

Enterprise Model

Rural Enterprises based on CTD's famous hub-and-spoke or networked production model can be set up modular with more 'satellite' units being added as product volumes and supply chains expand.

Satellite Units NEO fruits or Seeds are collected in a cluster of villages around decentralized Satellite Units run by SHGs or other community-based groups. Pulp is removed for possible use and the Seeds are sun-dried and stored. The shell is removed from the Oil-bearing Kernel using the Decorticator when required. The Seeds Kernel can be sold by these 'satellite' Units independently, or preferably supplied to a common 'Mother' Unit that expresses the Oil for sale to various industries. Capital Cost for each 'satellite' unit would be about Rs.3 lakhs.

Mother Unit The Mother Unit procures Seeds Kernel from satellite centres, and expresses the Oil using an Expeller of appropriate scale, and is also equipped with its own Pulper, Decorticator or Hammer Mill (besides storage containers etc. The Mother unit would handle marketing operations and coordination management of the entire network.

Capital Cost would be around Rs.8 lakhs including storage space.

As always, all satellite units and Mother Unit working together in a unified network would be advantageous. In all, this would enable economies of scale and better collective bargaining power.

If volumes rise sufficiently, Oil Expression could be moved down to 'Satellite' units and the 'Mother Unit' could handle value-added operations.

Society for Economic & Social Studies Centre for Technology & Development

H.O. D-158 LGF, Saket
New Delhi - 110017
Phone: [011] 26524324
E-mail: ctd.delhi@gmail.com
Website: www.ctdsess.in

CTD Field Station

Behind Police Station
Sahaspur, Dehradun, Uk
Email: ctd.dehradun@gmail.com

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SEED Division
Department of Science & Technology
Govt of India

NON EDIBLE OILS (NEO)



**Society for Economic & Social Studies
Centre for Technology & Development**

NON EDIBLE OILS

India is host to a wide variety of trees, plants and shrubs with seeds bearing Non-Edible Oils (NEO). NEOs are used in a variety of applications such as lubricants, paints, varnishes and polish, soaps and cosmetics, medicines and pharmaceuticals. Many NEO species are wild and scattered throughout the country-side or in forested areas, and efficient supply chains are difficult to establish. For instance, only about 10% of even the ubiquitous Neem seeds are collected and those who collect NEO Seeds barely receive labour costs. On the other hand, India is a net importer of NEOs.

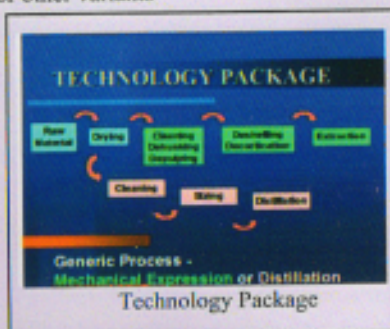
Responding to this problem and potential, CTD/SESS has developed a generic Technology Package and Rural Enterprise Model in Non-Edible Oils that would add value to under-utilized local resources and generate substantial new jobs and incomes in rural and forest areas.

Technology

The Technology Package can handle at least 19 different NEO varieties available in different agro-climatic regions of India such as Apricot, Bakain (*Melia azedarach*), Castor, Jatropha, Jojoba, Karanja (*Pongamia spp.*), Kusum (*Schleichera oleosa*), Mahua, Malkangni (*Celastrus paniculatus*), Marking Nut (*Semecarpus anacardium*), Neem, Rubber Seed, Sal, Tung, Undi (*Callophyllum innophyllum*) etc. and covers protocols for sustainable harvesting, storage, preservation and expression of Oil.

Machinery comprises:

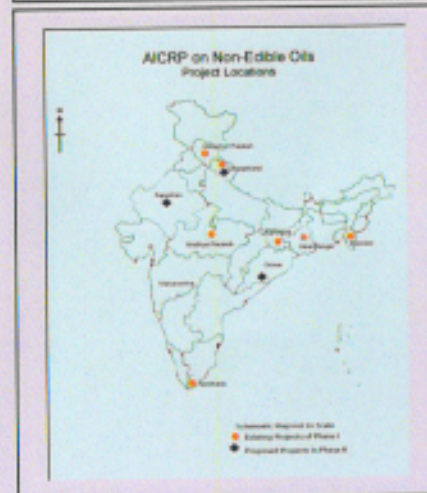
- Pulper (if required)
- Innovative Multi-Seed Decorticator (handles Seeds 20mm size) developed by CTD
- Hammer Mill (for apricot, almond etc) adapted by CTD
- Expeller (4-bolt/6-bolt) including with cold pressing, steaming or other variants



Variable Decorticator



Filter Press



Locally available NEO Seeds are collected using sustainable collection techniques if wild or in forest areas by decentralized Satellite Units run by SHGs that function independently by selling the Seeds or oil-bearing Kernel to traders, or supply the Kernel to a Mother Unit that expresses the Oil for sale to user industries. These decentralized Satellite Units store the Seeds till demand arises for Kernel which are then separated from the shell using the Decorticator (or Hammer Mill as appropriate). Cost would be about Rs.2.5 lakhs.

The Mother Unit procures Seeds or kernel from Satellite centres, and expresses the Oil using an Expeller, and is also equipped with a Decorticator/Hammer Mill. Cost would be around Rs.7.5 lakhs including some storage space.



Pongamia Seeds