

INTRODUCTION OF NERDC TECHNOLOGIES AND PRODUCTS

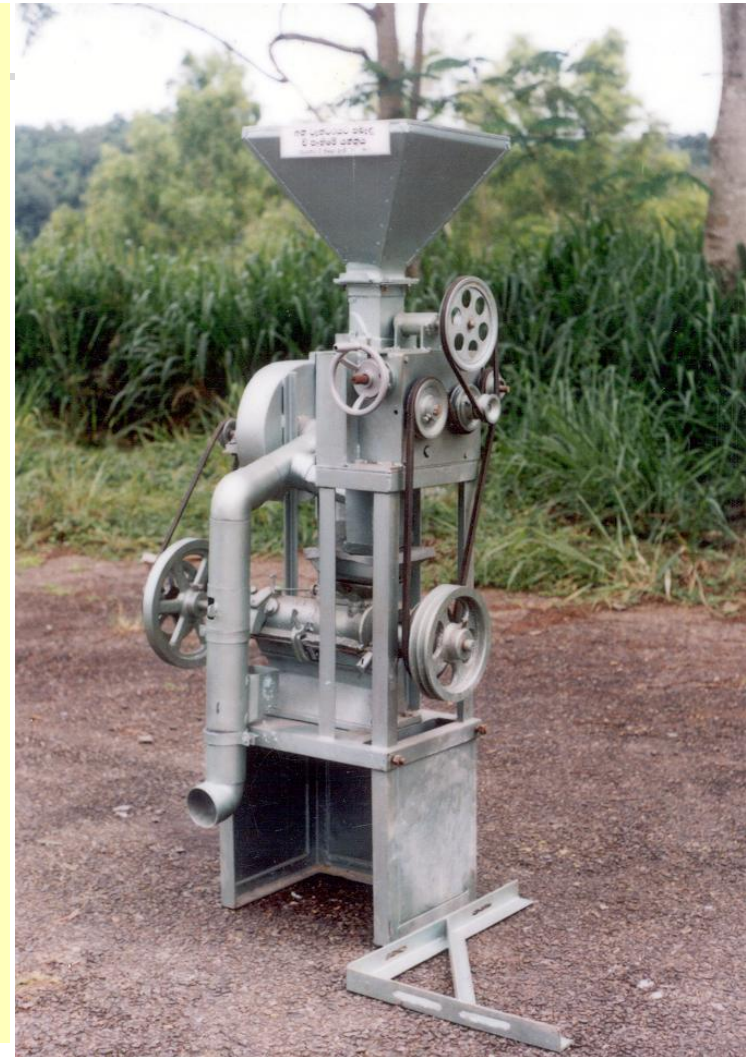


**PRODUCTS & TECHNOLOGIES
DEVELOPED BY THE
AGRICULTURE &
POST HARVEST TECH. DEPT.**

PADDY HULLER

(for Raw Rice)

- Due to blower assisted air aspiration system output rice is more cleaner
- Environmental pollution by paddy husk and bran is very less
- Output rate 80 - 100kg/hr



Rice Huller (Parboiled)



Soil-cement block making machines

➤ Cost comparison for making blocks using soil & sands,
Sand cement : Soil cement = 5 : 1

➤ Cement-soil blocks making machines already available in our market also can be used for the purpose of this activity.

But its better to use the machine developed by the NERDC for the making of high strength soil-cement blocks.



Manually operated soil-cement block making machine. Capacity 300-400 blocks per day



**Soil cement blocks making machine
operated by a Hydraulic system
Capacity – about 1500 blocks per day**



**Electrically operated soil-cement block
making machine.
Capacity – 1500 blocks per day**

Combine Harvester Driven by Two Wheel Tractor

➤ **Paddy harvesting & threshing can be done simultaneously.**

➤ **Can be operate by using two wheel hand tractor & harvester component can be coupled to the tractor easily in a short period.**

➤ **Harvesting capacity is limited to 2 acres during a day.**



Air tight Ferrocement Bin for Farm Level Paddy Storage

- Very less insect attracting under airtight condition
- **2500kg** of row paddy capacity
- High quality paddy can be obtained



