

# Economic analysis of different processing methods for small-scale coconut oil production in the Philippines

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## Introduction

- Due to an increasing demand for kerosene, LPG, charcoal and fuelwood, prices are rising
- Coconut oil could be a locally produced and economically competitive alternative fuel for plant oil stoves
- Different small scale methods for coconut oil production are to be evaluated

## Material & Methods

- Investigation in three wet coconut oil processing methods:
  - Traditional Kitchen Method (TKM)
  - Modified Kitchen Method (MKM)
  - Virgin Oil Method (VOM)
- Investigation in dry coconut oil processing with three expeller presses:
  - "Montforts DD 85 G" (DMO; left)
  - "Simplextractor" (DSI; middle)
  - "Strähle SK 60/2" (DST; right)



- Calculation of
  - Investment costs for coconut oil production centre
  - Unit costs
  - Payback period
  - Net present value (NPV)

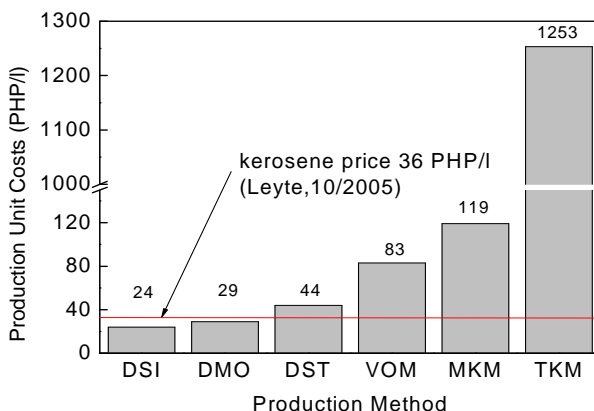
## Results

Method	Investment* (1,000 PHP)	NPV** (1,000 PHP)	Payback period (a)
TKM	112	-471	-
MKM	112	-279	-
VOM	109	-195	-
DMO	1,369	560	6
DSI	937	2,411	2
DST	1,381	-1,614	-

\* 1 € = 65 PHP (10/2005)

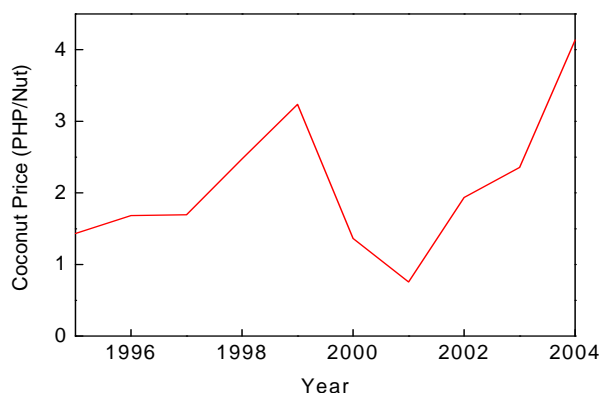
\*\* project life 10 a; interest rate 7 %

## Production Unit Costs\*



\* Coconut price at 2.60 PhP; by-product sales included; marketing & distribution not incl.

## Coconut Prices\* in Leyte 1994 - 2004



Using Simplextractor is the only method which causes unit costs lower than the kerosene price of 36 PHP/l (32,92 PHP/l) if coconut prices reach 4 PHP/nut.

\* derived from Philippine Coconut Authority data, Palo 2005

## Conclusion

- Unit costs for the wet methods are significantly higher than the corresponding costs when using the expeller presses
- Crude coconut oil processed with expeller presses can be competitive with cooking fuels used at present as e.g. kerosene
- The Philippine made Simplextractor proved to be the most profitable solution with the biggest capacity and the lowest production costs
- Raw material prices have a substantial influence on the result and price variation is big

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