

# Analyzing Biofuels from Rice

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## Abstracts

History has seen fuel innovations being driven majorly by transportation needs rather than the overall need to revolutionize the energy needs of the society. It has also been very evident that biofuels have been treated more as a cost variant to high crude oil prices rather than a serious energy alternative. However with the advent of new economies which have now begun to realize their worst energy security dreams; biofuels are now receiving the impetus required for becoming a fuel source for the future. Biofuels have received the biggest boost from transportation as even though they release CO<sub>2</sub> on combustion; their overall use reduces the emissions from fossil sources as also their easy adaptability to existing engines and the promise of biodegradability which makes them very attractive.

As the industry finds new sources to produce biofuel the most recent spark in the plug has come from the introduction of biofuel made from rice which has been introduced in the Japanese Niigata Prefecture in which around 1000 kiloliters of ethanol is derived from 2250 tons of rice which when blended with ethanol produces 33000 kilolitres of biofuel.

These rapid strides being made in the field of biofuel and specially the implications of making biofuel from a source as simple as rice make it very important to understand this revolutionary new fuel in depth as explained in Aruvian Research's report on Analyzing Biofuels from Rice.

The report initiates with a theoretical grounding of the history and uses of biofuels as well as the role of biobutanol in the scenario. This section also explains the role of ethanol and applications such as biodiesel which have their relative pros and cons. The report further explains the economics of biofuel production in order to lay thread bare the cost matrix of the entire biofuel production sequence from processing to sales as well as the types of tax incentives in place in a retail scenario.

The role of biofuels can not only be limited to the economic cost functions and hence the report also analyzes the role of biofuels in the environmental paradigm and the sustaining role that it plays in the overall impact. This has to be also critically examined in the context of policy decisions on biofuels and the ability of biofuels to script the next success story of serving as the vehicle for rural development making technological impact on engines worldwide from distant farmlands in the vast expanses of rural areas of the world. This is bounds to have a very large impact on the energy industry and this report also explains the transformational change which is happening in the energy sector aided by biofuels.

The report commences on its core analysis of biofuel from rice in a separate section beginning from the very basics of rice bran oil and processes involved in the generation of rice straw such as thermal combustion, carbonization, pyrolysis, gasification, biomethanation and hydrolysis which is then followed by fermentation. A separate section is devoted in the report to the derivation of biodiesel from Rice.

As mentioned earlier the most recent initiatives in biofuel introduction has come from the Japanese market the report explains in detail the developments in this field in Japan from all quarters as the policy making , government's initiatives , ongoing R&D as well the current biofuel products in Japan. Some rapid strides made by China are also explained in detail in this report. On a more global scenario biofuel facilities in India, China, and Europe are explained in the report.

The report in a unique manner also critically examines the fallout of biofuels on the rising prices of food stocks as rice, etc which has a very deep impact in South East Asian countries where the governments have to make crucial decisions to balance between food security or energy security.

The report summarizes analyzing biofuels from rice by presenting two case studies on the subject as well as a capsular run down on the major industry contributors in the world. Aruvian's report on Analyzing Biofuels from Rice is a comprehensive digest on biofuels and endeavors to deliver a better understanding on this yet to be fully tapped energy reserve which was always available to mankind for their energy needs. Now, more than ever before is the stress on mankind to find sustainable futures in the huge machinery of nature which works in the smallest genome of rice in paddy fields to the biggest nuclear reactors in the world and thereby ensure that we as a code of life's DNA on earth continue as a species.

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