

### Sector Highlights

Soap is an essential material for cleaning and sanitary purposes. Soap and Chemical Industries in Nepal mainly produce laundry soap. Only around 15 percent industries manufacture toilet soap along with the laundry soap. According to CBS, by 2006/07 soap manufacturing along with other preparatory industries reached 31 in number with employment of 1,704 peoples. The input value of the sector is NPR 2.43 Billion with the value addition of NPR 1.35 Billion. The average installed capacity of the plant is 27.7 tons per day (TPD) and the average production is 15 TPD.

### Energy Saving Potential

Electrical as well as thermal energy are consumed in the soap and chemical industries. All units consist of boiler for steam generation except small scale pan boiling laundry soap manufacturing units; mainly rice husk, is used as source of thermal energy for boilers whereas small units use firewood. Electrical energy is mainly used for drives, compressed air generation, refrigeration and lighting.

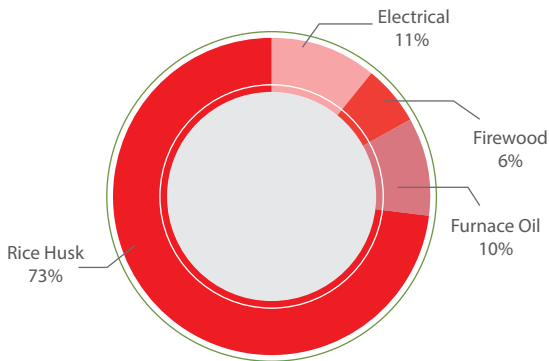


Figure 1: Energy use by resource in soap and chemical industry (GIZ/NEEP 2012<sup>1</sup>)

The energy cost on product value is 5% for the soap and chemical industries. Energy saving potential for electrical and thermal are estimated to be 10% and 39% respectively.

| Type              | Electrical<br>(weighted average) | Thermal<br>(weighted average) |
|-------------------|----------------------------------|-------------------------------|
| Soap and Chemical | 111.25 kWh/ton of product        | 3379 MJ/ton of product        |

Table 1: Specific energy consumption in Nepalese Soap and Chemical Industries (GIZ/NEEP, 2012<sup>1</sup>)



### Soap and Chemical Industry by numbers

31 soap and chemical industries  
 NPR 2.43 Billion input  
 NPR 1.35 Billion value addition  
 1,704 persons employment  
 5% energy cost

#### Saving potential-annual

1,210 MWh electrical energy  
 149,334 GJ of thermal energy  
 42,087,972 NPR  
 13409.79 Kg of CO<sub>2</sub> emission

\*Status 2006/07, update not available



Soap and Chemical  
**42 MILLION NPR**

Figure 2: Monetary saving potential in Nepalese Soap and Chemical Sector (GIZ/NEEP, 2012<sup>1</sup>)

