990) noted that women when they have opportunity. They have shown willingness and ability to act to protect and rehabilitate their environment.

1.3. Justification of the study

Analysis of the impact of structural adjustment policies tended to remain at macro levels. The micro effects of these policies had not generally examined the gender perspective.

Access of power sources for cooking, heating and lighting at the household level especially female headed households was assuming crisis proportions, yet there was a presumption that Structural Adjustment policies were to benefit the population equally, hence their impact on production, consumption, thus welfare, could be generalised. However, there were significant differences in the production, expenditure and consumption patterns between the urban and rural households and there were also gender differences.

1.4. THEORETICAL FRAMEWORK

The study was conceived in the following theoretical framework. That the effects of removal of subsidies, retrenchment and the market liberalization on rural and urban dwellers access to household energy could best be understood and accounted for in terms of:

a. The tradability of production of exchange (production and expenditure) pattern

b. Intra-household distribution of income.

c. Social differentiation in terms of access to energy sources and inputs, employment status, level of income and resource inflows/out flows as determined by gender, location and household socio-economic characteristics.

1.5. OBJECTIVES OF THE STUDY

The purpose of this study was to analyse the impact of structural adjustment programme on household energy among rural and urban dwellers in Uganda. Further, to ascertain the adaptation strategies of both men and women and their effect on the environment.

1.5.1 SPECIFIC OBJECTIVES

a. To examine factors leading to the energy crisis in urban and rural areas, their sources of energy and impact on the environment, personal income, gender and the household.

b. To contribute knowledge on the exact relationship between energy crisis and the environment in both rural and urban areas.

c. To contribute knowledge on the circumstances under which both men and women operate, their constraints and how they view their energy problems and options.

d. to use such knowledge as would be generated to assess the survival strategies the population employed (by gender) and why?

e. to assess the impact of those strategies within the framework of structural adjustment on the energy crisis and the environment of both the rural and urban areas.

f. to generate data that would be used as vital inputs into energy and environmental policy programmes.

2. METHODOLOGY AND SOCIO-ECONOMIC CHARACTERISTICS

2.1. Study Area

Basing on the proposal guidelines, two parishes were selected for Mbale and Kampala district for the study. The criteria for selection included the following. The area had to be:

a. located within rural areas of Mbale, and urban areas of Kampala;

b. population representing different social groupings particularly pertaining to gender;

c. capable of providing information and examples of the whole district's energy crisis and environmental problems;

d. together encompassing both energy and environment subject to rehabilitation and those vulnerable to environmental deterioration; and

e. with a poor state of infrastructure/services.

Using the above criteria, the areas identified as suitable units for the study were; Manjiya County and Rubaga Division in Mbale and Kampala districts respectively.

Manjiya is located in the south eastern part of Mbale district, on the western foot of Mt. Elgon. It is accessible by a single murram road about 40 kilometers east of Mbale town in Eastern Uganda. Mbale is about 250 kilometers from Kampala city centre.

The county has a high rough terrain and remote, but with rich volcanic soils with a biomodal rainfall pattern. the soil fertility, favoured with a good climate have given rise to a high population density. the people are predominantly peasants growing coffee and bananas as male crops as well as the chief commercial and subsistence crops. The female crops include beans, cassava, maize, yams and horticultural crops like tomatoes and cabbages, usually intercropped with banana and coffee. Due to land scarcity limited number of livestock such as cattle, poultry and goats are kept.

Land tenure is predominantly customary. On average, each individual owns less than one acre of land. Being a patriarchal society, the land is under the control of clan leaders who are men. The landless have to rent, but this is minimal. Due to land scarcity, the land is intensively cultivated leading to low productivity. Most land is acquired through inheritance form the parents. This gives chance to only young

men of above 18 years, particularly after undergoing the circumcision ritual. This process leads to lack of land by the young women and excessive sub-division and fragmentation of existing land resource. However, the relatively well-off acquire land by buying and leasing off those who are vulnerable. Nevertheless, this is a rare occurrence because such land costs dearly, and clan members are constrained to sell land to non-members unless consent is sought form the clan leaders.

This panorama is further complicated by the fact that owing to the fluctuating prices of coffee on the world scene (i.e. uncertain or lower returns form the coffee sales) income level per capital has dropped drastically. This has led to widespread poverty, low standard of living and even inability to pay school fees for some children by parents. The deficiency in school attendance among boys and girls coupled with the cultural influence of circumcision practice has indirectly contributed to the prevalence of rampant socio-economic problems facing not only the people in Manjiya country but Mbale district as a whole.

Consequently, the overcrowding conditions arising from a combination of livelihood makes Manjiya a hot spot for environmental problems ranging from non-sustainable agriculture to energy crisis.

Kampala District, according to the 1991 population and Housing Census is 100% urban. Its population is estimated at over 774,000 people spread over 5 administrative divisions at RC5 level, namely Central, Kawempe, Makindye, Nakawa and Rubaga Division. Rubaga division lies on the western side of Kampala city. It is accessible by a number or roads which transverse the whole division. The division includes part of the Kampala metropolitan areas of the chief business and commercial streets, government, parastatals and other prganisations' offices. The out laying residential estates for civil servants and lower cadre employees, including privately built residences for business entrepreneurs spread out within the whole division. Rubaga Division also hosts political headquarters/offices of the Buganda monarchy and it is the capital of Buganda.

Rubaga division as an urban area has numerous social problems arising out of poor socio-economic conditions coupled with the intensive struggle for survival among its diverse inhabitants drawn form virtually the whole country. These include very poor housing conditions poor sanitation and water sources and expansion of slums.

Land tenure is mixed but predominantly, mailo land system. Most residents are tenants under the City Council authority and Buganda Land Trustee Board. In this case, both men and women purchase land but inheritance and control of land by the males cannot be ignored. This process leads to acquiring land only for housing purposes. Therefore, the natural environment is destroyed leading to dependence on the market for most of the basic needs.

Accordingly, the devegetation situation arising from the urbanization make Rubaga Division and Kampala as a whole a hot spot for environmental problems leading to the energy crisis.

2.2. Data Collection

After clearance of the study with the National Council of Science and Technology, the research team embarked on an intensive reading of relevant literature. The main sources of literature were books, periodicals, journals, magazines, newspapers, research reports and various forms of unpublished materials. The team constructed appropriate research instruments which were to be used in the Participatory Rapid Appraisal. These included interview and focus group guides (See Appendix). Accordingly, the research instrument were pre-tested in the study area. The study area was Bunabutiti parish in Bushika Sub-County of Manjiya county. Similarly, Kasubi parish in Rubaga Division, Kampala district. In each parish, twenty people, both men and women were constituted to form the participatory rapid appraisal groups. Group discussion guidelines were used and the following tasks were undertaken:

a) Focus Group Participants

These included:

- Resistance Council leaders (2)

- Youth Council Representatives (7)

- Women Council members (3)

- Chiefs/elders in the area (2)

- Residents in the area (6)

The mobilisation for participants was done by the Local Council Chairperson in the rural area. The forest ranger and his staff formed another participants group of Environmental issues technocrats.

Similarly, in the urban area the modilisation was done by local council members at the parish level. However, the composition of participants for both rural and urban had to be maintained.

b) Parish Mapping

The research team requested the participant to draw the parish maps of the stuffy areas. This was done to gauge the participants awareness of their environment. On these maps, major ecosystems and human activities were located.

For the rural areas, the major human activities included agricultural production and non-farm activities like lumbering, charcoal and fuelwood exploitation areas. For the case of the urban areas, the parish maps mostly located the major fuel consumption and production (selling) centres.

c) Seasonal Calendars

The research team explored the seasonal constraints and opportunities by diagramming changes by month throughout the year. The participants drew patterns of rainfall, ecological changes, agricultural production (rural), non-farm activities (Rural and urban), Marketing of energy and crops, Cases of hunger, financial obligation, migration and use of natural resources.

d) Activity Profile and Daily Routines

This involved exploration of daily patterns of both men and women thorough profiles and routines, using charts for each hour of the daily's typical activity, amount of effort, time taken and location of work. This was done for each household of participants.

e) Wealth Ranking

In doing this task, groups or clusters of household were to be identified according to relative wealth or well-being. This was useful for:

leading into other discussions on livelihood and vulnerability

producing a baseline against which future interventions could be measured.

producing key local indicators of welfare and well being.

f) Semi-Structured Interviews (S.SI)

These were guided interviews and listening exercises in which information relating to the decision making on utilisation of fuelwood and other alternatives at household level and the role of women in earnings, use and control of the household income were focused. In this case, a total of 64 women were interviewed: forty (40) for the rural and twenty-four (24) for the urban. The women interviewed were identified by the PRA participants.

