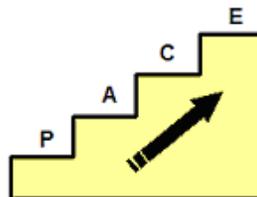


**Report  
On  
Status and Assessment of EMS Implemented Industries  
Of  
Kathmandu Valley**

*Submitted to:*

**Ministry of Industry  
Singh Durbar, Kathmandu**

*Submitted by:*



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**Ashadh, 2066**

## **List of Abbreviation**

AHU	-Air Handling Unit
CSST	-Copper coated Steel
DANIDA	-Danish International Development Assistance
EMS	-Environmental Management System
ESPS	-Environmental Sector Programme Support
ETP	-Effluent Treatment Plant
GMP	-Good Manufacturing Practice
IDPP	-Industrial Development Prospective Plan
IPCM	-Industrial Pollution Control Management
ISO	-International Organization for Standardization
LD	-Low Density
MOI	-Ministry of Industry
MOLT	-Ministry of Labour and Transport
MOPE	-Ministry of Population and Environment
MR	-Management Representative
NA	-Not Available
NDA	-Nepal Drugs Authority
PE	-Poly-ethylene
PVC	-Polyvinyl Chloride
Pvt. Ltd.	-Private Limited
QMS	-Quality Management System
UNDP	-United Nation Development Programe
UNIDO	-United Nation Industrial Development Organization
WTO	-World Trade Organization
XLPE	-Extra Linear Poly-Ethylene

## **ACKNOWLEDGEMENT**

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We would also like to extend our sincere thanks to all the owners, Managers and professionals of the industries for providing their valuable inputs and suggestions during the meetings and discussions in course of the study and preparation of this report.

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PACE Nepal Pvt. Ltd.

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## 1. Background

Environmental awareness is gradually increasing also in Nepal. Government of Nepal is implementing different programme to address the issues of environment in the country. Implementation of environmental Management System (EMS) in Nepalese organizations was initiated in early 2000s by DANIDA assisted Environment Sector Programme Support (ESPS), a programme of Ministry of Industry. But now a number of organizations have practiced EMS and some of them are already ISO 14001 certificated. Implementation of EMS in organizations leads towards adaptation of a systematic development approach based on the continual cycle of planning, implementation, regular monitoring and reviewing of the activities. This approach results in a number of benefits to the organizations. Besides, development of systematic approach in the organizations, the implementation of EMS will also save costs, enhance productivity, create better external and working environment, ease compliance, motivate employees, establish better corporate image and prepare a base for obtaining ISO certification.

Implementation of EMS will also make the organizations competitive and provide opportunity to expand the market. Government of Nepal has declared nine industry specific effluent standards through publication in the gazette. EMS will also be helpful in complying with legal requirements. Nepal has also entered into the World Trade Organization (WTO) regime whereby compliance to standards would be necessary to meet the minimum environmental requirements. In order to enhance the capability of the industries for demonstrating and achieving compliance to standards, it is conceived that environmental would be most helpful. It will also facilitate and synergize the efforts of Government of Nepal and the industries to comply with the standards. Besides these, EMS has additional importance in the context of the ambitious target of Industrial Development Perspective Plan (IDPP) declared by Government of Nepal.

In this context, Ministry of Industry (MOI) has given emphasis on the implementation of EMS in the industrial enterprises in the country through the assistance of the Government of Denmark and through its own annual programme. With a view to assist in this process further, MOI has assigned the job to PACE Nepal Pvt. Ltd to carry out study on the Assessment of EMS implementation in the participating industries of Kathmandu Valley. It envisages that the report will update the information at the Ministry and at the same time it will also be useful to communicate the status of EMS assessment to the interested industries.

In this context, PACE Nepal Pvt. Ltd. has prepared and submitted this report to the MOI.

## **2. Study Area and Type of Industry**

Industries participated in EMS programme conducted by the MOI during and after ESPS, within the Kathmandu valley, were taken for the study. Industries in this list are of different types on the basis of their products, processes involved in production, scale of production and their environmental performance. Industrial category includes dyeing, pharmaceuticals, metal engineering, cable, carpet, handicrafts and nursery.

## **3. Objective**

The objective is to carry out a study on the Assessment of EMS Implementation in the participating industries of Kathmandu Valley, such that information on EMS implementation status of industries involved in EMS programme will be available in the Ministry and this information will be of use for the industries interested to implement EMS in their units. It is envisaged that the study will also be helpful to the Ministry in planning future programme with regards to EMS.

## **4. Scope of the Study**

The scope of the work covers:

1. Collection of EMS implementation information / reports from ESPS and after ESPS under MOI
2. Collection of relevant literatures and Publications
3. Study of the information / reports
4. Literature Study
5. Preparation of Questionnaire
6. Field visits
7. Compilation of information
8. Status study and assessment of EMS implementation
9. Submission of the draft report to the MOI for comments and feed back
10. Incorporation of relevant comments to finalize the report
11. Submission of the final report (Hard copy as well as Digital version)

## **5. Limitation of Study**

The following were the limitations of the study;

- Study was mostly based on the qualitative data gathered from industries through structured questionnaire, interviews and observation made during visit to the industries.
- Evaluation of the environmental performances improved or declined could not be carried out on the basis of quantitative analysis of the generated wastes rather the evaluation was made using the secondary data available with the industry and interview with the concerned employees.

