

# **Importance of Commercial Farming of Jatropha Curcas L. For Energy, Income and Environment**

**A Thesis  
Submitted in Partial Fulfillment of the  
Requirements  
For the Award of the Degree of Master of Arts  
In Rural Development**

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**Recommendation Letter**

The dissertation entitled “Importance of Commercial Farming of Jatropha Curcas L. For Energy, Income and Environment” has been prepared by Prashansa Sijapati in partial fulfillment of the requirements for the degree of Masters of Arts in Rural Development under my supervision. I forward it with recommendation for approval.

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**DECLARATION OF**  
**APPROVAL CERTIFICATION**

This is to declare, I hereby certify that the thesis entitled “Importance of Commercial Farming of Jatropha Curcas L. For Energy, Income and Environment” written and submitted by Prashansa Sijapati has been examined. It has been declared successful for fulfillment of the academic requirements toward the completion of masters of Arts in Rural Development.

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## ABSTRACT

Energy is the best indicator of development and a positive correlation exist between the level of energy consumption and development. Higher energy consumption means higher level of development and vice versa. The world relies heavily on conventional sources of energy such as fossil fuels to meet its energy requirement. However, the plethora of problems associated with the use of fossil fuel is compelling the world to explore reliable and renewable energy sources. Though the use of biofuels was envisioned during the time of Rudolph Diesel himself when he invented the diesel engine, which he operated on peanut oil, alternative clean energy sources were not significantly recognized until the world faced with the problem of oil crisis and experienced climate change much due to green house gas emission. Energy source is now largely diversified, deriving both from renewable, traditional, conventional and modern sources. Among the renewable sources, biofuels are widely accepted world over. Brazil, Europe and the US are leading producers and users of biofuels such as ethanol and Biodiesel generated from sugarcane, rapeseeds, soybean etc. Nepal which largely depends on traditional sources and on imported fuel is opportune to many sources of biofuels. Of these, *Jatropha* is identified as the most promising oil-bearing indigenous plant, which holds potential for addressing the problems of **energy, environment and income**.

Our natural resources are found inadequate to meet the demands. Imports of various industrial oils have been a consistent feature in national perspective. Newer sources of seed oil are considered very important and due to this reason the present work was carried out to characterize physic nut oil. There are quite a few plant species, both cultivated and wild, that bear seed oils. According to Singh (1980) there have been 286 oil yielding plant species of which 92 species exceeds more than 30 percent oil.

This study is an attempt to find if Commercial Farming of *Jatropha* in Nepal is viable and can produce in huge amount to utilize it as future fuel, better n greener environment and rural development through employment and income generation. It is based on both primary and secondary sources. A checklist was used to collect field data from Sunsari (Dumraha VDC). Considering its manifold benefits, investment in *Jatropha*'s commercial farming is strongly recommended.

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## ACRONYMS AND ABBREVIATIONS

AEPC	Alternative Energy Promotion Center
A.D.	Anon Dome
ADB	Agriculture Development Bank
ADB/N	Agricultural Development Bank/ Nepal
BCR	Benefit Cost Ratio
CBS	Center Bureau of statistics
CES	Center for Energy Studies
DCS	Development Center Services
FAO	Food and Agriculture Organization
FGD	Focus Group Discussion
GJ	Gega Joule
HH	Household
ICA	International Cooperative Alliance
IRR	Internal Rate of Return
IRs.	Indian Rupees
LRSC	Land Reform Saving Development
mm	Millimeter
MOF	Ministry of Finance
NBSM	Nepal Bureau of Standards and Mythology
NPV	Net Present Value
PBY	Pay Back Years
RECAST	Research Center for Applied Science and Technology
SHSs	Solar Home Systems
Sq. Km.	Square kilometer
SRIPHL	Society for Rural Initiative for Promotion of Herbal
UN	United Nation
US	United States
VDC	Village Development Committee
WB	World Bank