YOGHURT INCUBATOR

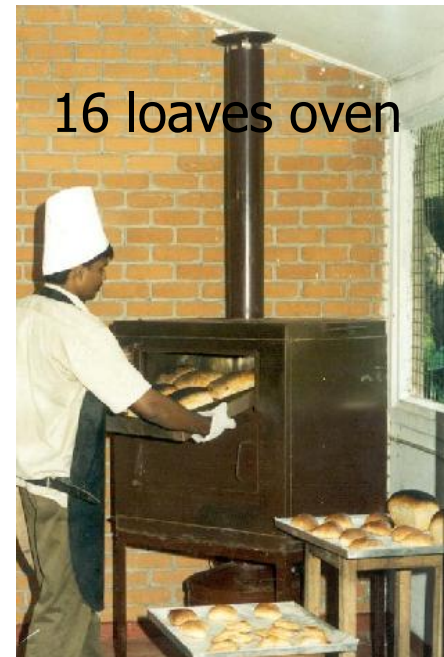


- **150 yoghurt cups can be produced within 4hrs of duration**
- **Heat losses are minimized**
- **The machine is designed to control the temperature inside of the chamber as required**
- **Can also be used as a hatchery**
- **Easy maintenance**

BAKERY OVEN



- **Sawdust, paddy husk, LP Gas can be used as fuel**
- **The heating up period to obtain required temperature is very much less compared to the conventional Bakery Oven**
- **Duty to indirect heating the breads do not get contaminated by soot, toxic gases etc.**
- **Process equipment needs less space**
- **Initial Investment is very low**



CASHEW DRIER

- **Electrically operated**
- **Capacity – 50kg of cashew can be dried within 4 hrs**
- **Easy of transport**
- **Low maintenance**



COCONUT OIL EXTRACTING MACHINE (DOMESTIC LEVEL)



- **Virgin Coconut oil**
500 – 550ml can be extracted from 1kg dried scrapped coconut.
- **Manually operated machine.**

COCONUT OIL EXTRACTING MACHINE (COTTAGE LEVEL)



- **Manually operated machine.**
- **6 liters of Virgin oil can be extracted per day.**

COCONUT OIL EXTRACTING MACHINE (INDUSTRIAL TYPE)

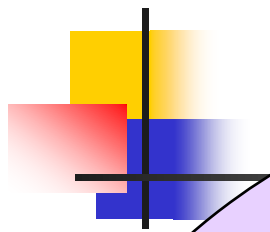
- 25-28liters of coconut oil can be extracted per day.
- Hydraulically Jack operated machine



ELECTRICALLY OPERATED COCONUT OIL EXTRACTING MACHINE (INDUSTRIAL TYPE)

- **10litres of coconut oil
can be extracted per hour.**
- **Electrically operated machine.**





**PRODUCTS & TECHNOLOGIES
DEVELOPED BY THE
RENEWABLE ENERGY
DEPARTMENT**

SOLAR / SAW DUST OPERATED VEGETABLE DRIER

- **For continuous drying of agricultural products**
- **Capacity – Approx. 8 kgs per day**
- **Less time for drying – Approx. 18 hrs.**
- **Saw dust burners can be used in the night or rainy days**



SAW DUST OPERATED VEGETABLE DRIER

- Saw dust can use as a fuel
- Rate of flue gas flow increased by using an electrical fan
- Capacity 20kg. (fresh weight)- per day
- It needs 30kg of saw dust and 0.6 hrkW electrical power to dry out 20kg of fresh materials



TUNNEL DRIER



- **Type - Forced draft**
- **Capacity - 15 Kgs**
- **Power Consumption by the fan – 75W**
- **Collector area – 60 sqft**
- **Vegetables and fruits can be dried without changing the colour and the taste**
- **Drying can be done evenly and quickly**

