



IMPORTANCE OF FOSSIL FUELS AS SUSTAINABLE ENERGY IN RESOURCE MANAGEMENT AND SUSTAINABLE DEVELOPMENT

A Sociological study

(With special reference to Tarikere Taluk, Chikkamagalore Dist, Karnataka State)

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Abstract

The main ingredients of fossil fuels are coal, natural gas, crude oil and others. Fossil fuels are formed by natural processes by decomposition of buried dead organisms. The photosynthesis of buried and dead organisms through a long period of millions of years will form fossil fuels. The buried organisms may take 650 million of years and above to form fossil fuels. Petroleum products are considered as fossil fuels because they were formed from the buried remaining parts of plants and animals those lived before millions of years.

Petroleum is generally known as Oil as fossil fuel. It was assessed to be before Dinosaurs lived. When the living organisms and plants died, they sank into the bottom of the oceans and they were buried by thousands of feet of sediment and sand that turned into rock. After a long period of time the organic mixture will come under large pressure and heat as the layers increased. After the chemical reaction the mixture will be changed chemically breaking down into the compounds made of hydrogen and Carbon atoms-hydrocarbons. In the final stage Oil structured rocks will be formed. Every organic substance buried in underground does not convert into oil. Under the above said conditions only 2% of organic materials will be converted into Oil.

Petroleum products are very essential products these are distributed to the needy customers through petroleum retail outlets. These retail outlets are commissioned and operating on the guidelines of ministry of petroleum and natural gas in union government of India. At present there are 56000 retail outlets are working in India, in Karnataka 4500 are working in Karnataka state. In Tarikere taluk itself 18 different retail outlets are working.

Use of petroleum, products: Petroleum, products include Transportation, fuels, fuel oils for heating and Electricity Generation, asphalt and road oil, and the feed stocks used to Make chemicals, plastics and synthetic materials found in nearly Everything we use today, About 74% of the 6.89 billion barrels of Petroleum that we used in 2013 were gasoline, heating oil/diesel Fuel, and jet fuel.

The importance of fossil fuels in resource management and sustainable development in the present day's gains importance in all walks of life. Petrol, diesel and lubricants are the main products of fossil fuels. The excessive use of fossil fuels brings negative effects on environmental system. The effective management of fossil fuels well brings prosperous development to the nation.

Objectives:

- To estimate the daily usage of fossil fuels (petrol, diesel and lubricants.) in Tarikere taluk.
- To search the proper ways to utilization the fossil fuels (petrol, diesel and lubricants.) for the future generation emphasizing on the factor of sustainable development.

Hypothesis:

Fossil fuels (petrol, diesel and lubricants.) Some consumers are consuming petrol, diesel and lubricants recklessly in Tarikere taluk.

Keywords: Sustainable development, resource management, Fossil fuels, tanker trucks, liters, PSUs, OMCs, environment, sustainable energy



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Introduction:

The word petroleum comes from Greek. The term frequently used to refer to mineral oils produced by distillation from mined organic solids such as cannel coal and refined oils produced from them, they are derived from crude oil as it is processed in oil refineries, they are collection of well defined pure chemical compounds, petroleum products are complex mixtures.

Petroleum products are very essential products for transportation, heating, electricity generation, asphalt and road oil. They are used to make chemicals, plastics and synthetic materials which we are using in daily life. For the year 2016-2017 India consumed 23,765 Thousands metric tons of petrol, 76,027 thousands metric tons of diesel and 3,353 thousands metric tons of lubricants, 21608 thousands metric tons of LPG, 13241thousands metric tons of naphtha, 6998 thousands metric tons of ATF, 5397 thousands metric tons of SKO, 449 thousands metric tons of LDO, 7150 thousands metric tons of FO & LSHS, 5935 thousands metric tons of Bitumen, 23964 thousands metric tons of Petroleum coke and others 6593 thousands metric tons petroleum products. (Source: oil companies consumption of petroleum products – PPAC) (1 liter of petrol = 740 grams, 1 liter diesel = 835 grams only)

