A Case Study on Green Jobs

Nepali Paper Products (P) Ltd.
Kathmandu, Nepal
I. **Introduction:**

The Nepali Paper Products (P) Ltd. is a small scale industry, involved in manufacturing of various handmade paper products. It is located in Sitapaila VDC, Ward No. 3 in Kathmandu District. The industry exports its products to EU, USA, Africa, China etc. Some 185 employees are working in the company. It occupies an area of 0.51 ha.

II. **Production Process:**

The industry uses dyeing, cutting, calendaring, pasting, packaging processes to produce different handmade paper products. The products are designed as per customer demand. The major raw materials used to produce these products are lokta, straw board, glue, packaging materials etc. It uses ground water source to meet water demand supplied by community managed system. Apart from electricity, diesel is another fuel used in the industry.

III. **Environmental Issues and pollution control measure:**

The environmental problems in Nepali Paper are related with discharge of wastewater, solid waste, energy use, water use, and some others.

A. **Water consumption:**

The industry depends upon water supplied by community managed system, which uses ground water source. It is consuming about 5000 lit a day, which is mostly used in domestic purposes and cleaning. The water consumption is considered to be one of major environmental issues as it gives rise to discharge of wastewater from a company. Those discharges should be managed on the basis of content of polluting substances. It is also practicing rainwater harvesting.

B. **Wastewater:**

Wastewater is mainly produced during dyeing of different products, which produces colored wastewater. The main source of water pollution is discharge of colored dyes. The industry constructed a Waste Water Treatment Plant (WWTP) to manage this wastewater.

C. **Solid waste:**

The main solid waste produced by the industry is waste papers and packaging materials. Since they are easily recyclable, the industry collects it in especially provisioned room and sells it afterwards.
D. **Air pollution:**

The industry uses diesel for generator and gas for manufacturing processes. In these processes, gasses such as CO$_2$, NO$_x$ and SO$_2$ are emitted.

IV. **Environmental Management**

Nepali paper is an ISO 14001 and 9001 certified company and has been implementing Environmental Management System (EMS). It was involved in Cleaner Production (CP) and Occupational Health and Safety (OHS) study. It is also a member of Fair Trade Group and Global Compact. It means that the company is running systematically and managing its operations including environmental issues.

It has constructed WWTP mainly to treat wastewater. The capacity of the plant is 5000 lit/day. It also installed rainwater harvesting system with storage tank of 5000 lit. It maintains green area including garden. It plants trees every year in the compound, which is also necessary since the industry is established in sloppy area.

V. **Action and impact:**

In the industry, the following practices can be considered best practices on green jobs.

A. **Wastewater Treatment Plant (WWTP):**

The Government of Nepal mandates paper industries to comply with wastewater standard for their effluents. The Nepali Paper Industry (NPI) constructed WWTP to treat wastewater. Its treatment capacity is 5000 lit/day and was constructed as public private participation (PPP) programme with support from German agency. The total investment was NRs. 46 million, where NPI invested about NRs. 6.5 million. It has been treating wastewater and only treated water is discharged into public drain. It is estimated that the operation cost is about NRs. 30,000 per year. It is also carrying out laboratory analysis of effluent to verify WWTP performance.

B. **Eco Dyes:** It has been using 30 different types of dyes and all of them are eco dyes. It uses about 15 kg/day and all of them are certified that they are free from heavy metals. It maintains Material Safety Data Sheet (MSDS) of all these dyes. It also checks lead content in Zipper itself and in Nepal Bureau of Standards and Metrology (NBSM) lab.

C. **Implementation of Management Systems:** The industry has been implementing QMS and EMS. It is ISO 9001:2008 and ISO 14001:2004 certified company. It has been continuously
improving its environmental performances for sustainable industrial development. The company has defined environmental policy and carries out environmental review every year. On the basis of existing environmental situation, it sets environmental objectives and targets at relevant level and prepares and implements Environmental Management Programmes (EMP) to meet them. Every year, the performance is also reviewed by third party.

It is also a member of Global Compact, which has been complying with the principles contained in the Global Compact. The industry also implemented Cleaner Production (CP) programme, which helped them to minimize environmental pollution at source by taking several preventing measures. It has also conducted in–house trainings on Occupational Health and Safety Management (OHS) issues and Climate Change to its employees.

D. Solid Waste Management: The recently promulgated Solid Waste Management Act, 2011 made industries responsible for managing industrial waste. However, very few industries are managing waste. It segregates wastes at source and recycles to the extent possible. It uses about 10 t lokta per year, which is forest based product. The industry trains people to follow harvesting cycle to have no impact on forest. The local people from Barbishe, Baglung and Taplejung have been motivated and trained for mature cutting.

E. Rainwater Harvesting: The Kathmandu valley has been facing an acute shortage of water, which is even not sufficient for drinking purposes. Considering this, the industry installed rainwater harvesting system to collect rainwater from factory sheds. The capacity of collection tank is 5000 lit.