

Fuelling a Vision: An Entrepreneur's Journey Through India's Emerging Biodiesel Landscape

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Abstract. Founded jointly in Palghar, Mumbai, BioVerda Fuels commissioned a 2KLPD biodiesel unit in 2016 to produce clean fuel from the waste cooking oil (WCO) and vegetable oil. Even with India's favourable biodiesel policy of 5% blending by the year 2030 and a market set to double from USD 461.6 million in the year 2024 to USD 936.1 million by the year 2033, the entrepreneurs encountered significant roadblocks. From sourcing specialized machinery, to obtaining regulatory permits in the face of unclear zoning regulations at the time of inception and assuring a steady raw material supply were challenging. A crisis in feedstock forced hard choices between tallow, palm stearin, jatropha, soya bean oil and blended feedstock, trading on cost, complexities of process, sustainability and cultural acceptability. This situation illustrates the strategic decision-making under limited resources and time-critical situations for SMEs in the renewable energy sector.

Keywords: biodiesel, waste cooking oil, feedstock, sustainability, environment.

1. Introduction

Mr. Ravi gazed out his factory window at the grey, gloomy sky, which was a reflection of his mood. The supplier had explicitly communicated yesterday, 22 October 2024, that they were unable to supply the anticipated quantity of waste cooking oil within the day after tomorrow. However, the biodiesel plant needed the same quantity within 15 days to fulfil government-unit obligations. Production was to commence within 24 hours, and a delay would not only stop the delivery of biodiesel but also invoke heavy penalties. All that was left now was for his business partner, Mr. Abhijeet, to make the final decision: whether to go ahead with the chosen feedstock or opt for another one, a move that would ensure production costs escalated.

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2. About the Entrepreneurs

Ravi Manoharan hailed from close to Kochi. His father was an agriculturist with plots of land on the outskirts. He was fond of keeping the backwaters clean and would take Ravi along with him on his rented boat and gather trash. He would also participate in anti-pollution campaigns with Ravi accompanying him when Ravi was in school. So, Ravi got this penchant, too. After completing the secondary and higher secondary education, Ravi took admission to the Bachelor of Engineering in Chemical Engineering at the Institute of Chemical Technology (ICT), Mumbai. There, he formed a long-lasting friendship with his batchmate Abhijeet Kulkarni. Abhijeet's father, too had been a Chemical Engineer in Union Carbide, Bhopal. Following the tragedy at Union Carbide, they had shifted to Palghar on the outskirts of Mumbai to assist his uncle, who had a big warehouse there and was into logistics. Both friends would take time off for various clean-up drives of Mumbai's coastline and were clear about maintaining a clean environment. Upon graduation, both friends were employed by a petrochemical firm. While Ravi was engaged in the operations division in Andhra Pradesh, Abhijeet got placed in Mumbai in their logistics division. They remained in constant touch, meeting whenever feasible.

3. Idea of the Business

In 2015, Abhijeet's uncle died, leaving behind his land in Palghar City in the hands of Abhijeet. Abhijeet had planned to quit his job, take care of the family business and attend to his father. At that time, he got an idea with all the capital, he could begin his endeavor of producing clean biofuel with the help of his friend Ravi. Ravi was also keen because it was an emerging field. Thus, in 2015, both quit their jobs. Ravi took up employment at a biofuels company located in Andhra Pradesh in order to learn business, and Abhijeet took up implementing the necessary infrastructure at Palghar. They ultimately chose to start their business, "BioVerda Fuels" in 2016. Two options were shortlisted during the planning stage: Light Diesel Oil (LDO) and Methyl Ester (Biodiesel). Both were compared, and biodiesel proved to be the better choice because it contained less carbon, and it was fully combustible. LDO was a bit crude, whereas biodiesel was a cleaner fuel source. Additionally, the government's incentives for alternative fuels and the increased demand for clean sources of energy also led to the popularity of biodiesel. They opted to utilize vegetable, edible oil and waste cooking oil, best procured from restaurants as raw materials for the production of biofuel. The ratio of input to output was 1:0.96. Glycol was a byproduct of this process.