In our study area consumers are approximately consuming 18,000 liters of Petrol, 54,000 liters of Diesel, 180 liters of lubricants on daily basis. There are approximately 15,000, two wheelers, 500 three wheelers, 4,000 four wheelers approximately there are 1,000 petrol four wheelers and 3,000 Diesel four wheelers, 100 multi wheel trucks, 750 tractors, 200 power tillers, 60 earth movers, 500 power generators. For the above said motor vehicles 18 petroleum retail outlets are supplying petrol, diesel and lubricants. There are 9 Indian oil

corporation ltd (IOCL) retail outlets, 1 Bharath petroleum corporation ltd (BPCL) retail outlet, 3 Hindustan petroleum corporation ltd (HPCL) retail outlets, 4 ESSAR retail outlets and 1 Reliance retail outlet are working in Tarikere taluk. Approximately consumers are consuming 6 tank trucks of 12 KL, its total worth is Rs 50, 99,000 per day.

Road side parked Vehicles Photos:



Resource management:

Resource management can be defined as efficient and effective usage of financial resources, human skills, inventories, production, resources, information technology, natural resources and others including fossil fuels.

Sustainable development:

Sustainable development can be defined as the development that fulfills the needs of the present, by without compromising the ability of future generations to meet their own needs.

Sustainable energy:

Sustainable energy can be defined as a type of energy that meet our today's demand for energy without putting them in danger of getting expired or depleted and can be used over and over again. Continuous encouragement for sustainable energy is very essential, which will not harm the environment which is available widely free of cost. The example for
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sustainable energy are solar power, wind power, geo thermal power, ocean energy and others which are sustainable as they are stable in nature and available in plenty .

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Hypothesis:

Fossil fuels (petrol, diesel and lubricants.) Some consumers are consuming petrol, diesel and lubricants recklessly in our study area.

Importance of the study:

Study on exclusive use of fossil fuels affects the sustainable energy factor the role of fossil fuels in resource management is very important, fossil fuels are not renewable energy source. At one point of time fossil fuels deposits may exhaust. This may bring an end to the use of fossil fuels by consumers. So now the concerned authorities should think and act in a speedy way, without fossil fuels the world is unimaginable. In now a day's majority peoples are depending upon fossil fuels in their life for transportation and for other purposes, so judicious use of fossil fuels are very important. One drop of oil saved is equal to hundred drops of oil explored by judicious use of fossil fuels we can achieve sustainable development. Fossil fuels resource management is a new concept of the day. By efficient use of fossil fuels we can achieve sustainable development.

Methodology:

For this study we have used primary and secondary sources to collect data, regarding fossil fuels, sustainable energy, resource management and others.

Theoretical perspectives:

For this study we have selected structural functional theory.

Limitations of the study:

Our study area is old Tarikere taluk only.

Source of information:

1) Primary source:

We have collected primary information from 50 respondents.

2) Secondary source:

We have collected information from articles, journals, library, news papers, web sites and other source of information's.

Topographical features of the study area:

Tarikere is a Taluk in Chikkamagalore district in the state of Karnataka of India. The headquarters of Tarikere taluk is a town of the same name. The town has derived its name from number of water tanks by which the town is surrounded (Kere is a large water tank). There are a large number of tanks in and around Tarikere, namely, Chikkere, Doddakere, Dalavikere, Ramanayakanakere, Kendarahalla etc. Tarikere taluk is famous for areca nut, coconut, betel nut, mango, and other horticulture crops. It is also famous for onion, potato, chilly and other commercial crops and it is famous for paddy crop also. There is one industry called vignan industries limited (VIL). There are many famous tourist places in Tarikere taluk Amruthapura, Kemmanagundi, Khallatigiri and others.

Data analysis:

The data collected by using all the research methods, and others sources are analyzed by essential statistical techniques by using analysis of data research report. The data was collected on structural functional theory.