SOLAR STILL



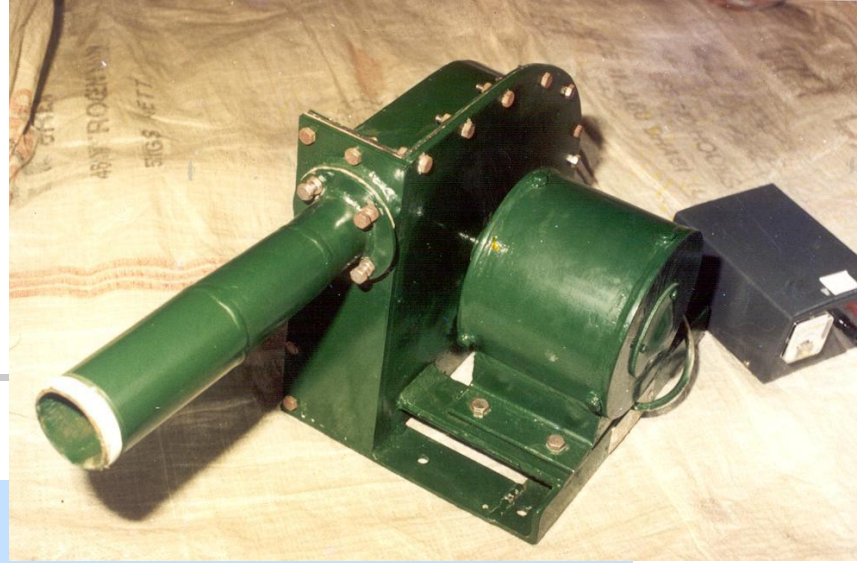
- **Solar still is an apparatus where brackish water is distilled by utilizing**
- **Easy construction**
- **Safe and Simple Operation**
- **No operational Cost**
- **Portable**
- **Yield per day – 4 liters of water**

INTEGRATED SOLAR WATER HEATER



- **Ideal for domestic use**
- **Provide hot water at 40⁰ C - 85⁰ C depending on the intensity of sun heat**
- **Storage tank capacity - 15 galloon**

100W HYDRO TURBINE



- Suitable to provide electricity for domestic use
- Compact Unit
- Easy to install, trouble free operation and low maintenance
- 100W at 500r.p.m. of rotor
- Generator – Permanent Magnet, 100W,
3 Phase AC, 12V 24V DC
- Required flow rate be within 3lit /sec
- Vertical height from the location of diversion of water to turbine Centre within 6m to 10m

BATTERY CHARGING WIND GENERATOR

- Operates even at low wind speed
- Charging can be done at wind speeds above 3m/sec upto 15m/sec
- One or two 12V batteries could be charged at a time
- Height nearly 20 M



MULTI-BLADED WINDMILL FOR

WATER PUMPING

- Suitable for wells less than 7.5 metres in depth
- Less maintenance cost
- Could be used for agricultural and industrial purposes
- Required speed of the wind - 4m/s
- Storage capacity of the tank – about 3000 lt/h at wind speed of 5m/sec



GASIFIER / L.P. GAS OPERATED CREMATORIUM

- Time taken for a normal cremation is 3hrs.
- 100kg of dry firewood will consume for one cremation
- 30kg of L.P. Gas will consume for one cremation



**Firewood operated
crematorium-Batapola**

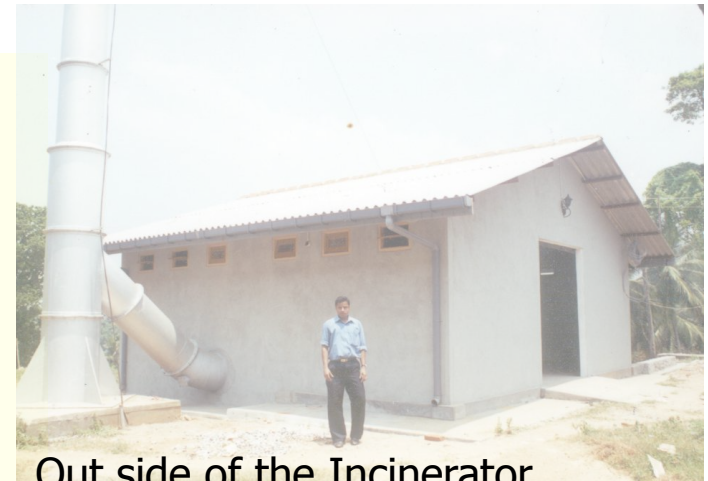


**L.P. Gas operated
crematorium-Ambalangoda**

INCINERATOR

Incinerator – Ragama Hospital

- Incinerator chamber made out of fire bricks
- Electric blowers use to provide air
- Two number of burners to provide heat
- Chimney – made out of metal and lined with refractory material
- Burning temperature inside the chamber 1200°C