In order to judge the current local organisational and institutional framework under which the various local groups were engaged in protecting the environment and energy conservation seven (7) Resource Managers at local level in the rural areas were interviewed. In the same way three (3) UEB official at the headquarters were interviewed.

2.3. Data Analysis

In-depth interviews using PRA methodology were recorded on manilla cards and in notebooks. Then the content was analysed by the participants along the major variables and themes of the study. Broad categories of the variables were pinpointed and later developed to differentiate and describe ideas expressed by participants as the study objectives. These categories have been broken down to indicate the attitudes, perceptions, experiences and responses.

The findings form the interview schedules were edited, closed and tabulated. However, form the categories developed during the focus group discussions, the research team was unable to assist the participants in developing a framework of action for implementation due to participants unwillingness to take responsibility for managing their won resources for fear of political and economic implications.

2.4. Socio-economic Characteristics

A total of one hundred and thirty four (134) respondents were interviewed in this study. All together, of the 64 respondents of the semi-structured interviews, 40 were form the rural and 24 form the urban settings. The rest were Resource Managers in the rural areas; 3 Uganda Electricity Board officials and 60 were members of the focus group discussing. The socio-economic characteristics were considered to give vital background information to the problem under study.

2.4.1. Age Composition

The distribution of respondents by age indicates that the youngest was 16 and the oldest was 65 years of age. However, as shown in Table 2.1 below, the majority (89%) of the respondents were aged between 16 and 55 years of age, while (11%) were aged 56 years and above.

Table 2.1: Age Distribution of Respondents

Age	Location			
	Rural	%	Urban	%
16 - 25	8	20.0	10	41.7
26 - 35	12	30.0	5	20.8
36 - 45	8	20.0	4	16.7
46 - 55	7	17.5	3	12.5
56 - 65	5	12.5	2	8.3
Total (%)		100	24	100
Total (n)	40		24	

2.4.2. Marital Status

The results presented in Table 2.2 indicate that 52% were married, 36% were single and 12% were separated form their spouses., Of the single respondents, most of them were the youth who had just dropped out of school due to inability of parents to continue paying school dues (specially for girls). Accordingly, 48% of the households were female headed.

Table 2.2 Marital Status

Status	Rural	Urban	N	%
Married	20	13	33	52
Single	15	8	23	36
Separated/Divorced	5	3	8	12
Widow				
Total (n)	40	24	64	100

2.4.3. Educational Attainment

Education is one of the important indices of modernization, as it can influence people's perception, attitudes and the ways people make their decision. In this respect, education referred to the highest level of formal school attained by the respondent. Table 2.3 indicates the level of education attained by the respondents.

Table 2.3: Educational Attainment of Respondents

Educational Level	Rural	Urban
None	37.5	16.7
Primary	32.5	20.8
Secondary	20.0	41.7
Tertiary Institution	10.0	20.8
Total (%)	100.0	100.0

The findings of the study revealed that education was not fully accessible to the rural respondents who had not attained any level of education. This implies that 70% of the rural respondents had to be tied on subsistence agriculture in the rural areas for their survival. On the other hand, only 16.7% the urban dwellers had no education. This implies that these would not be absorbed in the civil service sector and will depend on odd jobs for survival. The study further revealed that only 10% of rural residents had gone to tertiary institutions compared to 20.8% of the urban dwellers who had attained the same level.

Therefore, the urban location had attracted more of the professionals compared to the rural locations. This means that the professionals had been drained away from the rural areas to the advantage of the urban dwellers.

3. FINDINGS AND INTERPRETATIONS

3.1. Introduction

The main objective of the study was to analyse the impact of structural adjustment programmes on the household energy among the rural and urban dwellers in Uganda. Further, it aims to ascertain the adaptation strategies of both men and women and their effect on the environment. Therefrom, it examines the factors leading to the energy crisis in the urban and rural areas; contribute knowledge on the circumstance under which men and women operate and their constraints and how they viewed their problems and options. It also assesses the strategies the population employ the reasons for and why this and examines the strategies within the framework of structural adjustment on the energy crisis and the environment of both the rural ;and urban areas.

The findings have been analysed according to the following sub-themes:

3.2. Socio-economic Background of Respondents

For communities to initiate and sustain developmental activities like sustainable exploitation of natural resources and protection of the environment, the economic output must be on an increase. Men and women must produce not only for household consumption but for the market as well. They must generate income that is adequate to enable a decent livelihood maintain survival of the family as well as providing basic services like health care and education.

Given such a scenario, the economy of the household is affected by intra-household income and distribution. Accordingly, Table 3.1 shows the major sources of income of households.

Table 3.1: Major Sources of Income

Source	Rural %	Urban %
Farm/Sale produce	57.5	4.2
Salary/Wages	27.5	54.2
Husband/Donations	10.0	8.3
Profits form business	5	33.3
Total %	100	100
N	40	24

The findings above revealed that farming and sale of farm produce was the major source of income for the rural residents accounting for 57.5%, followed by salary or wage earner which accounted for 33%. On the other hand, for 54.2% of the urban residents, their source of livelihood was from salaries and wages. This was followed by business which accounted for 33.3%. Nevertheless, 10.0% of rural dwellers and 8.3% of the urban dwellers depended on donations. In the case of the rural households, these involved old women who got remittance mostly form relatives and their children. For the urban dwellers, these were housewives who were not employed in any sector and depended on husbands to provide everything for household requirements.

However, it was noted through focus group discussions that in both rural and urban areas, some of the salary earners were also engaged in agriculture and petty trade to augment their meager income. The distribution of income over household needs was dissimilar among different households and location. Under such circumstances the rural and urban dwellers were being affected differently under the adjusting economy.

One of the major factor identified as affecting the household income was the household size. Accordingly, Table 3.2 below shows that the dependence ratio is much higher for the rural household.

Table 3.2: Number of Children per Household

No. of Children	Rural %	Urban %
None	35.0	33.3
1 - 5	22.5	54.2
6 - 10	40.0	12.5
10+	2.5	-
Total %	100	100
n	40	24

Surprisingly, 35.0% and 33.3% of both rural and urban household respectively did not have their own children in the household. For both locations, this was attributed to sending children to other relatives. As residents in the rural areas sent their children to urban relatives to earn school fees and or seek

employment, parents in the urban areas on the other had sent their children to boarding schools or to relatives in the villages. Although the above case had occurred, respondents from the urban areas, 54.2% had 1 - 5 children in the household compared to 40% in the rural area who had 6 - 10 children. The large number of children in the rural area was an indication of wealth and an assured source of labour force for farming. However, the average of five children in urban household was an indication of maintaining a small number which can be catered to in all aspects.

The findings revealed that it had become increasingly difficult to have a large number of children in both rural and urban areas which cannot be catered for properly.

Although both the urban and rural dwellers noted that the number of children they had was an optional number, there were complaints that their livelihood had deteriorated. As such, the household heads spent most of their income on subsistence. This affected mainly the rural woman who as a producer had to provide for the whole family. In the urban areas, though, it was noted that although women workers earned income, the problem of providing for the household subsistence lies mainly on the man. The urban women provided only when the husband was not around or when they rally felt that the husband did not have money.

In both the rural and urban areas, it was emphasised that the tasks of providing or supplementing on subsistence lay mainly on women. But the task of meeting major costs like education and health plus rent was a man's responsibility.

Nevertheless, households which were headed by women, had no alternative apart form working hard and meet all the household requirements. Table 3.3 below shows the number of children at school.

