

“BIO-FUEL COMPANIES- Leadership, Significance and Benefits”

Dr.Meera Uday

Professor & Head

MBA (VTU), DBIT, Bangalore

9900312933

udaymeera@gmail.com

Mr.C.N.Udayashankar

Director

MU Consultancy

9900237806

uday.129shankar@gmail.com

Dr.Nandeesh .V.Hiremath

Professor- HR and Entrepreneurship

IBA, Bangalore

drnandeeshvh@gmail.com

bv.narendra1@gmail.com

98868 27705

Prof. Narendra Babu

Asst. Professor- Marketing

IBA, Bangalore

9110661607

Abstract

“ What you do has far greater impact than what you say” - Steve Jobs

India is one of the TOP 10 largest economies of the world in the recent times and continues to grow to TOP 5 Largest economies of the world.

In this context of gaining International recognition and becoming economic superpower, the business organisations need innovative Leadership with more effectiveness.

In addition, the entire world is embracing immense and unprecedented changes in the technology, business management and every sphere of life around us, viz. VUCA World- Volatility, Uncertainty , complexity and ambiguity.,

In the current VUCA World, Leadership plays a significant role to adapt to the changes and challenges posed by the dynamic market environment. In this context, Leadership is very crucial to motivate employees and to perform by meeting the market requirements, by producing innovative products which are organically processed and renewable.

One of the most important question that's haunting us today is the Global warming, Climate change and the soil and environmental pollution.

- All of us are seriously concerned about the future of the next generation.

- Will they live in a safe environment or they have to live on an earth ,full of natural calamities ,devastation and disease.
- The world's energy consumption is continually rising and is predicted to increase by a further 37% over the next two decades, while earth's natural energy resources such as coal and oil are fast depleting.

The current research paper focus on the challenges posed by VUCA World to the Leaders and their performance with effectiveness to satisfy all the stakeholders and tapping the potential of Biofuel , renewable sources of Energy.

Keywords: VUCA World- Environment-Challenges-Biofuel -Leadership

INTRODUCTION

- One of the most important question that's haunting us today is the Global warming, Climate change and the soil and environmental pollution.
- All of us are seriously concerned about the future of the next generation.
- Will they live in a safe environment or they have to live on an earth ,full of natural calamities ,devastation and disease.
- The world's energy consumption is continually rising and is predicted to increase by a further 37% over the next two decades, while earth's natural energy resources such as coal and oil are fast depleting.

What is Biofuel?

- Bio fuel ranges from Biogas to Duck weed, these are the alternate fuels and there are many opportunities and challenges associated with Biofuel.
- Duck weed is abundant in nature near lakes, which is ignored in India, but having huge potential for Biofuel.
- In Pennsylvania , patents are being taken for duckweed.
- Jetropa, castor oil and linseed are rich in Biofuel and are used in automobiles.
- To grow these plants, proper rainfall is necessary.
- Animal wastage carcass ,cow dung, bio mass, trees are used for Biofuel
- Briquettes can be used for fuel purpose.
- Paddy Husk/Hay are sources of Biofuel.
- Biofuel is mixed with petrol in the ratio of 20% and 80%.
- There are few companies in Bangalore doing this kind of business.
- Gujarati Gas are also popular examples of Biofuel.

Sources of Biofuel

Jatropha plant- RATANJYOT

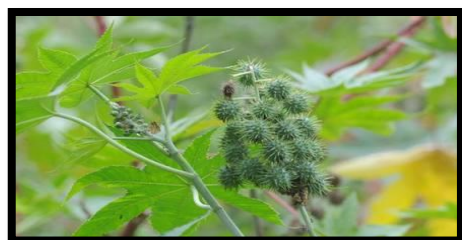
Duckweed in a lake/pond



Castor oil plant



Neem Oil



Sources of Biofuel...

- But one of the best and most economically viable source is a oil seed bearing tree called JATROPHA CURCUS, locally known as RATANJYOT - the plant grows quite well in the Indian Subcontinent.
- Other non-edible oils available in India for biodiesel production are Pongamia (Karanj), Neem, Castor, Ricebran, Animal fats, Acid oil, Fatty Acid Distillate and others.
- Plantation of Jatropha Curcus is going on in a large scale in our country.
- In India, the Industry is in it's nascent stage but there is euphoria amongst the people across the country to make India self reliant in this front.
- Since Jatropha is a plant of Tropics, India has very large potential and the west is looking at us.
- We are very positive that the initiative taken by GOI and others will go a long way in mitigating the miseries of our farmers and we emerge stronger in our economy in the coming years.

Examples of Biofuel Usage

- Tata Motors, Daimler Chrysler, IOC and others have already conducted trial runs successfully with Biodiesel.
- HP and Indian Oil are using Hybrid oil and Indian Railways is the biggest customer of Biofuel
- KSRTC is using Biofuel



Why should Organisations focus on Bio fuel?

