



# BIOFUEL AND RURAL DEVELOPMENT

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# WHY BIOFUEL?

- ✔ World's oil consumption expected to be 1.3 million barrels a day by 2007
- ✔ Global oil production could peak as soon as 2008, and would likely do so before 2018
- ✔ India's available energy is not keeping pace with population and pace of development
- ✔ Bio-fuel to overcome ever-increasing demand of oil and to mitigate environmental effects



# SHARE OF RENEWABLES IN TOTAL POWER GENERATION

- ✓ Thermal power account for 64.2 per cent share
- ✓ Hydro power account for 25.2 per cent share
- ✓ Nuclear power account for 3.0 per cent
- ✓ Contribution of bio-fuel hardly one percent
  - High cost of technology development and production, high cost of raw materials, and non-availability of finance are issues facing bio-fuel



# HUGE POTENTIAL FOR JATROPHA

- ✓ Out of 130 million ha of wasteland, 40 million ha is suited for cultivation.
- ✓ Primary feedstock due to its high oil content, ability to tolerate a wide range of climates, and life spans of over 40 years
- ✓ No competition with food crops



# TARDY PROGRESS

- ✓ Out of 40 m ha wasteland for Jatropha, merely 0.128 m ha brought under plantation against target of 0.56 m ha up to 2005-06.
- ✓ Wastelands has not been released especially by states having maximum wasteland.
- ✓ Outdated records of revenue department and indecisiveness of state governments .
- ✓ Farmers have not shown interest due to non-availability of finance and longer gestation period



# JATROPHA INTERCROPPED WITH SUGAR BEET

- ✔ Intercropping will support intervening three years when farmers have no income
- ✔ Sweet sorghum under rain fed & sugar beet with some irrigation.
- ✔ Short duration legumes, low water requiring vegetables and medicinal plants other option
- ✔ Intercropping will provide better care for Jatropha and finance.



# COST BENEFIT ANALYSIS

Mono crop      Jatropha+Sugarbeet

Cultivation cost	Rs.15820	32949/ha
Profit	Rs.30000	67051/ha
Return%	200	200



# Jatropha and Rural Development

- ✓ Labour-intensive crop, contributes significantly to employment generation .
- ✓ Requires an input of 300 man-days /ha for plantation.
- ✓ Seed collection generates 20-30 man-days of employment per hectare every year.
- ✓ Contact farming generates further employment through a series of new economic opportunities like collection & distribution centers, grading, etc.
- ✓ Facilitates intensive agriculture, transfer of technologies, and linking Indian farmers to global market by exports





# Needed Research

- ✓ Jatropha remained a neglected crop for long time in terms of research and development.
- ✓ Research is needed for (i) identification of superior plant material, (ii) standardization of agro-technique, (iii) maintenance of germ-plasm, and (iv) improvement and standardization of oil content
- ✓ High yielding Hybrid Jatropha Cultivars have been developed producing 17.25 tons of fruits per year based on a planting density of 2475 trees per hectare and oil content of 63.5% giving an annual yield per hectare of up to 7.78 tons of crude oil. 9



# CHALLENGES

- ✔ While the government has taken positive steps to attract investment in this sector, many challenges remain.
- ✔ Release of wasteland for Jatropha by the state governments.
- ✔ Updating of revenue records
- ✔ Thrust on technological innovations to reduce the cost of production and processing



THANK YOU