Table 3.3 Number of Children at School per Household

No. of School-going Children	**Rural %**	**Urban %**
None	19.2	0
1 - 5	73.1	93.7
6 - 10	7.6	6.3
10+	-	-
Total %	100	100
n	26	16

Table 3.3 revealed that, while 19.2% of the rural dwellers who were supposed to be at school were kept at home while all the urban dwellers who had school age children had put them to school. 1-5 year old category accounted for the 73.1% and 93.7% for the rural and urban households respectively. The above findings revealed that the average number of children at school was five. This number is significantly high for both the rural and urban man, more especially for the urban worker who depends on a meager salary or who has been decapacitated by retrenchment. similarly, the rural man who depends on the non-market may fail to pay all school requirements like tuition fees, uniform, stationery and at the same time meet other household requirement.

From the focus group discussion, it was emphasized that the urban worker suffered most because school due and requirements were very expensive compared to village schools where the fees were subsidized. Women headed households suffer most with the burden of educating their children. Some men had abandoned their families, due to lack of income of fear of burden. Further, it was noted that lack of education for both the rural and urban children was an indicator of poverty for the present and this would continue if a viable solution is not found.

Although the respondents expressed failure in management of their own children, the study revealed that some households did have whom they support. Some of these stay with them permanently or occasionally visit for some assistance.

Table 3.4 gives the details of the number of households with dependents.

Table 3.4: Number of Dependents per Household

No. of Dependents	Location	
	Rural %	**Urban %**
None	40	34
1 - 4	40	50
5 - 8	20	16
9+	-	-
Total %	100	100
n	40	24

It is interesting to note that 40% and 34% of rural and urban households did not have dependents. This indicated a breakage in ties among relatives in the adjusting economy where everybody had to carry his or her own burden.

The study revealed further that 40% and 50% of the rural and urban households respectively had 1-4 dependents. Still, the rural residents would support more dependents. Twenty per cent (20%) of the rural had 5-8 dependents compared to only 16% of the urban household. Nevertheless, the number of dependents added another burden to both the rural had 5-8 dependents compared to only 16% of the urban household. Nevertheless, the number of dependents added another burden to both the rural and urban households. The large number of dependents in the rural as emphasised by one member of the focus group discussion was an indicator of poverty and thus leading to a poor well-fare in the household, since in such a household it was not possible to cater for everybody's need. Definitely, such dependents could not be catered for in everything. Under normal condition a large family in rural households is viewed as a source of cheap labour.

The study further revealed that in both the rural and urban locations they received children from their relatives because in either location they could not be catered for properly. Apart form the permanent dependents in the households, the urban residents received occasional relatives who came to seek some financial assistance. That is why reacting to this, a participant in the focus group discussion emphasize her distaste for visitors whom she saw as drams on her family meager resources.

Regarding the type of assistance given to the dependents, as Table 3.5 shows, this included feeding or subsistence, clothing, medical care, accommodation and general welfare.

Table 3.5: Assistance Rendered to Dependents

Type of Assistance	Location			
	N	%	N	%
Subsistence and	15	16	31	76
general welfare	18	10	28	70
School fees	11	12	23	58
Clothing	14	10	24	60
Medical Care				

The study revealed that in both the rural and urban households, subsistence and general welfare accounted for 76% of the assistance rendered to dependents.

Whereas 70% of the dependents were given school fees and 60% medical care. Subsistence and general welfare accounted for the highest percentage because some of the dependents were adults who had failed either to secure jobs in any sector in the urban areas or were women who were adult enough to be married but forced to remain single for lack of husbands. In the urban areas during the focus group discussion, respondents noted that young men had opted to be singled because it was increasingly becoming difficult for them to be sure of where to get the next coin to enable him survive the following day. similarly, women at least who were able to find shelter for themselves were not ready to get married to men who cannot guarantee to provide for her. Thus adjustment was increasing a gap between young men and women. Some women noted that their friends had divorced because men were not living up to their responsibilities as they fail to provide for the household needs.

Nonetheless, school dues and medical care services for both urban and rural producers were reported to be the most consumer of the respondents income. In any way, this had to be provided in order to alleviate poverty. It was more serious in the rural area because, the medical facilities were very far and the culture of cost sharing had not been properly inculcated among the people. Though it would have been possible with intermittent income form sale of produce, this increased the sufferings of the women and those they cared for.

In conclusion, almost all households interviewed emphasized that wages and salaries were increasingly becoming too Small to meet their basic requirements such as sugar, soap, paraffin and food. Those who are depending on business profits, reported that commodities were not selling fast thus compounding the economic crisis. Similarly, for the rural dweller, while foodstuffs were expected to be obtained from the farm and the garden, cash had to be raised for purchase of industrial products. This comes form the insecure income obtained form seasonal sale of food crops like beans, maize and coffee. Such situations at household level have compounded the poor livelihood of both the rural produce and urban worker.

3.3. Energy use and Access

to ensure sustainable development, the energy needs of a household must be satisfied in terms of production, supply and utilization. According to this study, the basic energy needs and sources in both rural and urban household were established as shown in Table 3.6.

Table 3.6: Sources and Domestic Use of Energy for Rural and Urban Households

Source	Major Use	Rural	Supply	Urban	Supply
Firewood	Cooking	92.0	Moderate	66	Moderate
Charcoal	Lighting	2.0	Moderate	0	-
Electricity	Cooking	2.5	Scarce	92	Abundant
Paraffin	Lighting	-	-	0	-
Gas	Cooking	2.5	Abundant	28	Abundant
	Lighting	4.0	Abundant	28	Abundant
	Cooking	-	Moderate	46	Abandant
	Lighting	93.0	Moderate	80	Abandant
	Cooking	-	Very scarce	4	Scarce
	Lighting	-	Very scarce	0	Scarce

Findings form this study were in conformity with earlier studies by Agarwal (1986), cloves (1991) and Aluma (1989), that the important source of renewable energy in large use in Africa is fuelwood (charcoal and firewood). In this case, for both rural and urban households the major source of energy is fuelwood. Ninety-two percent (92%) for the rural and 66% for the urban households rely on firewood for cooking. similarly, 92% of the urban households depend on charcoal for cooking. Charcoal and firewood, compared to the rural households which solely depend on firewood for cooking. In this case, most of the fuelwood is being consumed in the urban areas than the rural. thus, in terms of woodfuel needs, urban household are better off than the rural households.

Furthermore, electricity was reported to be abundant in both rural an urban areas. Surprisingly however only 20.8% of the urban residents used electricity for both cooking and lighting compared to a mere 2.5% and 4% in the rural areas used for cooking and lighting respectively. This study revealed that the presence of electricity in an area did not necessarily lead to its utilization.

Paraffin was reported as another source of energy. However, 93% of the rural households use paraffin mainly for lighting purposes. In the urban area 80% of the households used paraffin for lighting, and 46% used for cooking. This indicates that both rural and urban households consume reasonable quantities of the fossil non renewable energy mostly for lighting. Considering other renewable energies like biogas, solar and wind, it is embarrassing that only biogas is being used 4% of the urban households, for cooking purposes. In the rural households, none is using biogas, yet the production potential of this energy source is more in the rural than in the urban area.

In view of the above, urban households have more access to different energy sources for both lighting and cooking. They use firewood, charcoal, electricity and paraffin for cooking. The rural dwellers are limited to firewood. For lighting purposes, the urban households use both paraffin and electricity compared to their rural counterparts who rely on paraffin. Nevertheless, 2 % of the rural residents use firewood as a source of light. This is attributed to poverty (limited incomes or no income at all), because they cannot afford smallest unit of paraffin at Shs, 50=. Despite the abundance of electricity, 4% of the rural residents use electricity. These are middle class affluents who are not depending solely on

agriculture produce for their livelihood. Therefore, the energy crisis has hit more the rural dweller, though this depends not only on the access but also on the social status of the individual within a particular location.

According to the focus group discussions in both the rural and urban location energy sources for cooking were ranked as shown in table 3.7.