- Use of green Bio Energy, controlling air pollution and global warming.
- The world is ushering into a new era of Bio-based and Renewable natural energy sources.
- Mineral fuels such as Diesel, Petrol, Coal are potential source of Carbon Dioxide, Sulphur Dioxide, Nitrous oxide and other particulate matters released into the atmosphere.
- Therefore, alternate source of clean burning fuel such as Biodiesel, Ethanol, Hydrogen cell, Biogas, Hydel and wind energy had been identified by the world Scientific community as the energy bank of the future.

History of Biodiesel:

- Rudolph Diesel himself developed biodiesel in 1890, wherein pure vegetable oils were used in diesel engines for agriculture, where petroleum diesel was not available.
- Modern biodiesel fuel is an outcome of research conducted in 1930s in Belgium, which is made by converting vegetable oils into compounds called fatty acid methyl esters.
- Process of transesterification was used to convert vegetable oils into fatty acid alkyl esters and use as diesel fuel replacement with lower viscosity of vegetable oil.
- Biodiesel is the trade name of fatty acid methyl esters.
- Concerns over environment, energy security and use of agro products brought the use of vegetable oils to the forefront.
- Biodiesel industry became house hold name in U.S. after terrorist attack of 9/11/2001, resulting in high oil prices.
- Biodiesel is being used Worldwide now, due to concerns over Global warming.
- The future of biodiesel lies in the world's ability to produce renewable feedstocks such as vegetable oils and fats to keep the cost of biodiesel competitive with petroleum.

What is Bio-Diesel?

- Biodiesel is a highly efficient and environment-friendly substitute of regular diesel.
- The fuel is essentially a long chain mono alkyl ester of fatty acid produced from by product and waste product of vegetable oil origin or animal fats which is called FAME (Fatty acid methyl ester).

- Since biodiesel is produced from organic sources, it is 100% renewable.
- It not only ensures perfect power output but also guarantees excellent engine performance.
- Additionally, the use of biodiesel leads to a decrease in harmful emissions by a significant 80%.

Biodiesel- Need of the hour:

- Biodiesel is a renewable alternative fuel created from vegetable oils, animal fats and greases through a chemical process.
- The chemical process involves reaction of natural oils with an alcohol in the presence of a catalyst (usually sodium hydroxide [NaOH] or potassium hydroxide [KOH] and then refining the mixture to create molecules which can be easily burned in a diesel engine.
- Blend of 20% to 80 % with petroleum diesel significantly reduces carcinogenic emissions and gases that contribute to global warming.
- Glycerin is the byproduct of the biodiesel production process which can be used for personal care products and variety of chemical applications.

OBJECTIVES OF THE RESEARCH

- To understand the production and importance of bio-fuel.
- To understand the supply chain management strategies of bio-fuel

METHODOLOGY

- The team has visited bio-fuel company in Tumkur, karnataka and understand distribution and supply chain management strategies.
- Gayathri biofuels-Tumkur

Progress of the work- Gayathri Biofuel visit- 15.07.2019

- Visited Gayathri Biofuel in Tumkur founded by Mr.Sudhakar Shetty a Mechanical Engineer from RVCE: 9845283086
- They are producing briquettes –bio mass, by using the waste from Groundnut husk, coffee husk and saw dust since 2005
- One more plant in Challakere, Chitradurga district since 1991, exported to Goa.
- Gayathri Biofuel is one of the pioneers in south India since 1991 for briquettes biomass manufacturing
- Gayathri Bio Fuels



- Plot no 140, 2nd
Antharasanahalli, KIADB Industrial Area
Tumkur – 572101
- <https://goo.gl/maps/A5dpAjL8sz2jtUns9>

Gayathri group of industries

- Started in the year 1991, Gayathri group of industries had a vision of “**Providing environmental friendly substitute for fire wood, furnace oil and other petroleum products used in industrial boilers**”. Today, we are the largest manufacturer or Biomass Briquettes in south India with annual production capacity of 60,000 Mt.
- Quality, consistency and reliability are some of the characteristics for which Gayathri industries is famous for among our customers.
- It has been a long journey since 1991 for Gayathri Group of Industries to reach an annual production capacity of about 60,000 MT and to establish itself as the leading manufacturer of Biomass Briquettes. Over the years of operation, the company has expanded its manufacturing facility to two new locations. One being Gayathri Bio Fuels, established in the year 2005 and is based in Tumakuru. The other being Swarna Bio fuels, established in the year 2012 and is based in Doddaballapura near Bengaluru..
- Among these, the Challakere plant has the largest manufacturing capacity. Production at Tumakuru plant and Doddaballapura plant can very well cater the needs of Bengaluru market.