Out side of the Incinerator



Inside of the Incinerator

Biogas Generator

- Use straw as the main feeding material
- Market garbage, water-hyacinth, Salvenia, Glidiciriya etc. can also be used
- Feeding is done once in six months for straw and it may slightly vary for other feeding materials
- Digested stuff is a nitrogen rich organic fertilizer
- An environmental friendly energy source
- Provide biogas continuously





**Lamp & cooker operated by
using Bio gas**

Bio gas generating technology for Market Garbage Management



Garbage Management Project - Muthurajawela

WOOD GAS STOVE



- **Smokeless bluish flame from beginning to end of firewood combustion**
- **Two types of fuels can be used in this stove (Wood chips and crushed coconut shells)**
- **Outside body temperature - 70°C**
- **Flame temperature –**
- **12V DC power supply**

LANKA SHAKTHI WOODGAS STOVE

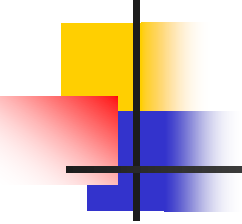
- Safe for use. Alternative for LPG cooker.
- Small pieces of firewood and coconut shells are used as fuel.
- Smokeless, but less soot.



Bio-mass Rice Cooker

- Can cook 1kg rice using 02 coconut shells
- Cooking time – 40min.
- No over cooking or burning at the bottom
- No blackening of the rice pan
- Can keep rice warm for 08 hours
- It can be used for the other activities which we done by using electrical Rice Cooker





**PRODUCTS & TECHNOLOGIES
DEVELOPED BY THE
CIVIL ENGINEERING
DEPT.**

LOW COST BUILDING



Hostel Building – University of Ruhuna

Economic Centre Building
- Hiriya



Hostel Building –
University of Ruhuna



**A House is being
constructed by
using NERDC
technology**



Pre-stressed Concrete Beams

MICRO TILE MAKING MACHINE

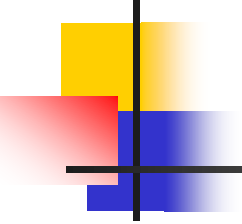


- **Very cheap compared with imported tile making machine**
- **Simple technology for making roof tiles**
- **Can be used as vibrating table for cement based products**
- **Transport easily**
- **Can use with DC powered battery (12V)**
- **200 nos. of tiles can be made per one day with 3 persons**

CEMENT BLOCK TESTING MACHINE



- The Cement Block Testing Machine designed and fabricated NERD Centre is capable of testing compressive strength of cement blocks.
- This is an ideal testing equipment that could be used at site itself.



**PRODUCTS & TECHNOLOGIES
DEVELOPED BY THE
ELECTRICAL & ELECTRONIC
ENGINEERING DEPT.**

LIGHT SENSITIVE SWITCH



- * This switch is ideally suited for self operation of street lamps.
- * Save Energy and Time
- * Easy Installation

FAN REGULATOR

FAN REGULATOR



- **Gradual variation of speed**
- **Can also be used s a dimmer switch**
- **Minimum Energy Waste**
- **Easy Installation**

HIGH FREQUENCY BALLAST

- **Low Power Consumption**
- **Start even at low voltage**
- **No stroboscopic effect**
- **Flicker free start**
- **Easy installation / repairable**
- **Soothing to the eye**



"PRASHAKTHI" LIGHTING SYSTEM



- **Ideal for light rural cottages**
- **Operated by rechargeable 12V storage battery**
- **Clean, easy and safe operation**
- **Ideal to tide over power cuts**
- **Easy installation**

POWER GUARD



- **Protects electrical appliances & equipments against high or low voltage supplies**
- **Time delay circuit incorporated against low voltage supply**
- **Protects house hold appliances below 1kW power consumption**
- **Ideally suited for Refrigerators, Deep freezers, TV etc.**



**THE FOLLOWING SERVICES
ARE OFFERING FROM NERDC**

1. Services provided by Electrical & Electronics Engineering Dept.

- Battery & bulb quality testing facilities
- Preparation reports on Advisory & calibration services