Table 3.7: Energy sources by Ranking

	Location	
	Rural	**Urban**
1	Firewood	Charcoal
2	Charcoal	Paraffin
3	Paraffin	Electricity
4	Electricity	Firewood
5	Cow-dung	Biogas

In both the rural and urban focus group discussions, participants noted that energy use and access depends on the social status of an individuals. The participants accordingly divided themselves into clusters and their percentages were estimated in the table.

Table 3.8: Wealthy Ranking

Social Status	**Rural %**	**Urban %**
Very well off	1	30
Well off	10	40
Poor	60	20
Badly off	29	10

Accordingly, the participants emphasised that these classes in society determine what type of energy to use. In this case when participants were asked to relate what types of energy were accessible and used by a particular class, the following distinctions were drawn. The well off (consisting of the elites, business operators, women with well-to-do husbands and running domestic projects) have access to electricity, gas and paraffin. These are able to even purchase the associated gadgets like stoves, cookers, fridges, which the other social category cannot afford.

The second category of people are those who are relatively having a good livelihood, more especially the professionals in both rural and urban areas who are assured of a month's salary. Their sustained incomes can enable them to buy charcoal and firewood. The gadgets (charcoal and paraffin stove) they use are also bought.

The third category identified are the households which mainly depend on agriculture or farm produce for their livelihood. Their incomes are limited to a particular season and is committed to other household

needs. Therefore, these just collect firewood and wood wasters and use equipment form locally made materials.

The last category which was considered badly off, included widows, women with very poor husbands or drunkards, the landless and the casual labourers. These people's livelihood is poor, depend on begging and remittance. In any case, the money obtained is not enough for subsistence. Therefore, in rural areas, the use grass and dry leaves for cooking and in the absence of these go hungry. In the urban areas such households use briquettes, wood wastes and in the absence of these, they too may go hungry.

In view of the above, the participants noted that the widening gap between the poor and the rich is responsible for the energy crisis.

3.4. Factors Responsible for the Energy Crisis at household Level

Increase in energy supply and consumption in the developing countries is not a question of providing for luxury, but a requirement for the removal of poverty (Foley, 1986). The majority of the population's basic services such as health care, education and transport require a large increase in energy supplies. Nonetheless, dependence on fuelwood is closely related to the dynamics of supply-demand that operate between the oil-improving area. Accordingly, this study revealed that fuelwood is the major primary source of household energy for cooking in both urban and rural areas. Thus, it was required to assess why this was the major source. Table 3.9 indicates the reasons why this is the case.

Table 3.9: Reasons for using fuelwood for cooking

Reason	Rural %	Urban %
Inexpensive	11	75
supply reliability	33	50
No substitute	58	25
Planted own forest	18	10
Total %	112	168
	36	16

It is amazing to note that this study's findings objected to the widely held beliefs that rural residents forage their fuelwood in their vicinity. Eleven percent (11%) of the rural residents noted that they use fuelwood because it is cheap compared to other sources of energy. fifty percent (50%) of the urban residents attributed increased woodfuel use to its reliability in supply compared to the other types of energy. This therefore means increased exploitation of the available woodlands. The study also revealed that 10% of the urban residents have planted their own trees n the peri-urban areas. In any case, if they depleted the rural sources, they can ensure a reliable supply to an already established market.

The major reason advanced by the 18% rural residents for planting their own trees was that fuelwood sell had a large market in the period of scarcity, not only limited to local consumption but for export demands to neighbouring towns in the region and across the Kenya borders. This means increased exploitation of the available tree resources to satisfy external demand. However, it is not possible to satisfy the market because production is still low and limited to the rich.

focus group discussants emphasized that charcoal burning is not caused by markets within the rural areas but external markets in the urban areas where it fetches good money. for instance, in the rural areas, a sack was costing only 1,000 shilling, yet in Kampala it costs as much as six folds the rural price. Therefore, the major fact for the fuelwood crisis in the rural areas is the high demand for fuelwood in urban centres. However, for the urban areas, the fuelwood crisis is attributed to the high market prices to procure the woodfuel.

In any way, while it is revealed by 75% urban residents that woodfuel was cheap and 50% account for its reliable supply, 58% of the rural residents use fuelwood due to lack of substitute sources of energy. This study further revealed that keeping other factors constant, increased fuelwood use is attributed to culture values of the Ugandans, more especially where they come form. Focus group discussion participants noted that even if the prices were increasing on fuelwood, urban residents want to have a delicious meal. The aroma produced by the food which is cooked using fuelwood is not the same as tat produced by food cooked by other fuels. In any case, a woman was not ready to beaten by a husband because she has used paraffin or electricity to cook food. One participant noted that electricity and paraffin were resources of energy for modern men and women and those people who are in a hurry and they don not care about the taste of food they prepare.

Nevertheless, fuelwood being the major primary source of energy to both urban and rural dwellers, there are factors which affected close substitute of energy for cooking. Table 3.10 indicates various alternatives that are used in the absence of fuelwood.

Table 3.10: alternative Source of Energy

Type	Rural %	Urban %
I will not cook/None	52.5	25.00
Paraffin	17.5	45.80
Dry leaves and twigs	27.5	8.40
Electricity	1.5	20.80
Total (%)	100	100
Total (N)	40	24

With regards to alternatives to fuelwood, the study findings revealed that 52.5% of the rural residents can do without cooking. This means that fuelwood was the major source of energy in the rural areas, therefore, its absence implies going without food which was dangerous to the health of women and those they care for. During the focus group discussions, participants emphasized that, all the same, the firewood has to be sought least you forfeit your marriage or you are the supper you have not cooked. Those who do not have husbands were the ones who could afford to stay without cooking, because no one would harass them.

On the other hand, 25% of the urban respondents noted that they would not cook, they had some source of income. supper which was unlikely to happen for the rural dwellers who are already constrained by their dwindling income form the sell of agricultural produce.

The other major source of energy for cooking as revealed by 63.3% of the respondents was paraffin. Nevertheless, it was dominated by the urban dwellers (45.8%) compared to 17.5% rural residents who could afford buying paraffin.

Apart from the increased prices of paraffin being prohibitive to the rural dwellers, they do not have access to pumping stations. Yet most of the urban dwellers have access to pump stations where they buy paraffin at half the rural price. The rural residents have to wait until the paraffin smuggled from the Kenya border is made available in weekly markets which are within a radious of five miles. Alternatively, they have to wait until nearby traders travel 45 kilometers to a major urban centre to sell the paraffin at an inflated price than either the pump and smuggler's prices.

It was observed that in the rural areas, paraffin is not affordable because in addition to the pump price of Shs.800= a litre, other charges like transport, tax and insurance are compounded and borne by the consumer. This aggravating the energy crisis and was emphasized by a salesman of TOTAL (U) Ltd. that the increased energy crisis in the rural areas as pertains to paraffin was due to lack of market in rural areas. Also the rural dwellers especially near the boarders, smuggled fuels. This affects the internal selling prices, because smuggled fuel is cheaper because of the low demand for the petroleum products. This means increased vulnerability of the rural women due to lack of well developed infrastructure. Hence increased dependence on woodfuel which is more accessible to them.

Further, the study revealed that 35.9% would depend on crop residues as a source of energy for cooking. However, as indicated by 27.5% of the respondents, this affected their agricultural productivity more especially the banana leaves which would have been used to mulch their gardens. In addition, the crop residues were being depleted as these are also being sold by those who had banana plantations due to scarcity. Not only were these leaves being used to cook food, but were helpful in the home-based industrial activities like brewing of local beer. Alternatively, cow-dung was a close substitute to crop residues, but this is contingent on ownership of animals and seasonality. It is only possible to use cow-dung in the dry season, the same applies to the crop residues for there were also being sold to raise income for the households.

Furthermore, the study revealed that urban residents used dry leaves and twigs (crop residues) picked form the nearby trees. However, this had no significant effect on the environment and in any case they would be cleaning their dwellers were the wood wastes. These were generated form the wood industries in the urban areas and obtained free of charge. However, the wastes are also limited to us as they are convenient only during the dry season.

