A Case Study on Green Jobs

Fujima Oil Company (P) Ltd.
Morang, Nepal
I. Introduction:

The Fujima Oil Company (P) Ltd. is a middle scale industry, which is located in Hattimuda VDC, Ward No. 7, Morang District. Its major products are grease, engine oil and other oils. The products are consumed in domestic market. Some 42 employees are working in the company. It covers land area of about 0.7 ha.

II. Production Process:

The industry mainly uses mixing process to produce grease and different kinds of oils such as engine oil, gear oil, hydraulic oil and transformer oils. The major raw materials used to produce these products are base oil, Carbon Black Feed Stock (CBFS) and additives. It uses ground water source to meet water demand. Apart from electricity, diesel is another major fuel used in the industry.

III. Environmental Issues and Pollution control:

The major environmental issues in the industry are related with spillage and leakage of oil leading to soil and water contamination, discharge of wastewater, solid waste, energy use, and water use.

A. Wastewater:

Wastewater is mainly generated during production process and cleaning of equipments and vessels. The main source of water pollution is spillage and leakage of oil, which are about 5 lit per day. Similarly, the employees after completion of work wash their hands which also produce wastewater. The generated wastewater is oily in nature. Although the volume of wastewater is not significant, its nature is very detrimental to the aquatic environment.

B. Solid waste:

The main solid waste produced by the industry is cotton cloth dirt with grease and oily materials. The employees have to clean the jars, vessels, equipments and floors, which produce these wastes. The volume has not been quantified. It is stored in separate yard for final disposal. Similarly, there are several tin drums which come with raw chemicals. However, they are stored separately and sold to scrap dealers.

C. Water consumption:

The water is used mainly for cleaning purpose. Since the industry is oil manufacturing industry, the employees clean themselves after work, where the consumption is significant. Its use in production process is very limited. The average water consumption is estimated about 1000 lit/day, which is extracted from ground water source.

D. Air pollution:

The industry uses diesel for manufacturing process and operation of Generator. In the process, gasses such as $\text{CO}_2$, $\text{NO}_x$ and $\text{SO}_2$ are emitted. However, company has taken measures to minimize the air pollution. It uses about 200 lit diesel per day. It installed 5 electrically operated exhaust fans and 6 natural exhaust air fans, which does not require energy.
IV. Environmental Management:

Fujima Oil is an ISO 9001 certified company and has been maintaining Quality Management System (QMS). It also has been carrying out various environmental management activities to improve environmental condition. It was involved in Cleaner Production (CP) and Occupational Health and Safety (OHS) study conducted by SEAM-N. Similarly, the employees participated in a number of environmental awareness programmes conducted by various agencies in the region.

It constructed Oil and Grease Trap to collect wastewater. After treating there, the relatively clear water is discharged to public drain. It also installed 6 natural air fans to minimize energy consumption. It segregates wastes at source and sells the drums to scrap dealers. In order to minimize noise pollution, it installed canopy type Generator (63 KVA). On OHS issues, the industry put a signboard at the main entrance gate to aware employees on it.

V. Action and impact:

The industry has been carrying out following best practices on green jobs, which are not only beneficial for the employees but also conserving the environment and greening the economy as well.

A. Wastewater Treatment Plant:

The wastewater generated in oil industry is considered to be very detrimental to the environment especially to aquatic environment. It contains high amount of oily matters, which are generated during spillage, leakage of oil and washing or cleaning processes. In order to treat this type of wastewater, the industry constructed Oil and Grease Trap, where all wastewater from different areas is collected. After treatment, it is then discharged into public drain which ultimately goes to nearby river. It is informed that till date, there is no public complain on it. The operation of this plant is improving the environmental performance of the company. And the industry every year cleans the drain to maintain good social relation with neighbors.

B. Concrete Flooring: One of the major environmental impacts in oil industry is soil and ground water contamination due to leakage and spillage of oil. In order to minimize its impact on soil, the industry already made concrete floor in about half of the total area i.e. 3435 sqm. It is planning to complete concreting of all floor area to prevent infiltration of oil to the ground. It is expected that the oil spillage and leakage will be collected and managed accordingly.

C. Implementation of Management Systems: The industry has been implementing QMS and is ISO 9001:2008 certified company. It means that the company has been continuously improving its quality management system, many elements of which are very similar to Environmental Management System. Moreover, the company has been taking various measures to improve its environmental performance. The greening of area with regular plantation of trees and maintaining of garden can be considered one major step
towards greening environment. It has been carrying out interaction with employees on environment conservation and OHS issues on regular basis.

The industry also implemented CP programme, which helped them to minimize environmental pollution at source by taking several preventing measures. The programme was supported by SEAM-N.

D. **Solid Waste Management:** The recently promulgated Solid Waste Management Act, 2011 made industries responsible for managing industrial waste. Fujima Oil segregates wastes at source and stores in scrap yard separately designed for them. Then after, they are sold to scrap dealer for off-site recycling. The industry sells chemical drum, tin, jars to the scarp dealers.

E. **Air Fan:** The industry has 5 exhaust fans and installed 6 natural Air Exhaust Fans in the main factory building. The natural Air Fan does not require energy for its operation. This natural system of exhaust fan saves energy equivalent to about 3 KW in the industry.

F. **Emergency Preparedness Plan:** The industry is dealing with the materials which are very risky and highly flammable in nature. Considering this, the industry made several fire safety arrangements to prevent this type of incidents and prepared to mitigate damages if occurred. It includes Fire Extinguishers at several locations, Fire Hydrant, prohibition of smoking in factory area, separate storage of flammable materials and regular programmes on fire safety. It was involved in OHS programme conducted by SEAM-N, which mainly focused on protection of human health and properties of the company.