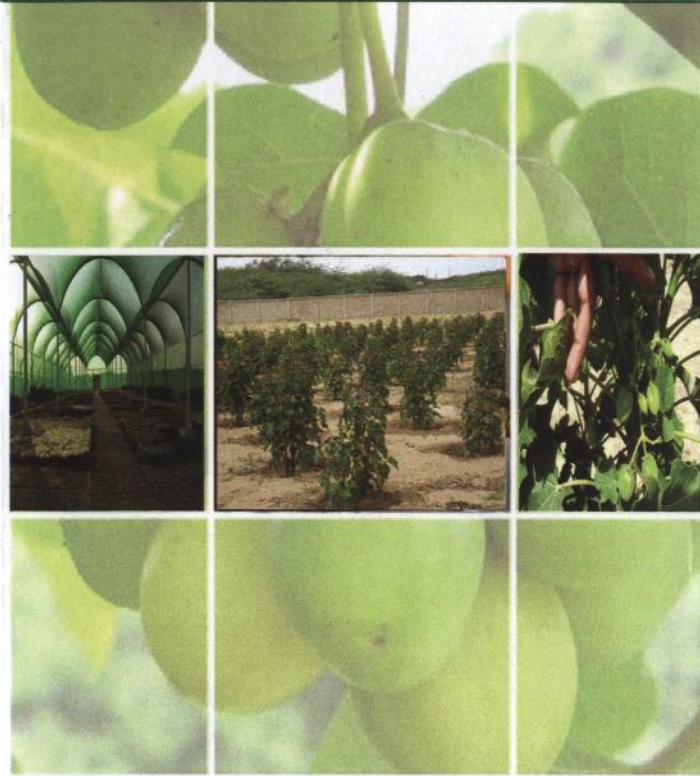


# PSO's Step Towards a Cleaner & Self Sufficient Pakistan

Biodiesel is a renewable, environment friendly substitute for petro-diesel fuel. It is derived from *Jatropha Curcas* plant which is a hardy, wild oilseed perennial plant. Conditions for cultivation of this plant are favorable in Pakistan, and the biodiesel derived can reap benefits in the form of economic, environmental, mechanical and national security.

PSO's focus is on using this plant as feedstock and utilizing country's ample marginal land for cultivation. This initiative would create employment opportunities and contribute towards the development of the nation. Being a focal member of AEDB Biodiesel Advisory Committee which is working on the road map of National Biodiesel Program, PSO believes that biofuels will make a major contribution to road transportation and power generation fuels. This will also lead to reduction in carbon emissions in the years to come.



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**Pakistan State Oil**

# Biodiesel Initiative



**fuel for the future generation**

## What is Biodiesel?

Biodiesel is a renewable, environment friendly substitute for petro-diesel fuel. It is produced from edible and non-edible oils and animal fats. Normally biodiesel blends can be used in diesel engines without any alteration.

## What are the benefits of Biodiesel?

### Economic:

- Savings & earning precious foreign exchange
- Poverty alleviation through additional jobs
- Utilization of waste / marginal land

### National Security:

- Reduces dependence on imported oil
- Is a sustainable, renewable domestic resource

### Environment:

- Approx. 80% less CO<sup>2</sup> emissions
- Almost 100% less sulfur dioxide
- 90% reduction in unburned hydrocarbons
- 75-90% reduction in aromatic hydrocarbons
- Reduction in particulates & carbon monoxide
- Conserve on scarce water resources

### Mechanical:

- Provides superior lubricating properties
- Enhances detergent properties

## PSO's direction

### PSO's focus is on:

- Non-edible plant seeds as feedstock
- Avoiding competition with food crops
- Utilization of country's ample marginal land
- Conserving agricultural water resources
- Biofuels production at low cost
- Creation of employment opportunities

## What is Jatropha Curcas?

PSO selected Jatropha Curcas for non-edible oil as it does not compete with food or cash crops and grows on marginal / barren land.



The characteristics are:

- Jatropha is a hardy, wild oilseed perennial plant
- Conditions for the cultivation of this plant are favorable in Pakistan
- Oil content ranges from 30-35%; Plant life is 40-50 years approximately
- Does not require special expertise for plantation / farming
- Grows on good as well as degraded soil (marginal land) and requires less water
- Low in viscosity
- Blends well with petro-diesel



## PSO's Journey to Biodiesel

PSO has made significant progress in plantation of Jatropha Curcas and now we are leading in all aspect of Jatropha plantation to biodiesel production and its application. We have successfully completed the initial project life cycle.