Table. 1 Personal Profile Of The Respondents

SL NO	Personal profile of the Respondents				
1	Age	18-28	29-39	40-50	51-60
		25	15	05	05
2	Gender	Male			Female
		47			03
3	Caste	SC	ST	OBC	Others
		05	10	15	05
4	Religion	Hindu	Christian		Muslim
		35	05		10
5	Education	Illiterates	Primary education	Secondary education	Higher education
		00	20	20	10
6	Yearly Income	Up to 1,00,000	1,00,001 to 1,75,000	1,75,001 and above	
		35	10	05	
7	Marriage	Married	Bachelor	Widow	
		40	10	00	

8	Family	Joint	Nuclear		
		00	50		

In demographic information age, gender, education qualification, marital status, income size type of family etc, are various information's are followings.

- **Age:** Age is the important factor at the time of interviewee because if the respondents are below 18 years age they will be considered as minors. They are not eligible into any contract according to **Indian contract act-1872**. We have interviewed the respondents from age group 18 to 60.
- **Gender:** We interviewed 94% of the male and 6% female respondents.
- **Cast:** At the time of study in India cast plays an important role even though India is secular state. We interviewed 10% SC, 20% ST, 30% OBC and others 10%.
- **Religion:** India is the mother land of several religions. Even though it is a secular state. All the statistics are collected on the basis of religion like Hindu, Muslim and Christian. We interviewed Hindus 70%, Christians 10%, and Muslims 20%.
- **Education:** Education plays in important role in India. Due to several governmental and non-governmental (NGO`s) intuitional efforts, Majority of the people are educated in Karnataka State. We have interviewed literates only, 40% having primary education, 40% having secondary education 20% having higher education.
- **Annual income:** 70% of the respondents having income up to 1,00,000 per year, 20% respondents are having income of Rs 1,00,001 to 1,75,000 per year, 10% respondents having income of 1,75,001 and above per year.
- **Marriage:** we have interviewed 80% Married and 20% Bachelors.
- **Family:** we have interviewed 100% nuclear family.

Table: 2 Thematic Analysis:

Sl no	Opinion of fossil fuel users	Yes	No
01	Are you utilizing fossil fuels judiciously	80%	20%
02	For social prestige only have you purchased two wheelers	35%	65%
03	Have you purchased the four wheeler for social prestige only	35%	65%
04	Do you opine usage of fossil fuels increased due to increase in income	95%	05%
05	Do you purchase motor vehicles on loan base	90%	10%
06	Are you willing to save fossil fuels for feature generation	95%	05%
07	Do you know resource management	10%	90%
08	Do you know sustainable development	10%	90%
09	Do you know sustainable energy	10%	90%
10	Do you opine four wheels vehicles are necessary for a single passenger	40%	60%
11	Do you prefer bicycle for daily use to save fossil fuels.	15%	85%
12	Do you opine Share Auto, share taxi concept is useful to save fossil fuels.	40%	60%
13	Do you prefer public transportation for travelling purpose	70%	30%
14	Do you prefer walking to cover small distances	30%	70%
15	Do you recommend for electric battery vehicles.	30%	70%
16	Do you prefer for Solar power instead of power generators	40%	60%
17	Do you prefer Bullocks for land tilling instead of tractors and power tillers.	05%	95%

- 1) **Are you utilizing fossil fuels judiciously:** 80% of respondents opine that they are utilizing Fossil fuels judiciously for constructive and welfare purposes only as and when the need arises, because in recent time fossil fuels are very costly and economically very difficult to bare the fuel costs. Fuel costs are decided on daily basis depending upon the World oil market and Indian rupee value against American dollar. 20% of the respondents are not utilizing fossil fuels judiciously, because they are financially well established and they have no future thoughts about fossil fuels for the future.
- 2) **For social prestige only have you purchased two wheelers:** 35% of the respondents opine that they have purchased two wheelers for social prestige only, because they are in illusion in having two wheelers and exhibiting falls prestige in the society. Actually they do not need two wheelers for their daily life, approximately 5,250 two wheelers

consuming 5,250 liters of petrol per day without any proper aim. It cost approximately 3,87,293 rupees per day (Rs 73.77 / liter of petrol). 65% of the respondents opine that they have not purchased two wheeler for social prestige only. They are utilizing the fossil fuels to the best extent.