This study, further revealed, that the hydro-electricity had spread naturally with the natural grid, but it is confined more to the urban residents. 20.8% of the urban residents used electricity. Although intermittent in supply, it is a close substitute to fuelwood. Despite this worthwhile picture, most of the urban residents do not use electricity for economic reasons. The affordability of electricity is made difficult due to removal of government subsidies and an imposition of a tax on every consumer. Furthermore, even for those who have access, power supply is not constant since they experience a load shading at least twice a week. Some few places in the urban area have special consideration in that load shading does not affect them. These are areas where the Government ministers and other privileged persons reside. These, in any case, do not personally meet electricity bills. Therefore, those affected with constant load shading have to devise means other than electricity for cooking their food and providing light. This means increased use of fuelwood and paraffin.

In rural areas, electric cable pass over households towards distant urban centres. At least 4% of the rural residents have electricity in the rural town centres. In the interior of the rural setting, electricity is unheard of. The power lines passing over the rural households or on the rural road sides supply 33KV to power stations, this requires a transformer to step down the voltage to 11KV. According to the UEB officials, this could have been possible if the rural areas are potential customers who could demonstrate the propensity to consume and pay for the power supplied. In any case, unlike in the urban areas the majority of the rural dwellers are not in a position to share the cost of installing the transformer in their area. Thus they have to watch the power lines pass over them. It should be noted that agricultural productivity and processing needed only solar energy. This energy crisis is thus compounded for the rural dwellers as they continue to depend more on the renewable energy, particularly firewood which is becoming more scarce. The impact is more on women and those they care for.

3.5. CONDITIONS OF OPERATION AND CONSTRAINTS FACED BY RURAL AND URBAN DWELLERS.

Energy production, supply and utilization have diverse implications for Uganda's socio-economic development and environment. While growth indirectly depends on the availability of energy, the multi-faced process of energy use ranging form harvesting to end use have adverse effects of the environment (Aluma, 1989). However, at different social levels, energy production is a function of the nature of location, access to resources and the degree of overall commoditization of the energy sector. This suggests that the household energy types consistently mediated by a household's access to predictive resources. An attempt was made to study the common problems or constraints faced by the urban workers and rural producers and their accessibility to factors of energy production.

According to the seasonal calendars in both rural and urban locations, energy is required throughout the year. However, it is affected by seasonality and income levels of the household.

Seasonally in the rural area is dictated upon what activities the populace were to be engaged in. For instance, during the dry season which begins form January to Mid-march, off-farm activities dominate the daily tasks carried out by the individual. In this case, women are somehow relaxed because activities like land clearing and ploughing of land are mainly men's domain. Therefore, a rural woman is able to collect enough firewood and this ensures energy security for the household. However, this situation is peculiar in male-headed households. In female-headed household the woman has to prepare her gardens and at the same time ensure adequate supply of firewood.

In the rainy season where the whole family is engaged in farm activities ranging from planting, weeding to harvesting, these activities consume a lot of women's time. As a result, women have neither time to collect firewood nor income to purchase it.

Income form the harvests in realized only after a lapse of four months. Thus, the only alternative is to purchase fuelwood form the traders. However, as the focus group participants noted, there is too little money form the produce for firewood purchase, which becomes more scarce as the August rains approach. As people are busy more processing the harvested crops, there is less time for women to collect the firewood by which time the stored firewood has been depleted. Therefore, seasonality is noted to be the major factor causing the energy crisis in the rural areas.

In the case of the urban dwellers, income is a major problem which causes the energy crisis. since most of the energies in the urban area are monetised, lack of income to purchase it form the market causes a lot of changes in household budgeting.

Focus group participants emphasized that the household budgeting depends on the National budget. One participant observed that the household budget is affected by the fiscal year budget. He further noted that as the fiscal year begins all sectors in the urban area start making tight changes in expenditure. Accordingly, the salary is affected, it is either delayed or it is not enough to cope with the prevailing condition. similarly, traders start hoarding their goods or hike the prices of the basic items on the market.

Through the focus group discussion, it was observed that generally the budget affects everybody, but the constant devaluation of the shilling and the constant adjusting of petroleum prices to reflect the international markets affects both the rural and urban dweller. The rural producer is affected because paraffin is the major source of energy for lighting; and the urban worker is affected because kerosene is the major substitute for other forms of energy. One participant noted that some times these changes are done without consideration i.e. when they adjust the fossil prices, kerosene is given a high percentage of reduction. The participant further emphasized that since kerosene is being used in every household for both cooking and lighting, these affect the household energy. However, it was suggested that in such cases, other petroleum related of fuels like gasoline, should be the ones to be given a high percentage

increment as a fuel for the rich who can better meet the costs than would be the case for the poor who are constrained by the increments. Nonetheless, it was cautioned that if they increased the pump prices for gasoline, transport changes would increase which will lead to increased suffering of the poor who can not go to their places of work.

Focus group participants from the rural location observed that kerosene prices would not be prohibitive if they had other alternative sources of income and their produce notwithstanding the drought periods which cause crop failure during certain periods were to fetch fair prices.

Furthermore, the study revealed other problems faced by rural residents which include lack of land to increase agricultural productivity, lack of capital and labour. Lack of capital for investment was indicated by failure to replace the rudimentary tools in use like hoes and pangas; failure to buy fertilizers pesticides and to hire labour, alongside family labour.

Apart form the cost push factors, the rural producers noted environmental factors were also responsible for their crop failure. Environmental factors cited include deteriorating soil fertility which has been caused by over-cultivation of land to produce food for the household. The participant noted that even if they had money at hand to purchase chemicals, the nature of the land has deteriorated. The environmental Officers observed that soil fertility deterioration was reduced not only by over-cultivation by also due to lack of proper soil conservation measure leading to the loss of mineral nutrients through leaching. This implies reduced productivity and income for the rural households.

The study also revealed that both the rural producer and urban worker were affected by the crisis through the mode of expenditure. In both location, it was noted that it was the husbands who controlled the income at household level. In the urban location, the husband controlled his income either form salary or wage or profits. In the rural location, the husbands controlled the income form the produce. Therefore wives in both locations were given chance to control money only when they have made a shopping list.

In the rural households, it is men who have an obligation to purchase seeds, hoes, pangas, pesticides and other household equipment, including the energy devices. As regards the devices, the only tool women use is the three-stone-stove which is not monetized. However, households which were well-off were compelled to buy a kerosene stove only for emergency. In any case, women headed households, are forced to provide for every household, however expensive, from their limited income.

The same trend is seen in the urban location. However, some of the urban women are employed and their energy needs are different. One participant noted that if the husband does not buy an efficient stove which the husband will have to do without breakfast, and she will take her breakfast alone. On the other hand, another woman had to caution that this is possible for only households which did not have children. The children have to go to school at the same time that the husband goes to work. It will therefore, mean punishing both the husband and children, thus causing increased conflict within a household.

A participant in the focus group discussion also noted that as a representative of women-headed household, she did not have to conflict over small issues. In most cases, she said that she did not have enough money and that if she has neither charcoal or paraffin to prepare breakfast, she can be patient until a neighbour who has lit fire finished preparing a meal then uses the remaining fire. However, it was also argued by some participants that "Sometimes over begging spoils the relationships among neighbours". Therefore, it was better to do without a meal.

The participants in both locations noted with bitterness that although they have limited income expenditures for school fees, graduated tax, health bills, visitors and meeting household needs are beyond their means. One participant form the rural location was bold enough to note that she was not interested in any visitors as they always create tension because of the expenses incurred in addition to other already established household expenses. This suggests that the conditions of operation at

household level during adjustment were worsening the kinship relations as people are no longer interested in being hosts because of the expenses incurred.

4. CHANGES IN HOUSEHOLD ACCESS TO PRODUCTION RESOURCES REQUIRED BY THE RURAL PRODUCER

4.1. Rural producer

The rural producer income is mainly obtained form crop production, using low level technology to boost production. Production on all holdings is dependent on the natural environment like fertile soils which had rapidly declined and adequate rain. In the pressure to increased crop productivity the under adjustment the traditional farming system, left for fallow to allow it to recover some fertility has been abandoned. Over cultivation lack of ..... Even where erosion is not very evident, it was acknowledged that fertility had dropped as a result of over-exploitation.

