

# SUBDUAL OF ENERGY CRISIS BY AN INHABITANT OF A METROPOLIS OF COIMBATORE CITY

C. Anupama

Dr. M. R. Thilakam

Department of Resource Management  
Avinashilingam Institute for Home Science and Higher Education for Women  
Coimbatore-641 043, Tamil Nadu, India.

## Abstract

India is a developing country; Energy is the main input in industrial and economic development of the country. All economic sector and all sections of society consume energy. In India there are number of factors which lead to energy crisis. Since the last decade there has been increasing demand for energy due to overpopulation, industrialization etc. Conventional sources of energy are not sufficient to meet our increasing demand of energy which leads to energy crisis. Energy crisis can be addressed by the espousal of non-conventional energy sources. This energy is abundantly available and can never be drained in the terms of solar, wind, wave, thermal energy etc. Majority of non- conventional energy is directly or indirectly derived from solar energy. Solar energy is most viable and can be utilized in number of ways for residential purpose. It includes heating, cooling, cooking, electricity generation, etc.

Based on this view a research work was carried out in the metropolis of Coimbatore city to understand the methods espoused by urban population to subdue energy crisis. For gathering data from samples purposive sampling method was used. Interview was conducted using well designed schedule which entailed the background information of the respondents, family background and income, methods used to subdue energy crisis, non conventional energy devices used if any limitations while using non-conventional energy devices. The research work revealed, that majority of the samples said we are facing energy crisis and only twenty six percent of selected samples use non-conventional energy devices to subdue energy crisis.

**Keywords:** subdue, metropolis, energy crisis, non-conventional energy.

## Introduction

Renewable energy and sustainable development has undeviating association through its impact on economic productivity and development of human. Renewable sources of energy furnish opportunities in development such as social and economical, energy access, energy security and limiting health and environmental impacts.

Renewable energy is gathered from renewable energy sources, which is naturally replenished such as wind, waves, geothermal and solar.

## Environmental Effect of Renewable Sources of Energy

Entire energy sources have environmental effects. The precise environmental impact of renewable energy sources is determined by geographical locations, technology used and other factors. Renewable energy technologies are regarded as clean energy, build less secondary wastes and are sustainable. Renewable energy technologies furnish opportunity for reducing the severity of global warming and greenhouse gas emission through substituting conventional energy sources. An entire source of energy is sun. Heat and light energies are the key sources of energy. Sunlight and heat are absorbed and converted in the environment. Some of these conversion leads to renewable energy flows such as wind energy and biomass.

## Forms of Renewable Energy

### Solar Energy

Most readily available sources of renewable energy are solar energy which is abundantly available, non-polluting and reduce green house effect. Solar energy is being used since ancient times but in a most primitive technique. Solar energy is used for electricity generation, cooling, refrigeration, cold storage, cooking, heating drying, timber seasoning, and etc. Solar devices includes hot water apparatus (domestic and commercial), solar cookers, flat plate solar collections, concentrating collectors, solar dryers, etc. solar energy is also utilized to produce electricity through photovoltaic cells. These cells convert solar radiation into DC. This electricity can either be stored in the battery or be used as it is. Application of cells includes, electrifying, pumping of water, desalination, domestic and street lighting, village powering of remote telecommunication stations and railway signals.

### Energy from Water, Ocean Thermal, Tidal, Wave energy and Biogas

Energy from flowing water is harnessed to generate electricity. The association between wind and the surface of sea results in wave and represents energy transfer. Energy can be produced from tides by constructing a reservoir at the back of a barrage and then releasing the tidal waters through turbines in the barrage to produce electricity. A great quantity of energy from sun is reserved in the oceans and seas. Harnessing process is known as OTEC (Ocean Thermal Energy Conversion). It produces electric power. This utilizes the temperature difference between the surface of ocean and profundity to operate a heat engine.

Biogas is utilized for transportation, cooking, pumping, power generation, etc. the various appliances for harnessing energy are gas cookers / stoves, two-flame burners, biogas lamps, radiant heaters, refrigerators etc. In rural India for cooking and heating biogas technology provides alternative sources of energy. It is especially useful for rural population with their own cattle. Cattle dung produces gas which generates fuel for cooking. The residual is used as manure later. Biogas plants are becoming very popular and have been set up in many areas. Local resources are used to produce energy wastes such as cattle organic wastes.

The study on “SUBDUAL OF ENERGY CRISIS BY AN INHABITANT OF A METROPOLIS OF COIMBATORE CITY” was conducted with the objective given below

### Objectives

- To analyze methods adopted by urban population to overcome energy crisis.
- Observe devices installed by selected families to tap the renewable energy resources in the household level
- Determining the willingness of selected households to opt for renewable energy resources.

### Methodology

#### Area of study

The area chosen for the conduct of the study was Coimbatore city which comprises rural and urban population. The investigator selected fifty samples from urban population by convenience sampling method and gathered the needed information. A convenience sample requires selecting sample segments that are easily accessible to participate in the study and can yield the required data. (Hair, 2015). The study was carried out using well prepared interview schedule. According to Kothari (2004) an interview schedule is a proforma containing a set of questions. They are generally asked and filled by the investigator in a face to face situation with another person (Abhinav, 2012).

#### Tools for the Data Collection

Interview schedule was framed to find out the methods espoused to overcome energy crisis and to determine the willingness to opt for renewable energy sources for the betterment of the environment. Questionnaire is just

the way of posing direct or indirect questions. (Gillham, 2008). The information on various renewable energy devices adopted at household level including their cost and limitations were also included.