- 3) **Have you purchased the four wheeler for social prestige only:** 35% of the respondents opine that they have purchased four wheelers for social prestige only; these respondents are in illusion in having four wheelers and exhibiting false prestige in the society. Actually they do not need four wheelers for their daily life. These 35% of the respondents approximately 350 four wheelers owners utilize 350 liters petrol per day, approximately its cost Rs 25,820 per day (Rs 73.77 / liter of petrol). 1,050 four wheelers owners utilize 1,050 liters of Diesel per day; it cost approximately 72,135 rupees per day (Rs 68.70 / liter of Diesel). 65% of the respondents opine that they are utilizing fossil fuels for genuine reasons. In our study area 35% of the respondents recklessly consume 350 liters of petrol per day worth of rupees 25,820, and they are consuming 1050liters of diesel per day worth of rupees 72,135 totally it costs totally 1400 liters of Petrol and Diesel daily worth of 97,955. For one year it well comes up to 5, 11,000 liters petrol and Diesel and costs up to Rupees 3, 57, 53,575. By Judicious use of fossil fuels in our study area they can save large volume of fossil fuels and valuable hard earned Indian rupees in the form of Foreign exchange in terms of America Dollars.
- 4) **Do you opine usage of fossil fuels increased due to increase in income:** 95% of the respondents opine that usage of fossil fuels increased due to increase in income of vehicle owners due to several reasons of overall development of vehicle owners. In recent days Indian economy is growing and purchasing power of vehicle owners is also increased. 05% of the respondents opine that use of fossil fuels increased due to urgent necessary of vehicles only at the time of emergencies.
- 5) **Do you purchase motor vehicles on loan base:** 90% of the respondents purchase motor vehicles on loan base only, because all the nationalized banks, Private Banks, Private financiers and other are providing loans at cheap rate of interests without delay. 10% of the respondents purchase vehicles on cash base to purchase second hand vehicles, rarely new vehicles.

- 6) **Are you willing to save fossil fuels for future generation:** 95% of the respondents opine that they are willing to save fossil fuels for future generations. These respondents have concern about the fossil fuels resources. 05% of the respondents are not saving fossil fuels for future generations because they are not worried about the fossil fuel resources.
- 7) **Do you know resource management:** 10% of the elite respondents know about the resource management, because they are in touch with day to day affairs of the World oil market and other resources. 90% of the respondents opine that they have no idea about resource management.
- 8) **Do you know sustainable development:** 10% of the elite respondents know about the sustainable development because they are in touch with day to day affairs of development and sustainable development. 90% of the respondents opine that they have no knowledge about sustainable development.
- 9) **Do you know sustainable energy:** 10% of the elite respondents know about sustainable energy of fossil fuels which can be used for the welfare of the society. 90% of the respondents have no idea about sustainable energy of fossil fuels.
- 10) **Do you opine four wheels vehicles are necessary for a single passenger:** 40% of the respondents opine that they need four wheelers for a single passenger to maintain privacy and to keep lavish way of life style. 60% of the respondents opine that four wheelers are not necessary for single passenger to travel a long way. 4 and above passengers may need four wheeler for travelling purposes only, it will save fossil fuels for the future generation.
- 11) **Do you prefer bicycle for daily use to save fossil fuels:** 15% of the respondents opine that they prefer bicycle to covers small distances and to save fossil fuels. Cycling will help the respondents in keeping good health. Cycling provides physical excise to human body and saves environment also. 85% of the respondents will not prefer bicycle to save fossil fuels.
- 12) **Do you opine Share Auto share taxi concept is useful to save fossil fuels:** 40% of the respondents opine that share auto and taxi concept is very useful for poor and middleclass peoples in the society. It will save the travelling cost and fossil fuels to the maximum extent. Share auto and taxi concept binds the common people in the interest of nation and to save fossil fuels. 60% of the respondents opine that they do

not support share auto and taxi concept, they want to travel separately without any disturbances.