Focus group discussants noted that over exploitation of land is due to increased fragmentation of land. Furthermore, men who do not asses their wives in tilling, now cultivate separate plots in order to increase production. Leisure time of male farmers has been lessened as both sexes increase these activities to meet household needs. Production for both men and women is geared towards cultivation of non-traditional cash crops to secure income to purchase household basic needs. Thus small holdings are cultivated intensively by intercropping in a multi-strata home garden arrangement, resulting in leaching, especially on the mountain slopes. furthermore, it was reported that increased intensification of home gardens in the absence of a husband meant increased work for women who in addition to other household chore still the land alone.

With further established land fragmentation and decreasing productivity, nearly young men have decided to abandon farming to engage in a more profitable cross-boarder trade to sustain their households. The trade involves household basic commodities and the smuggling of kerosene form Kenya to Uganda. Since, kerosene is basically used by every household for lighting, it is sold in weekly rotating markets in the country. Therefore, different locations within the county have a special day to cater for the weekly market. The young men are occupied the whole week by moving form one location to another, carrying loads of kerosene jerry-cans on their head. Nonetheless, close discussions with the young men involved in cross-boarder trade for kerosene revealed that they are being employed mostly by rich women who are themselves involved in other activities and unable to move form one location to another. This demonstrates that lack of infrastructure does not stop women form benefiting form adjustment provided they have the means to hire labour.

Failure of the cooperative to market non-traditional cash crops in the rural area has been a blessing to rural women who are able to carry their produce to weekly markets in their respective locations. Nevertheless, income form the agricultural produce is not enough due to poor pricing and times of bumper harvests, a litre of kerosene costs the same amount as a bunch of banana or a tin of maize therefore, keeping the farmer in perpetual poverty. Furthermore, all household members (men, women, children and other dependents) are responsible for carrying produce to the market. The proceedings from the weekly market are pooled to enable the household survive for the next week. Since the weekly markets are held on Mondays in the study area, school children are absent from school to help their parents. For girls, household responsibilities account for their late enrollment and early dropout.

Control of the income is in the hand of men as household of female headed households with the exception. Science men likely to use the money for other things women tend to find means of getting access to sa-- .

With struggles among differnet social groups in the era of shrinking opportunities and scarce resources, the beer parties are a uniting factor for the different struggling social groups both men and women. The

beer parties are not only entertaining ventures but are also potential sources of credit income in the rural areas. Sustainability of the social groups in hinged on providing credit facilities to members who meet regularly and contributes a fee of 1,000/= per sitting and 500/= for visitors. Subscription fee is set at 2,000/= per individual. Membership is open to both sexes. The money realized form subscription fees is given as a loan to an individuals for purchase of the ingredients for beer making beer palettes, water and firewood). Each person is allocated a day for sell, depending on the fermentation period. Every member pays for his or her pint. The money thus realized is used to pay back the loan and the profits are used to cater for individual needs.

Focus group discussions revealed that some groups are particular in the way profits are used. For instance, some groups are helpful in instructive men to pay graduated tax, hiring of plots, paying school fees for children of dependents and building houses for young men who have just established themselves. Women's groups are geared towards rehabilitation of homes, buying household goods like plates, mugs, beddings as well as dressing their children. These groups are helpful in both male and female headed households and especially set where both male and female in the same households, are involved by protecting female form usurping power by males to control the money. Definitely, as regards the question of loans women are empowered to acquire, utilize and pay back the loan without the man's interference.

As regards utilization of income obtained form various activities to meet household energy demands, the study revealed that those household which obtained more income could purchase firewood from individuals who had plantations. These plantations were established in the awake of structural adjustment by individuals who had experienced the pains of wood scarcity and the anticipated high prices form firewood sale. Majority of the plantations are for men and a few are for business women. This has saved women from moving long distances to collect free firewood required on a daily basis. At any rate, a felled three costs 15,000/=, an equivalent of selling fifteen (15) to thirty (30) bunches of banana. The logs are carried on heads and stored on bans. this serves the household for at least months and is used for cooking food as well as boiling water for beer brewery. The cost to pay for the felled tree is coined in the name of "we cooperate" implying that both men and women in the household contributed for the benefit of the household energy as well as the business.

However, this trend is not common to all households. In poor households, it is a woman's task to collect firewood as she is leaving the gardens to ensure that her husband has lunch in time before going to meet friends in the late afternoon. Other women have no alternative apart form begging. In worse situations, they have resist to poaching, sneaking into neighbours plantation to pick fallen pieces to enable them cook a meal. This has the danger of being found by a ruthless owner, who is being deprived of a source income, who either fines her on the spot or takes her to the local court. Poor households are therefore increasingly suffering due to their inability to meet their energy needs as these become monotised instead of the traditional free supply.

In any events, there has been a transformation in gender roles as women who have relatively rich husbands are engaged in selling of firewood which was traditionally a man's job in rural areas. The women trade in charcoal within the region or in urban centres. Focus group discussions revealed that the men are involved in felling down trees either on public land or encroach on gazetted areas to burn charcoal. Women's task is to buy the charcoal at cheaper prices form the charcoal burner and transport it to the nearest urban centre for sell. Adjustment has therefore made women more aware of the operating environment, thus empowering them to exploit men's labour to accomplish their objectives.

4.2. CHANGES IN HOUSEHOLD ACCESS TO RESOURCES REQUIRED BY THE URBAN WORKER

There has been a considerable change in the way urban households gain access to income required for expenditure. Focus group discussants noted that more people are joining the informal sector to supplement the eroded real income from the formal sector. The attractiveness of the informal sector is

exhibited in the low capital and skills required for entry.. Expansion of income sources was reported to be the major reason for engaging every body in the household into the informal sector. Housewives and unemployed female relatives were being pushed into the informal sector by the male relatives to reduce dependence on the meager income. In some cases, where men felt insecure on jobs and/or sometimes became sympathetic towards their over worked wives they leave work early and continue with the informal sector business in the late evening hours.

Demand in the informal business was noted in the food sector. This sector requires a lot of energy for its survival. This sector requires a lot of energy for its survival. The energy source in a whole sector is fuelwood (charcoal and firewood). The food is cooked every day with the exception of weekends and public holidays to provide for the urban workers who cannot afford meals in restaurants and hotels. Failures to cook enough food was experienced because of not being able to purchase enough charcoals for a given period or due to decline in a number of customers to support the activity. Furthermore, a decline in demand for cooked food attributed to a general decline in real purchasing power of economies undergoing adjustment arising form inflation, wage ceilings and tight monetary policies. A reduction in the capital capacity of the food sellers is due to consumers not paying their debts in time and increased costs of household consumable goods and services which are offset by using funds form the working capital. The only redeemer is the husband who contributes part of his salary to boost the business as a way of ensuring an alternative income/fall back in case of retrenchment.

Although, most urban workers had engaged their wives and female relatives in business, men were running separate businesses which they would switch to in case they are retrenched. Therefore, in this study it was difficult to find someone who had been retrenched because every body was employed in either the formal or informal sector. Even the demobilized soldiers and their wives had gained access in the informal sector. Hence, adjustment has had no effect on the income of these retrenched, because alternative jobs adopted as a strategy in the awake of adjustment.

4.3. Strategies and Adaptive Behaviour Employed to Safeguard Energy Intake

In the preceding sections, we noted that fuelwood (charcoal and firewood) is the major source of energy both for the rural producer and urban worker. The majority of wood-based consumer are those in "poverty trap" (Foley, 1986; and Okeefe et al., 1986). Consequently, consumption among countries where fuelwood is an important source of energy is relative to availability of wood (Fluerent et al., 1978).

Location availability leads to variation in consumption within countries (Hosier, 1984). This study revealed that magnetization of the energy sector is responsible for the energy crisis. Therefore, consumption strategies and adoptive behaviour are aimed at reducing household energy expenditure as indicated in Table 4.1.

