

RENEWABLE ENERGY AND POPULATION CONTROL IN AFRICA

CONFERENCE PAPER

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ABSTRACT

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Population levels determine the energy demand. The larger the population, the more the total energy required. Population therefore exogenously determines energy consumption. Agricultural operations, domestic activities, lighting, industry, etc are achieved with human beings, fuelwood, kerosene and electricity as direct sources of which children contribute a crucial percentage of the labour for gathering fuelwood, fetching water and grazing livestock.

Gathering fuelwood and fetching water can be eliminated by the supply of cooking fuel and potable water. The villagers will lose nothing if the traditional system of obtaining water and illumination is replaced with a community biogas plant system.

Alternative energy strategies can contribute to a reduction in the rate of population growth if they are directed preferentially towards women's needs. Gender bias is the most single important cause of population growth. It is therefore a primary cause of poverty because it prevents many women from obtaining the education, training, health services, child care and legal status needed to escape from poverty. If biogas plants are installed in rural settings, the population would have gained the following:-

- Deep bore hole water
- Less effort to get the improved water
- Reduction in the incidence of water-borne intestinal diseases
- Better illumination than the traditional kerosene lamps
- Less pressure on the women to finish their chores during daylight.
- Improved fertilizer which has greater nitrogen content.

INTRODUCTION

Birdstall and Jamison (1983) reported that fertility is lower in higher income regions of the world. Also reductions in respiratory diseases (influenza, pneumonia, bronchitis) and infectious and parasitic diseases (tuberculosis, the diarrhoeas, whooping cough, malaria, cholera, diphtheria, measles and typhoid) have contributed to the decline in mortality rate.

Poor folks are typically ignorant of family planning measures and cannot readily obtain potable water and fuel supplies. Poor countries for the most part have biomass-based subsistence economies. From the age of 6 years, children take care of their siblings and domestic animals, fetch water and collect fuelwood, dung and fodder. All these may relate to the high fertility and low literacy rates in rural areas.

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Population levels determine energy demand-the larger the population, the more the total energy required with the magnitude of this total energy depending on the per capita energy consumption. This exogenous impact of population on energy is the obvious aspect of the population energy connection. At the village level, agricultural operations, domestic activities, lighting, industry etc are achieved with human beings, fuelwood, kerosene, and electricity as direct sources of energy. Children contribute a crucial 30%, 20%, 34%, of the labour for gathering fuelwood, fetching water and grazing livestock, respectively. Their labour contributions are vital to the survival of families. There are also serious health and gender implications of rural energy consumption patterns (Batliwala,1982).

Almost everyone of socioeconomic preconditions for smaller family size and fertility decline depend on energy utilizing technologies:-

- Infant mortality has much to do with adequate and safe supplies of domestic water and with a clean environment.

- The deployment of energy for industries which generate employment and income for women can also help in delaying the marriage age which is an important determinant of fertility
- If the use of energy results in child labour becoming unnecessary for crucial house hold tasks, an important rationale for large families is eliminated. Current energy consumption patterns exclude the type of energy utilizing technologies necessary to satisfy the socioeconomic preconditions for fertility decline. Alternate energy strategies can contribute to a reduction in the rate of population growth if they are directed preferentially towards the needs of women, household and a healthy environmental (Reddy and Batliwala, 1979).

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Some resources are not in any meaningful sense renewable. Scientifically it is well within our power to bring human population growth to a halt in the foreseeable future. This is essential if we are to save the fragile ecosystems of plants and prevent mankind from becoming its own executioner.

United nations population projections for the 21st century give an estimate of 6.3 billion people in the year 2000 rising to 10 billion by 2050, 11.2 billion by 2100 and palliating at 11.6 billion by 2150. (Desai, 1994). The globe is warming, the ozone layer is being depleted and degraded of natural resources, soil erosion, water stress, deforestation and loss of biological diversity are threatening the quality of life.

The villagers will loose nothing if the traditional system of obtaining water, illumination is replaced with a community biogas plant system. They would have gained the following :-

- Deep bore hole water which is better and safer than the water from the open tank or river.
- Less effort to get this improved water.

- Reduction in the incidence of water-borne intestinal diseases and therefore noticeable improvement in the health of children.
- Better illumination than the traditional kerosene lamps or even the unreliable electricity .
- Cheaper illumination for household using kerosene lamps.
- Less pressure on the women to finish their chores during daylight.
- Improved fertilizer which has greater nitrogen content and is less favourable to the growth of weeds and proliferation of flies as compared to farmyard manure.
- A dung delivery fee to those who deliver the dung to the plants and take back the sludge

By considering the energy population nexus at the village micro- level and the global macro- level, the pattern of energy consumption can influence population growth by retarding or accelerating the demographic transition.

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