PV (Solar Home System) testing laboratory



Industrial Consultancy

Testing Services



2. Services offering from Design, Manufacturing Centre & Workshop to the public (Computer Aided Design & Manufacturing Facility)



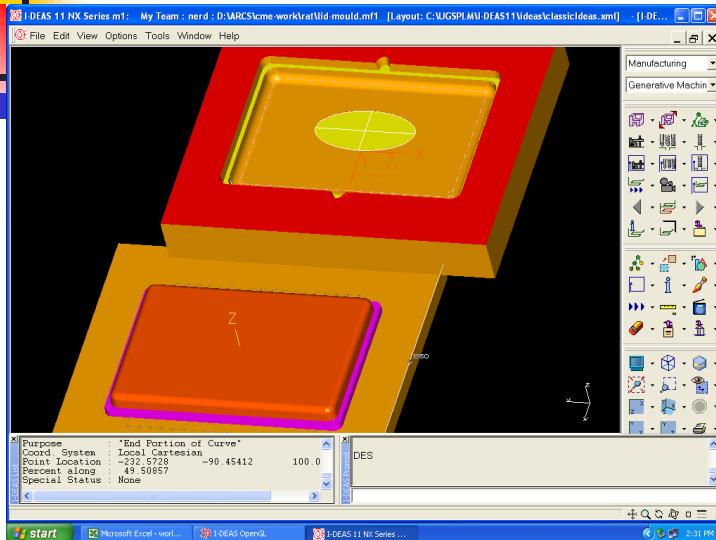
CNC Milling Machine



Inside the CNC workshop

- * **Design and Manufacture of Dies / Moulds and other precision components to International Standards.**
- * **Provide Accurate and Innovative solutions to customers in the area of dies and moulds.**
- * **Conduct in house Training Programmes for local personnel exposing them to state of the art CAD/ CAM technology and precision machining applications.**
- * **Support local Small and Medium Industry to produce high quality Products of International Standards.**
- * **Maintain a technology watch on latest CAD / CAM technological Innovations in the area of precision machining and disseminate such Information to the benefit of the local industry.**

Designing of High precision steel die & moulds



Sample of Rat-trap mould designed for rat-trapping by CAD/CAM Software

A mould designed for lunch box

3. Services offering from the Energy & Environmental Management Centre to the public

Detailed energy audits in industries, large buildings, commercial establishments, hotels etc. to ascertain the potential for conserving energy and reducing energy cost.

Designing efficient energy utilization systems and energy recovery systems.

Industrial process monitoring services

Boiler analysis and boiler tuning

Designing air conditioning systems

Designing steam distribution systems

Designing air conditioning systems

Environmental noise measurement and control

Advice, guidance and implementation of energy management projects

Research projects related to energy utilization efficiency

Waste minimization

Cleaner production assessments

Conducting awareness programmes on energy management & Conservation and environmental management

Consultation on energy utilization at pre-construction state of buildings and factories.



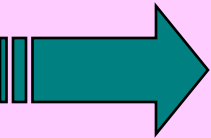
Waste water treatment plant - Negombo



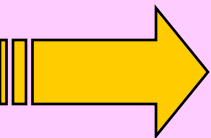
**SERVICE OFFERING FROM THE
TECHNO MARKETING, SALES &
PRODUCTION UNIT
TO THE PUBLIC**



Introduction and popularization of technologies and products developed by NERDC



Identification of customer requirements and provide information to the relevant departments on potential projects.



Conduct training programmes on NERDC technologies and their transfers to small – scale & medium- scale potential entrepreneurs.



**To organize demonstration programmes
on NERD technologies and products**



**Participation in exhibitions & awareness
programmes**



**Conduct market surveys for NERD products
and technologies.**



**Conducting training programmes, Seminars
& workshops**



**Monitoring of NERDC licensee's activities
and the product quality**



Liasing between NERDC licencees and research department in order to resolve product development issues.



Attending to patents & trade mark issues concerning NERDC inventions



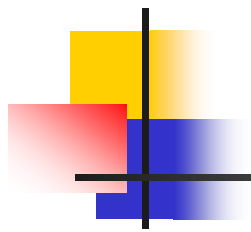
Printing of NERDC literature



Photography & video filming of NERDC R & D activities

NERD TECHNOLOGY PARK





Thank You