Table 4.1: Ranking Strategies Adopted in the Wake of Increased

Expenditure on Energy by Location

	Location	
Strategy	**Rural**	**Urban**
Do without energy/consume less	1	2
sell produce	2	7
Use income form business	3	3
Obtain on credit/borrowing	4	1
Forego other essentials/save	5	4
Sell Property	6	3
Plant trees	7	6

Table 4.1 revealed that both the rural and urban dwellers devised almost similar strategies so as to reduce expenditure on energy. They reported going out or coming less energy sources. The rural producer depend mainly on firewood and consume less of the energy they can afford. The urban worker has resorted to inferior energies like charcoal because of the high electric tariff charges. Electricity is only used for lighting, ironing, boiling drinking water and operating television and radio sets. High electric consuming gadgets like cookers have been abandoned. Even bathing in a household is limited to cold water. Furthermore, it was reported that some households could not do without some gadgets, and have had to therefore, to shunt the source, thus paying less than the actual amount required. Shunting electric source required devotion and commitment to rectify the situation every morning and evening with risk the danger of being caught in he act. Here, it was men who took this risk because the electric bill is part of their burden.

Consuming less energy involved alternating energy sources to prepare particular meals. It was reported that some households purchase charcoal to prepare lunch and supper because the meals can be steamed on the charcoal stone which has cost and taste advantages over electric energy use. Paraffin is used to prepare morning tea, frying vegetables and occasionally for cooking when a woman is in a hurry. Nevertheless, poor households reported buying charcoal in less quantities at 200/= to enable them prepare a meal for a day. Eating one meal a day and preparing meals that do not consume a lot of energy are alternatives adopted. For parents of dependent children, the impact is obvious.

Sell of produce was ranked second by the rural producers and seventh by the urban worker. However, sell of produce in the household is limited to small quantities and at worse conditions such as when a husband has money to purchase paraffin. It is done occasionally not to deplete the food reserve before the next harvest.

Obtaining fuel on credit and borrowing cash is more common among urban workers, than rural producers. Fuel sellers in the urban areas are aware of delayed salaries and are sympathetic to the workers. However, credit is extended to the debated must be a daily customer who is not bad credit risk. Nevertheless, the fuel sellers do not offer much fuel, they give only enough to cook meals for a single day to enable you survive to the next. Therefore, incidence of not cooking by urban women are not common. It was reported by respondents that if the fuel seller was not willing to offer credit and the respondents

obtained some money, they would pay back their debt but will not buy any more fuel form that trader, thus affecting the traders' turnover income.

Use of income form business ranked third in both location but these were a few individuals and in periods of money scarcity, there is a danger of using part of the capital. At any event, both the rural producer and urban worker reported sacrificing and foregoing other essentials and saving the little money to purchase fuel. However, Unlike their rural counterparts who have no cash income or access to credit, saving for fuel is a common phenomenon among the urban workers.

Occasional sale of property was reported by both the rural producer and urban worker. Among the rural producers, sale of property referred to sale of livestock to secure income for an eventuality. Livestock is regarded as an asset and in most cases a buffer for an eventuality. similarly, sale of household property among the urban poor is to raise an income which would be used to overcome a major problem, more especially to cool an impatient landlord. However, households without anything to all are reassigned, thus leaving fate to God and the natural environment for their basic needs.

Dependence on the natural environment involves use of wood briquettes, where women in the rural areas have to search for a tree which has been felled and pick the wood residues. In the urban areas, women sent their children to collect wood wastes at carpentry workshops.

Respondents form the rural areas reported use of cassava and wet eucalyptus stems, which are seasoned in the morning to enable them prepare supper. Use of folded and compacted banana leaves is very common among brewers and distillers of potent gin. Nevertheless, all these inferior fuels in the rural areas were monetised. Thus to enable someone to cook, a bundle of banana leaves or fibers requires an equivalent of a bunch of banana.

Tree planting would have been the most viable strategy to solve the energy crisis in both the rural and urban locations. Surprisingly, it was ranked as the last strategy. In the rural location, the people who are engaged in tree planting activity had one hand in the urban area and another in the rural setting. Respondents reported that tree planting is not possible because of excessive land fragmentation. In any case, most holders have small plots for crop production. Furthermore, some were landless working on borrowed land. Tree planting was therefore regarded as an activity for the rich who do not depend on the land for their livelihood. Similarly, those who planted the trees do so speculation to serve larger markets like Uganda Electricity Board (UEB), schools and Uganda Posts and Telecommunication Corporation. Only the branches and twigs which can be obtained free may reach the poor consumers. Those who wish to buy a tree have to purchase it at the same cost as the institutions. For those who cannot afford the cost, especially men who are being harassed by their wives, have to steal the trees at night or when it is raining. Women are allowed to rampage in the wood lots to pick leaves which they combine with wet eucalyptus pieces for cooking. Tree planting and providing firewood in an adjusting economy is mainly a man's task. Therefore, women have to wait for the fuelwood to be bought by the husband supposedly unaware whether the wood is stolen or increased.

5. SUMMARY AND CONCLUSIONS

The structural adjustment policies on the energy sector enacted by the Ugandan government have had varying effects amongst different categories of rural agricultural producer households and the urban workers. While other categories who gained form adjustment were able to meet their energy needs, others were experiencing difficulties of mobility. For instance, some categories of urban workers experienced increments in income form their work, others experienced decreased income because of retrenchment thus being unable to purchase the monetised fuel. The liberalization of the marketing of agricultural produce in the rural areas resulted in a string of middlemen to market of non-traditional agricultural cash crops making huge profits by exploiting the farmers. The low pricing adversely affected the farmers' standard of living by keeping them in perpetual poverty. The urban households are therefore, unable to purchase the energy sources which could be secured freely before adjustment.

Devaluation of national currency and removal of government subsidies on imported petroleum energy affected both the rural producer and urban worker who relied on kerosene for lighting and cooking. With the removal of subsidies and increased cost of kerosene the rural producers households which relied on paraffin for lighting were the most affected.

In the rural areas, there were significant differences in income changes between the farmers and those in off-farm activities. Off-farm activities thrived on smuggled goods and sold at high prices thus being able to meet taxation and market dues as well as making high domestic demands.

More urban workers reported that compared to their rural counterparts returns form their work met their energy needs. This is an evidence of decline in real income of agricultural producers in the wake of adjustment. Married females than single ones in both locations reported stability in income and husbands being able to boost their production and domestic needs. However, rural women experienced a decrease in profitability due to lack of enpowerment in control of their income. Husbands are report to use wives' income to meet their personal needs, neglecting domestic demands.

Removal of subsidies on electricity and imposition of consumer tax by government have negatively affected the majority of the urban dwellers' access to this service. A few of the agricultural producers were using electricity but majority did not have access. With constant load shedding and increasing tariff changes subsequently forced the urban workers to abandon electricity to switch to fuelwood (charcoal and firewood). This has therefore, resulted in flight of large quantities of fuelwood from rural to urban centres to meet the energy demands thus affecting the rural environment and agricultural productivity.

Despite the inflated cost of fuelwood taxes, license and market dues, and profits) bought from traders fuelwood remained cheaper for the urban resident compared to other sources of energy. Hence the burden of providing for energy by men in household in the urban areas was less sever than the burden to women in the rural households.

Nevertheless, due to adjustment, adverse impact on income for the majority of Ugandans, most people's access to different energy sources had declined. The gains brought about by structural adjustment were quickly engulfed by increased costs of goods and services arising form the implementation of these adjustment policies. On the other had, the capacity to respond to incentives and produce more for the market are low amongst the rural producers and urban workers. Without external assistance, most producers and workers are not capable of effectively and optimally responding to incentives. It is in this context that the following recommendations are made:

i. The government should increase expenditure on the energy sector, particularly intensifying efforts to expand the number and capacity of three nurseries, which enhance the production of more fuelwood to serve the rural producer and urban worker.

ii. The government should encourage construction of fuel pump stations in the rural areas so that the rural producer will have access to kerosene, at the same time encouraging tree planting by the rural producers.

iii. Government should improve the rural physical infrastructure so that fuelwood can easily be marketed and at the same time stabilize the supply of non-woodfuel through easy access of the traders and consumers.

iv. Individuals should be assisted to acquire intermediate energy technology, e.g. biogas digesters which lessen petroleum importation.

v. Farmers' labour productivity should be enhanced through technology and credit, e.g. high yield varieties, pesticide, fertilizers, and support to off-farm activities.

vi. The urban workers should be encouraged to engage in more income-generating activities which can act as buffers in case of retrenchment though relaxation of taxation, paying good retrenchment package and access to low-interest credit to boost the workers capital base.

vii. Emphasis on a broadly based integrated gender approach to the energy sector to both the rural and urban households should be central in the implementation of these recommendations.