### Participants of the Study

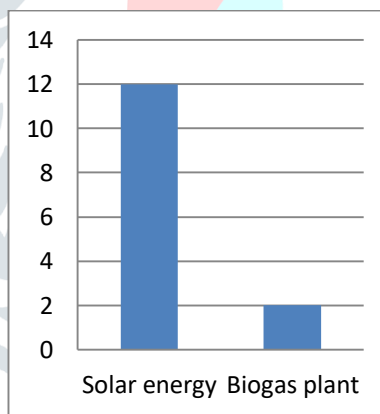
To fetch details, fifty house owners were approached who were residing in their own building from five zones in Coimbatore namely central, south, east, west, and north. Both male and female in the age group of 25 years and above were selected as samples for the study. The study was conducted for a period of one month.

### Results and Discussion

#### Findings of the Study

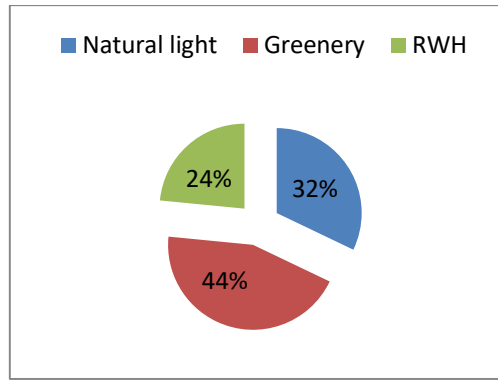
- 52 percent were males and 48 percent were females
- 74 percent of the samples had degree, 20 percent had secured professional degree and remaining did only up to schooling
- Among the selected samples 38, 34,12,10 and 6 percent of the samples were from central, north, east, south and west zone respectively
- Majority of the samples belonged to middle income group which comprised of 48 percent of the samples

It was observed that due to growing energy demand and depletion of fossil fuels resources populations were in search for alternative energy sources. Only 26 percent of populations were using renewable sources of energy to power their house in the form of solar energy.



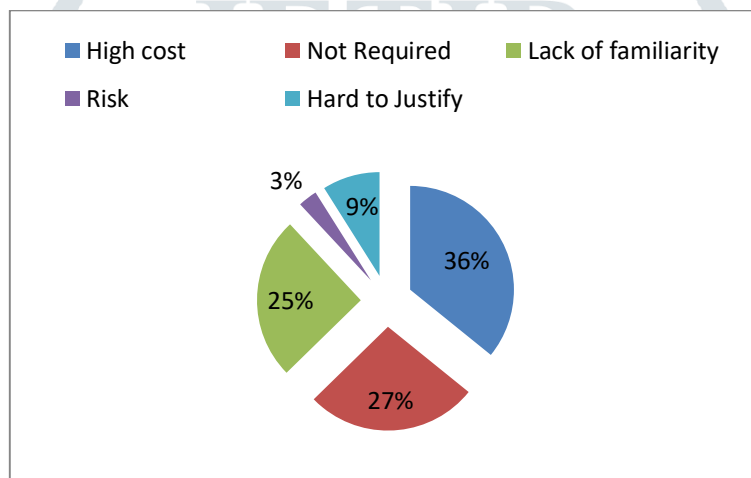
**Figure1: Renewable energy to power house**

It was observed that only 54 percent of the selected samples houses were designed to be energy efficient. Besides installation of devices to tap the energy they have maximized natural light, provided natural greenery in the surroundings, and added rain water harvesting.



**Figure2: Energy efficiency**

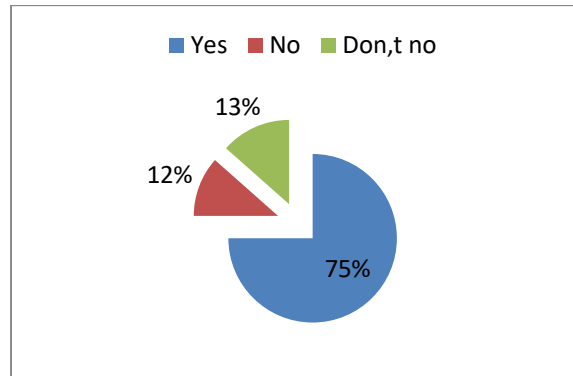
It was perceived that there were certain hindering factors such as high cost (36)%, not required (27)%, lack of knowledge with the concept (25)%, risk involved in the installation (3)% and hard to equate on the basis of long- term savings to adopt and install devices operated using renewable sources of energy.



**Figure3: hindering factors to implement renewable energy**

Those who had installed solar devices expressed the constraints ineffective operation during night, limited storage of energy, exorbitant price, varying production of energy and time consuming. Population had practiced measures to reduce energy expenditure like turning of electrical gadgets when not in use, using only star rated devices, using low energy bulbs such as LED bulbs etc.

Recent days we are in dearth of energy supply which is foundation of energy crisis. More than half of the selected samples had realized that we are facing energy crisis.



**Figure3: Energy Crisis**

Findings of the study depicts that reasons for energy crisis are over population, modernization, limited use of renewable sources of energy, demand is more than supply, and inability to store energy effectively. We can defeat energy crisis by adopting of renewable sources of energy and by popularizing energy saving devices.

### Conclusion

Alternative source of energy is absolutely necessary for survival of human being due to rapid depletion of fossil fuel. Energy and environment are interconnected subjects attracting attention of researchers and policy makers in the contemporary world. Population is willing to adopt renewable energy devices in future to save energy. Generally, acceptance of renewable energy devices in the residential sector is affected by income of the family. Hence researchers have to concentrate on designing devices which operates using non-conventional energy and popularizing among the households.

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