Highlights of Gayathri group of Industries

- **Quality:** The briquettes that we produce will always satisfy the needs of our customers. They are delighted by the steam generation capacity of our Briquettes. The quality of our briquettes has never deteriorated. In fact, the quality has been increasing over the years.
- **Consistency:** We are committed to supplying briquettes which are consistent in quantity as well as quality throughout the year. External factors such as climate change, market fluctuations and unforeseen crises will never deter our performance.
- **Reliability:** We are a reliable supplier of briquettes. Our commitment is our strength. Even if availability and price of our raw material change during the year, the supply of Briquettes will not change.
- **Customers:** Most of our customers are multinational companies. These companies prefer impeccable quality and reliability over price. We crave for a long term relationship with our customers. Hence most of them who get associated with us will be reluctant to abandon us.

- Some of our valuable and honest customers are **Lupin Limited, United Breweries (UB group), Nicomet Industries, Gokaldas Exports (24 factories), TVS tire rebuild unit etc.**

Biomass- Briquette

The ratio of the mixture is as follows

- Groundnut husk:60%(procured from Raichur, Andhra and karnataka.)
- Coffee husk:20%(procured from Chikamagalur)
- Saw dust:20%(procured from Tumkur –local supply)

Customers are

- Shahi Exports
- Gokuldas Exports and Gujarat Boilers.

Details of Gayathri group of industries

- Production capacity: 120 tonnes/day, 2200 tonnes per month
- Machines are purchased from Rajkot Industrial Area, Gujarat
- Selling Price of One tonne: Rs.5000-6000/-
- No.of Employees: 50(from Bihar)
- Accommodation and food are provided for employees

Challenges of Briquettes Industry

- Rainfall (because yield of crops is less)

Few Snapshots of Gayathri group of industries-Dr.Meera Uday with Mr.Balaji-Manager





Raw-materials- Groundnut husk, coffee husk and sawdust



Briquettes – Processing



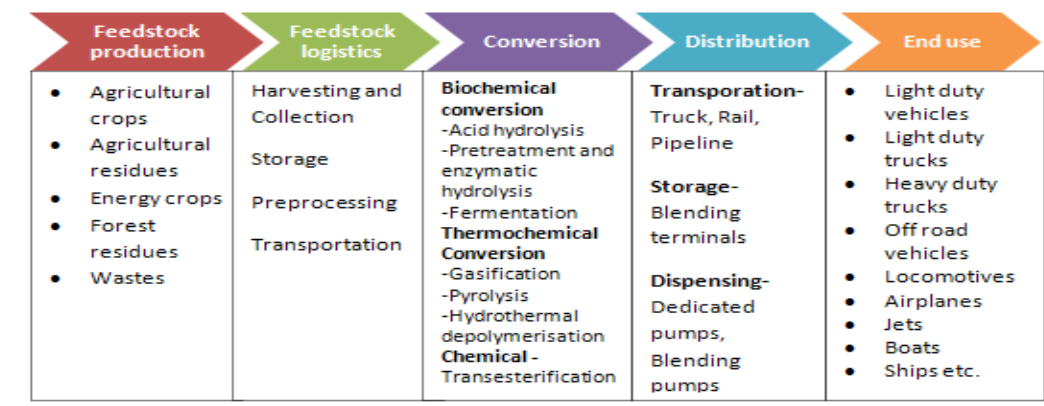
Final Product –briquette



Benefits of Biofuel

- Biodiesel is manufactured from plant oils, animal fats, recycled cooking oils and has following Salient advantages:
- It is renewable & energy efficient.
- It can be used as a 20% blend in most diesel equipment with no or only minor modifications.
- It reduces tailpipe emissions, including air toxics and It reduces global warming gas emissions.
- It is nontoxic, biodegradable and suitable for sensitive environments.
- Biodiesel is most commonly used as a blend with petroleum diesel. At concentrations of up to 5 vol % (B5) in conventional diesel fuel.
- B20 is the most commonly used biodiesel blend in the United States because it provides a good balance between material compatibility, cold weather operability, performance, emission benefits and costs.

Supply chain Management of Biofuel



CONCLUSION

- Biofuel and related alternate energy products are the future of power sector.
- These bio based products are natural and pollutes less also these are renewable energy sources.
- Thus we can preserve the earth in its natural form.
- We need to encourage Biofuel Projects and create an awareness about the same.

References

1. Dr.Nandeesh.V.Hiremath- Professor-IBA-9886827705
2. Mr.Sudhakar Shetty-Founder and Director- Gayathri Group of Industries
3. Mr.Balaji-Manager –Gayathri Biofuel-Tumkur
4. Prof.Narendra Babu – an expert in Sustainability Projects (consulted his expertise for the data collection)
5. <http://www.biodieseltechnocrats.in/>
6. <http://www.emamiagrotech.in/>
7. <https://www.omicsonline.org/open-access/evaluation-of-jatropha-curcas-l-accessions-from-shivamogga-districtkarnataka-for-oil-content-and-germination-2329-8863-1000232.php?aid=77911&view=mobile>