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Appendix I

Semi-Structured Interview Guide

Section A

Location 1. Rural

2. Urban

1. Sex

2. Marital Status: 1. Merried

2. Single

3. If Married 1. Single

2. Polygamous State No, of Wives .....

4. Age

5. Have you ever gone to school? 1. Yes 2. No

6. What level of education did you reach?

7. How many people live in the household? .....

8. How many children of your own go to school? .....

9. How many dependents are at school?

10. what assistance is rendered to dependents and your children?

Section B

We would like to know about your energy needs in the household.

11. What are the major sources of energy in this area?

.....

.....

12. What kind of fuel is most used in your household for cooking and lighting?

.....

13. Where do you obtain them?

.....

14. What problems do you encounter in gaining access to these energies?

.....

15. If bought, who pays for these energy sources?

.....

16. What are the major sources of income in the household (N.B.: The main

occupation of the respondent and other members of the house).

.....

.....

17. Who controls the income from these activities?

.....

Thank you.

APPENDIX II

Focus Group Guide

Your Parish has been selected to be part of this study. The study will help us to plan batter for the energy needs of this area. Please be free with us about your household energy needs and other activities of this area. We shall treat this information as confidential and shall not use it for any other purpose.

ENERGY SOURCES

- What are the energy sources in this area?

- How is household energy affected throughout the year?

(Specify the energy use pattern per month)

- Who is responsible for procurement of energy at household level and why?

ECONOMIC ACTIVITIES

- What are the major household activities in this area?

- How do these activities change with seasonality?

- Who provides labour for these activities and why?

INCOME

- What are sources of income in the area?

- What is the pattern of household income throughout the year and how is it affected by seasonality?

- Who controls income form the household activities?

EXPENDITURE

- What are sources of income in the area?

- What is the pattern of household income throughout the year and how is it affect by seasonality?

- Who controls income form the household activities?

EXPENDITURE

- What activities consume household income?

- What is the pattern of household income throughout the year?

- Who makes decision on how to spend household income and why?

THANK YOU VERY MUCH FOR YOUR CO-OPERATION

APPENDIX III

Daily Activities

Female Rural

	A.M												**P.M**					
	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10
1	8	8	1	1	1	1	11	10	L	Rest	13	21	8	10	15	Sup.	Sleep	Sleep
2		14	3	3	3	3	21	10	L	11	22	15	15	10	14	Bath	Sup.	Sleep
3		14	8	2	2	2	11	21	10	22	22	22	21	8	8	Bath	Sup.	Sleep
4		14	8	3	3	3	21	10	8	Rest	21	11	10	8	14	Bath	Sup.	Sleep
5		14	1	1	1	1	1	8	10	21	15	15	15	15	11	10	Sup.	Sleep
6		14	4	4	4	10	11	L	24	24	24	15	15	15	Rest	Sup.	Sleep	
7		12	2	2	2	2	21	11	L	11	22	22	8	10	14	Sup.	Sleep	

8		13	13	13	3	3	3	12	12	11	10	22	22	10	15	Bath	Sup.	Sleep	
9	8	8	3	3	3	3	11	21	L	22	22	22	10	21	15	Rest	Sup.	Sleep	
10	14	4	4	4	4	8	11	10	L	11	15	15	15	8	10	Sup.	Sup.	Sleep	

DAILY ACTIVITIES

Male Rural

	A.M									P.M								
	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10
1		8	8	24	24	24	24	24	24	24	24	24	24	24	8	15	15	Sleep
2	8	8	8	5	5	5	5	5	L	5	5	8	8	8	13	Rest	Sup.	Sleep
3	8	8	1	1	1	16	16	16	1	15	15	15	15	15	8	Radio	Sup.	Sleep
4	8	8	9	9	9	9	9	9	9	9	29	29	9	9	8	Rest	Sup.	Sleep
5	8	8	8	8	4	4	4	L	6	6	6	21	21	15	15	Sup.	Sleep	
6	4	4	4	4	1	22	22	22	1	15	15	15	15	15	10	10	Sup.	Sleep
7		1	1	1	1	24	24	24	L	15	15	15	15	15	Rest	Rest	Sup.	Sleep
8		3	3	3	5	9	5	L	15	15	15	15	15	15	15	15	Rest	Sleep
9	8	9	9	9	9	5	9	22	22	Bath	15	15	15	15	15	15	Sleep	
10	Relaxing			5	5	9	9	5	15	15	15	15	15	15	15	15	Sleep	

DAILY ACTIVITIES

Male Rural

	A.M									P.M								
	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	Sleep
1	14	Bath	Break	26	26	26	26	26	L	26	26	26	26	10	14	Bath	Sup.	Sleep
2	20	13	14	11	21	10	10	10	L	11	Rest	10	10	14	Bath	Sup.	20	Sleep
3	Radio	Bath	8	13	11	25	25	25	L	25	25	25	25	10	10	Bath	Sup.	
4	20	14	13	B	11	10	10	10	L	Rest	20	20	20	10	Bath	Sup.	Sleep	Sleep
5	Bath	14	8	26	26	26	26	26	L	26	26	26	26	10	14	Rest	Sup.	
6	-	14	26	26	26	26	26	26	L	26	5	5	26	5	5	5	5	Sleep
7		Bath	5	5	5	5	5	5	L	5	5	5	5	5	14	10	Bath	Sleep
8	Bath	5	5	5	5	5	5	5	L	5	26	26	5	5	5	5	Sup.	Sleep
9		5	5	5	26	26	26	26	L	26	10	10	5	5	15	15	15	Sleep
10		Bath	11	13	12	10	10	Rest	L	Rest	15	15	10	10	14	Bath	Relax	Sleep

DAILY ACTIVITIES

Female Urban

A.M **P.M**

	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	Sleep	
1		Bath	Break	26	26	26	26	26	L	26	26	26	26	26	15	15	Sup.	Sleep	
2		5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	Sleep	
3			Break	26	26	26	26	25	L	26	26	26	5	5	5	5	15	Sleep	Sleep
4			Break	26	26	26	26	26	L	26	26	26	26	Relax	20	Bath	Sup.	Sleep	
5	20	13	Break	5	5	5	5	5	20	5	5	5	5	5	20	5	Radio	Sleep	
6	20	14	Break	26	26	26	26	26	L	26	26	26	26	Bath	Rest	14	Sup.	Sleep	
7	5	5	5	26	26	26	26	26	L	Rest	Rest	26	25	5	5	5	15	15	Sleep
8		-	-	26	26	26	26	26	L	26	26	26	26	15	15	15	Sup.	Sleep	
9		5	5	5	5	5	5	5	L	16	16	16	16	16	16	Bath	Sup.	Sleep	
10		13	Break	24	24	24	24	24	15	24	24	24	15	15	Bath	10	Sup.	11	Sleep

ACTIVITY CODES

1. Ploughing

2. Weeding

3. Planting

4. Harvesting

5. Marketing/Business

6. Brewing

7. Lumbering

8. Tending animals

9 Charcoal burning

10. Prepare meals

11. Cleaning utensils

12. Laundry

13. House and compound cleaning

14. Child-care

15. Drinking alcohol/selling

16. RC meeting/work

18. weddings

19. Visiting

20. Prayers/Religious Work

21. Fetching water

22. Collecting firewood

23. Circumcision ceremony

24. Communal Work/Casual work

25. Tailoring

26. Government work