

Renewable Energy Technologies: a Veritable Tool for Women's Empowerment in Niger Delta Communities.

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ABSTRACT

Poverty is generally considered as a major cause of food insecurity and poverty alleviation is essential in improving access to food. The Niger Delta of Nigeria, one of the world's top oil producers, has been the center of violent despair, neglect, poverty & poor environment for years. 86 percent of the population, majority of women and children, live in rural communities and work at subsistence farming. They cannot afford a good education for their children due to their low income levels. Depletion in natural water and lack of development in the oil rich region has led to disintegration of these traditional communities. Renewable energy technologies as a profitable alternative venture is a veritable tool that can help provide food and jobs for teeming youth and women. The coastal communities has remarkable potentials for development, but the government as well as the multinationals have not understood and tapped the potential role of renewable energy technologies in managing the crisis in the Niger Delta for sustainable development.

Keywords: renewable energy technologies, rural women, environmental health, sustainable development, Niger delta

1 INTRODUCTION

Renewable Energy Technologies are tools for sustainable energy development and greater equity in rural areas which provide opportunities to reduce air pollution and combat climate change. They are more accessible in rural environments, not only because it is cheaper but the technology used to produce them is simpler & more affordable. Renewable energy technology can improve rural women livelihoods & sustainable development by reducing greenhouse gas emissions, deforestation and improve working conditions [1]. Access to enabling medium for economic development, environmental protection & decision making are ways to empower women, reduce poverty and ensure sustainability [2].

Oil spillage, land degradation, water pollution and gas flaring pose great challenges which resulted in abject poverty and poor health conditions [3]. In Niger Delta, it is necessary to secure energy resources availability for increase economic growth and gender equitable poverty reduction. Women access to energy for practical, productive and strategic needs can help positively impact women's literacy, education, economic opportunities and involvement with community affairs.

E.g. pumping of water supplies reduces hauling, using cooking stoves instead of firewood improves health conditions of women and children and reduces deforestation. Provision of refrigerator increases food production. Opening horizons through radio or Internet helps in distance learning and information-sharing.

In poor Ogoniland communities of Nigeria, women and girls are responsible for collecting traditional fuels, a physically draining task that can take from 4 to 20 or more hours per week as shown in figure 6. As a result, women have less time to earn money, engage in politics or other social causes, learn to read or acquire new skills, fulfill other domestic responsibilities or simply rest. Girls are sometimes kept home from school to help gather fuel. Environmental degradation forces women and girls to search farther a field and become more vulnerable to sexual harassment and assault as well as to injuries from carrying heavy loads long distances. The burdens imposed by reliance on biomass fuels

define their daily routines and limit their prospects for a brighter future. The use of these traditional fuels creates a massive, yet 'invisible', public health crisis. Poor rural women spend much of each day indoors at the cooking fire, often with their youngest children strapped to their backs. The noxious smoke from indoor fires and stoves is associated with 1.6 million deaths per year in developing countries, mostly among women and children under five [4], [5]. Without access to modern energy services, poor rural women must spend the bulk of each day performing the basic tasks necessary for survival - grinding grain, processing food, planting and harvesting, weaving cloth and sewing clothes. Despite these daunting issues, no concrete programs exist for women to build leadership capacity and advocacy in the area of environmental issues or develop an interest in science and technology.

These will help create jobs, develop social welfare, alleviate poverty, reduce drudgery, save time, reduce women's exposure to risks (social and physical security) and support women by addressing obstacles like lack of self confidence. It will provide them with the opportunity to learn new skills (technology) while working on concrete community problems.

Renewable energy is only one of the energy sources that are used for meeting energy needs of an economy. Renewable Energy Technology (RET) should be looked at as a means of improving the quality of life of women and their empowerment through its use. Most renewable energy comes either directly or indirectly from the sun. Sunlight, or solar energy, can be used directly for heating and lighting homes and other buildings, for generating electricity, and for hot water heating, solar cooling, and a variety of commercial and industrial uses.

Renewable technologies can be deployed to transform them into usable energy and power products and services; when transformed and managed properly they are capable of providing fountains of prosperity. However, when mismanaged, they are equally capable of producing mountains of misery to the society. For example, these sources of energy can be used to produce hydro electricity, solar power, wind power and biofuels. The development of these renewable energy resources will help rapid development of the rural economies of the region and by extension, the country as a whole. The transformative processes involved in changing these renewable energy resources to useable energy products and services range from very simple to very complex and from inexpensive to very expensive investments. For example, Solar panels, Wind turbines, and Biofuels refineries are required in these transformative processes of renewable energy resources. Nevertheless, over the coming years, the challenges and interests in the prospects for developing and harnessing these vast renewable energy resources will be phenomenal.

2 METHODOLOGY

This research was conducted in Niger Delta of Nigeria. 30 villages through population proportional sampling from four districts representing four socio-cultural zones of rural Ogoniland and Urban were purposively selected. In the groups, leaders were selected based on the use of firewood and cooking stoves. Data were collected using pre-tested structured and unstructured questionnaires and interview schedule to collect information from women on the personal, socio-economic, household related characteristics and utilization of improved recommendations introduced through the program.

The objectives of the research was to find out how rural women can be empowered using renewable energy technologies as well as reducing a number of health hazards caused by firewood. The performance of the stove deals with efficiency, evaporating time, specific consumption of wood and power output. Therefore the advantages of using the improved cook stoves are it reduces time for collecting firewood, reduces health problems due to exposure to heat and smoke as well as reducing other risks caused by firewood collection activities.