- 13) Do you prefer public transportation for travelling purpose:** 70% of the respondents prefer public transport like buses and railways for transportation. Public transportation provides sense of security at the time of travelling. Public transportation system provides insurance facility to its passengers at the time of travelling. If any unhappy thing happened the insurance claim amount is payable for the diseased passengers or for their nominees. Public transportation saves fossil fuels and environment also. 30% of the respondents prefer private vehicles for transportation according to their convenience and they are ready to spend more money for travelling purposes in private vehicles.
- 14) Do you prefer walking to cover small distances:** 30% of the respondents prefer walking to cover small distances it helps keeping good health and saves money also, it is very helpful to poor and middle class peoples. 70% of the respondents prefer vehicle to cover small distances also, it is very expensive and costly affair.
- 15) Do you recommend for electric battery vehicles:** 30% of the respondents prefer electric battery vehicles to save fossil fuels and environment also. At present electric battery vehicles are not available in the market and they are very costly also. These respondents demand the Government to provide subsidies for electric battery vehicles and they demand for exemption from paying huge amount of life tax for registration on electric battery vehicles. 70% of the respondents do not prefer for electric battery vehicles because electric vehicles capacity and speed limit is very low and it is not suitable for hilly areas and very cold places.
- 16) Do you prefer for solar power instead of power generators:** 40% of the respondents prefer for solar power for their use instead of power generators. Solar power provides power at day times generally. Solar power saves fossil fuels and environment also, but installation of solar power is very laborious and lengthy process. 60% of the respondents prefer fossil fuel generators to generate power for their immediate use, it is costly and pollutes the environment also.
- 17) Do you prefer Bullocks for land tilling instead of tractors and power tillers:** Only 05% of the respondents prefer bullocks for land tilling it is somewhat cheaper and available in rural areas also. Tilling by bullocks will save fossil fuels and environment

also. 95% of the respondents opine that bullocks for land tilling is a time consuming process and it is very difficult to maintain the bullocks, tilling lands by tractors and power tillers will consume fossil fuels and it damages the environment also.

Findings:

- The findings of the study are some people are using fossil fuels recklessly without thinking about the future generations.
- They are wasting the hard earned money of our people to buy fossil fuels by paying American dollars in the World market, at present Indian rupee is very weak when compared to US dollars.
- Some peoples are suffering from financial burden to repay the EMI's of vehicles loans and spending more money to buy fossil fuels.
- The reckless use of fossil fuels is generally found in two wheelers and four wheel users only, all other commercial vehicles has a intention to serve the community.
- This study reveals some percentage of respondents are not worried about environmental pollutions also, this may bring financial disasters to them and for the nation in the future days.

Confirmation of hypothesis:

By the above factors I can confirm the hypothesis, some fossil fuels (petrol, diesel and lubricants.) consumers are consuming petrol, diesel and lubricants recklessly in our study area.

Suggestions:

- By considering all the above factors there is an urgent need to educate fossil fuel consumers to use fossil fuels judiciously.
- The consumers for themselves understand the importance of fossil fuels and they should minimize the consumption of fossil fuels.
- The NGO's, the Government, the public and private oil companies should campaign the importance of fossil fuels and should bring awareness among the consumers.
- The Government and the oil companies should adopt save and sell oil policy for the bright future of the nation.
- Good public transportation system should be provided for fossil fuel consumers to reduce the number of private vehicles on the road.

- The Government should think about new policies regarding the manufacture of new vehicles to curb the excessive utilization of fossil fuels.

Conclusion:

By considering the all above factors we can say that some fossil fuel consumers are consuming fossil fuels recklessly, there is an urgent need to search for alternative renewable resources for daily use to save fossil fuels and to manage the resource management in a good manner to attain sustainable development.

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