

## "PROMOTING ENERGY EFFICIENCY AND RENEWABLE ENERGY IN SELECTED MSME CLUSTERS IN INDIA"

To develop and promote a market environment for introducing energy efficiency and enhanced use of renewable energy technologies in process applications in the selected energy-intensive MSME clusters, United Nations Industrial Development Organization (UNIDO) in collaboration with Bureau of Energy Efficiency (BEE) is implementing a project titled "Promoting Energy Efficiency and Renewable Energy in selected MSME clusters in India" funded by Global Environment Facility (GEF) and co-financed by Ministry of Micro, Small and Medium Enterprises (MoMSME) and Ministry of New and Renewable Energy (MNRE).

### Combining two drills operating separately with a common shaft

#### Objective

To reduce the specific energy consumption of the drilling machine by combining two drills operating separately with a common shaft.

#### Implementation

Combined two drills operating separately each with 1 kW motor to a common shaft with 0.75 kW motor. Capacity reduction was 1.25 kW.

#### Principle

In drilling area, two drills were operating separately with high rated capacity motors than required, resulting in low loading of the motors. At low loads, motor efficiency decreases resulting in higher power consumption. Combining two drills to a common shaft will allow them to run on a single motor of required capacity with improved loading. This in turn improves the efficiency of motor and reduces the energy consumption.



**Savings**

₹ **33,504**



**Investment**

₹ **4,000**



**Pay Back**

**2 months**

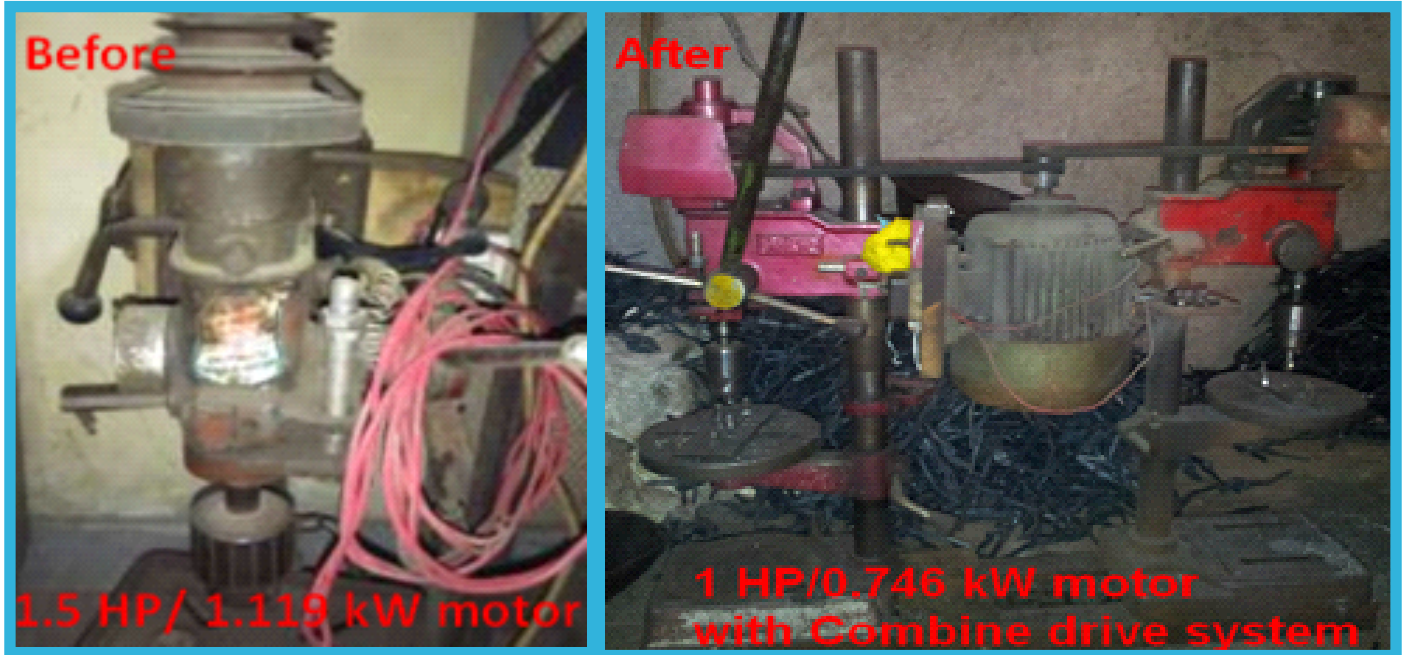


## Unit Profile

Karimbux Hand Tool Udhyog is a micro scale unit located in Nagaur. Unit manufactures about 1700 pieces of hand tools per day.

## Benefits

- Improved efficiency of motors
- Reduced energy consumption
- Reduced energy costs



## Outcomes



**4,188 kWh of annual energy saving**



**₹ 33,504 of annual cost saving**



**3.4 T of CO<sub>2</sub> reduction per year (0.82 kg/kWh)**

## Cost Economics

<b>Energy saving per month</b>	<b>349 kWh</b>
<b>Energy saving per annum</b>	<b>4,188 kWh</b>
<b>Annual cost savings ( ₹ 8/kWh)</b>	<b>₹ 33,504</b>
<b>Investment cost</b>	<b>₹ 4,000</b>
<b>Simple Payback period</b>	<b>2 months</b>



## Replication Potential

In all the units with multiple drilling machines running separately with low loading of motors



## Calculation

Energy savings per annum (kWh/year) = (Energy consumption before implementation - after implementation, kWh/month) \* 12

### Contact details :

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