Monitoring households within a village was done. Small villages were monitored within a day, medium villages within 2 days, and large villages within 3 days. A short questionnaire was administered to each household to assess prevalence of exposure covariants that included fuel type used while cooking, and presence or absence of chimneys. We obtained consent from the cooks to attach the personal samplers while cooking.

The research activities include:

1. Village selection and agreement
2. Selection of project participants and training of researchers and research assistants
3. Demonstration of improved stove use
4. Improved stove testing in villages/neighborhoods
5. Periodic interviews of test participants
6. Redesign of improved stoves use instead of Firewood
7. Definition of promotional subsidy or low-income support program.
8. Follow-up questionnaires for transformed villages
9. Promotion scale-up.

The results of concentration measurements and 24-hr exposure calculations across households to examine relationships between various potential exposure covariates (as obtained from the questionnaire) were analyzed. Parameters examined included fuel type used in cooking.

3 RESULT

Statistically, women constitute around half the population in all countries. But they have almost never been taken into consideration when decisions are made for energy planning. Data showed that 61% of the study households used firewood as their primary fuel. In order to have a long term and sustainable impact on alleviation of poverty, the place of women and youth in the communities must be critically analyzed. It has been estimated that women and youth provide some 60 - 80% of agricultural labor force in Africa [6]. There is therefore the urgent need to develop renewable energy technology more vigorously and also to empower women and youth for active participation.

One of the basis of such handling is the prevailing assumption that energy is gender neutral and energy planning does not make any difference in the impacts made by such decisions on men and women. One example of this is the availability of various kinds of fuels in our countries. More thought is given to supply of fuels used in transport and power sectors, which is mostly used directly by men. Our new baseline surveys conducted during the first quarter of 2006 for our up-coming 150-stove pilot study have shown a consistent trend away from kerosene back to fuel wood.

The result showed that the average 24-hr exposure for women cooks when using biomass fuels is significantly higher than for those using clean fuels and for noncooks in homes using solid fuel. Among noncooks in households using solid fuel, women not involved in cooking and men with outdoor jobs had the lowest exposures, while women involved in assisting the cook and men staying home had the highest exposures. Men staying home were either older men or infirm and therefore spent a significant fraction of their time indoors, resulting in greater potential for exposures. Exposures were not significantly different between cooks and noncooks in clean-fuel users

However, supply of kerosene or Liquefied Petroleum Gas at reasonable price, which could be used as a cleaner and more efficient cooking fuel by millions of women, does not get similar attention. With proper attention to adequate financing and marketing mechanisms, many households will benefit from the higher quality of these lights compared to usual kerosene lamps being used in poor countries. For women, this will translate to better lighting for security around the house, ease of doing household work at night, like attending to children and cooking, and entertainment using TV, radio and cassettes.

4 DISCUSSION

In spite of the human costs for millions of women in terms of time, discomfort and personal health, bio mass fuel will remain the primary source of household energy for most developing countries. Programs to introduce and disseminate improved stoves with higher efficiency and lower indoor emission will improve quality of energy supply for cooking needs. Substantial research work has been carried out for developing efficient stoves and better design of kitchen environment to promote better health and quality of life for women in rural homes. These research results, when implemented and internalized in the homes, can lead to the commercialization of the technology utilized and enhance opportunities for income generation.

A recent study has revealed that availability of electricity (grid) has given women more opportunities for employment. Increased use of rice husking and grinding mills has reduced workload of this type in electrified households and they are free to be involved in other income generating activities. On the other hand, it was found that with intense farming and other activities possible with electrification, working hours and workload have increased for many others. Even though they are now able to organize their work according to convenience, the prevailing gender-based division of labor has contributed to women's work over load. The same study has shown that access to electricity at the household level significantly increases the knowledge-base among women living in villages. Even for non-electrified households, information from neighbors and relatives can play a significant role. This means that ensuring access to electricity will have a significant impact in reducing the existing knowledge-gaps in the non-electrified households. Thus, it may also be said that access to electricity at the household or in the area can be a major way to increase the level of women's empowerment.

For any meaningful program to succeed in alleviating poverty in the Niger Delta communities it must cut across all the strata of the society including women and youth empowered. Empowerment of these groups in the area of renewable energy technology is a very viable instrument that can reduce restiveness and boost fish production in the region as well as the entire Nigeria. Organizations operating in these areas, like oil companies, should provide necessary assistance to youth and women in the establishment and maintenance of renewable energy technology within and around their various localities by reducing oil spillage in rivers. The government can also intervene through the Nigeria Delta Development Commission (NDDC) since its main objective is the empowerment of youths and women in Niger Delta Area. Resources should be allocated for manpower development through practical skills acquisition programme, on completion of the programme, participants should be provided with facilities required for small scale enterprise.

5 CONCLUSION

There is no evidence that men farmers are any less aware of environmental problems than women. The importance of renewable energy technology in sustainable livelihood cannot be over emphasized. It is an important economic venture in terms of employment, food security, enterprise development and foreign exchange earnings. It will provide employment, thus alleviating poverty and enhancing the economic status of the rural populace in the region and reduce to the barest minimum the level of violence from disenchanting youths that are characteristic of the region in recent times.

Equitable distribution of resources and balanced development are essential for a rapid development of the economy because the progress of the entire economy depends on the development of all regions in keeping with their factor endowments.

There needs to be a better understanding of the flexibility and complexity of gender, of spatial variations in both environment and gender roles and of the time, labor, and financial pressures on poor households, predominantly female-headed households, which force farmers to ignore conservation requirements.

It is recommended that local leadership empowerment should be encouraged among groups since their active participation in group activities could enhance its growth and thereby sustain the group goal and development.

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