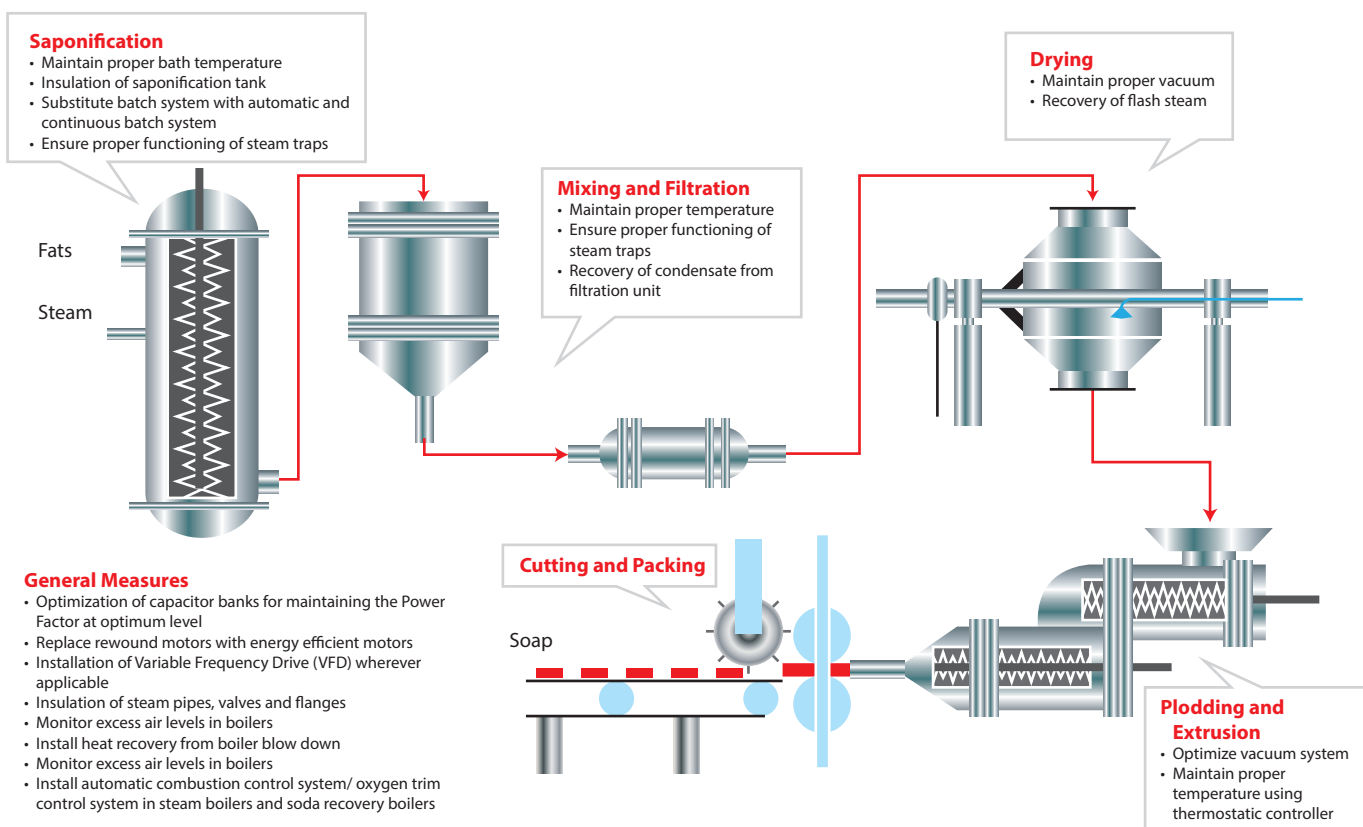
<sup>1</sup> GIZ/NEEP, 2012: Baseline study of selected sector Industries.

Experience from the past have identified many options for improving energy efficiency in soap and chemical industries that are highly profitable, with payback periods of investment of less than 2 year.

| Option   | Estimated Payback Period |
|--|--------------------------|
| Optimum sizing and use of energy efficient motors  | 2 years                  |
| Improvement of power factor to reduce reactive load of the plant                                       | 1 year                   |
| Replace direct steam injection oil melting system by Electrical/jacket oil melting                     | 1 year                   |
| Insulation of steam pipes, valves, and other un insulated hot surfaces.                                | 0.5 years                |
| Arrest Steam leakage from valves and flanges   | 0.5 years                |
| Improvement of combustion efficiency by regular monitoring and tuning of boiler combustion parameters. | 0.25 years               |

Table 2: Energy saving options and payback period of investment for soap and chemical sector (Danida/ESPS, 2005<sup>2</sup>)

## Energy Saving Tips



## Contact details

If you are interested to know more about energy efficiency, please, do not hesitate to contact us!

### - If you are a business man

get information about energy saving opportunities in your company and get an energy audit done by our professional expert team

### - If you are an engineer

explore the articles in our energy efficiency knowledge website and participate in our training programs

### - If you are a banker...

participate in our awareness raising seminars and explore the new market of energy efficiency investment.

### - If you are an energy auditor...

register in our database of energy efficiency professionals and be listed on our webpage.

### - If you are a supplier for energy-efficient technology

register in our online B2B portal and list your products and services.



## Federation of Nepalese Chambers of Commerce and Industry (FNCCI)

Pachali Shahid Shukra FNCCI Milan Marg, Teku  
P.O. Box 269, Kathmandu, NEPAL

Website: <http://eec.fncci.org>, [www.wecs-neeep.gov.np](http://www.wecs-neeep.gov.np)

Telephone : (+977-1) 4262061 / 4262218

Fax : (+977-1) 4261022 / 4262007

Email: [eec@fncci.org](mailto:eec@fncci.org)



<sup>2</sup> Danida/ESPS, 2005: Cleaner production report of soap and chemical industry.