## **6. Methodology**

The methodology adopted for the study is as follow:

- Listing of the MOI supported EMS implemented industrial enterprises in Kathmandu valley.
- Study of the information / reports, literatures and publications related to EMS
- Test Questionnaire developed with an involvement of experts and consultants
- Finalization of the questionnaire after testing with one of the industry in the list
- At least two visits were made in the industry to interact with Management Representative (MR) as well as with managers/owners
- Coordination and interactions with the concerned officials of MOI
- Seeking feedback on the draft report from MOI
- Incorporation of relevant comments given by MOI

## **7. Findings and Observations**

### **EMS implementation Status**

Out of 11 EMS participated industries of the Kathmandu valley during ESPS programme and under the annual programme of MOI after ESPS, 3 industries are not in operation at the moment due to the technical problems. Among the operating industries, only 65 percent trained Management Representative (MR) during EMS interventions are found to be associated with the same industries.

Table 1: List of the industries and their present status

S N	Name of Industry	Address	Operation Status	EMS Implementation	Documentation	Certification
1	Boudha Dyeing House	Mulpani, Wool dyeing complex	Operating	Still following the norms	No	Not yet
2	Sagarmatha Silk	Baneshwor	Operating	Still following the norms	No	Not yet
3	Creative Women's Creation	Chhauni	Operating	Not known exactly	Could not be observed	Not Yet
4	Radha Structures	Baneshwor/Thimi	Operating	Still following the norms	Documentation and record maintained partially	ISO 9001
5	Standard Nursery	Jamal/ Bansbari	Operating	Dropped	NA	Not yet
6	Trishakti Cables	Sitapaila/ Dilibazar	Operating	Good Implementation	Well maintained documents and records	ISO 14001 ISO 9001
7	Deurali Janta Pharmaceutical	Dhapasi	Operating	Good Implementation	Well maintained documents and records	ISO 14001 ISO 9001
8	Kishore Capet	Tinkune	Operating	Still following the norms	No	Not yet
9	Godawari Marbles	Godawari	Not in operation	NA	NA	ISO 14001
10	Khajuri Foods	Chapagaun	Not in operation	NA	NA	NA
11	Karmatara Carpet	Swayambhu	Not in operation	NA	NA	NA

*NA: Not Available*

*\*still following the norms; industries have practiced EMS and still operates taking care of the norms established during implementation but they have not been maintaining the documentation.*

*\*\* Representative of Creative Woman's Creation could not be met*

Only three of the eleven industry have been EMS (ISO 14001) certified and rest of the industries were found to be little ignorant about the certification process, however those industries are conscious about the benefit of EMS implementation and they have somehow been implementing EMS and gradually improving their environmental performances. Only one of three ISO 14001 certified companies has undergone through

regular external audit and maintained the records as per the requirements of EMS (ISO 14001). Though, almost every industry has their own well defined and well written environmental policy, most of the industries are not stuck and sincere towards their policies.

### Priorities set by the industries for continuation of the EMS

Industries gave different opinions regarding the basis and need of EMS implementation in their industries. Figure 1 given below, reflects the comparative evaluation of different convincing factor for the industries to continue the implementation of EMS.

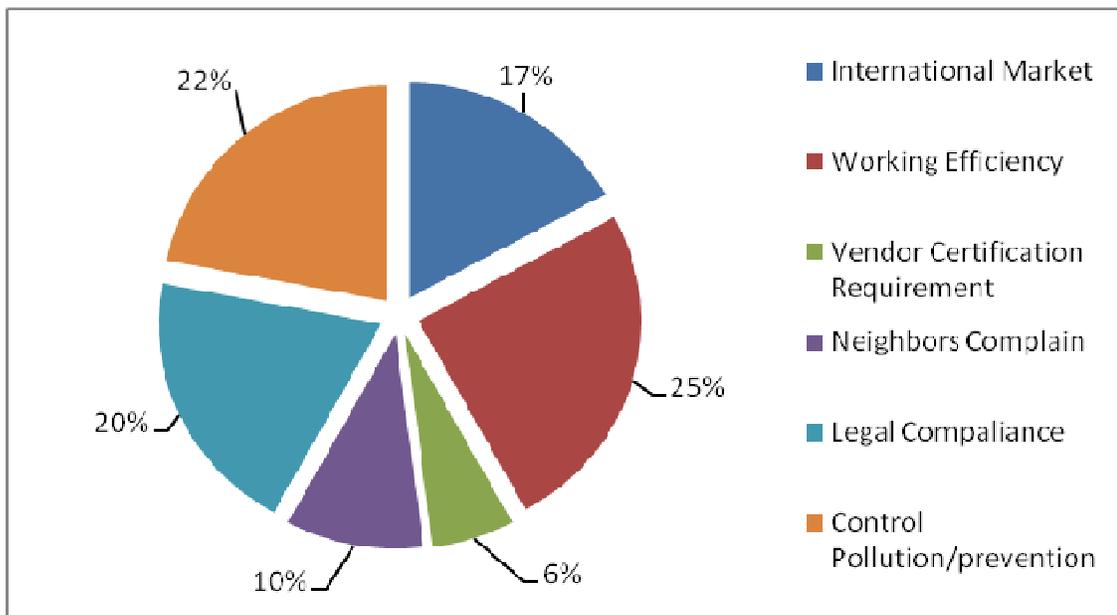


Figure 1: Priorities set by the industries for continuation of the EMS

It is obvious from above figure that 25 percent (3 Nos) industries are continuing the EMS implementation because of their priority of enhancing their working efficiency. Similarly 22 percent industries have adopted the EMS to prevent and/or control the pollution. Legal compliance and neighbors complain are least prioritized. Most of the entrepreneurs are unaware of the need and benefit of vendor certification.

All the industries expressed that they are grateful to the MOI and ESPS programme which has really made them aware about the EMS and helped a lot to bring the changes towards increasing employee's satisfaction, enhancing working efficiency, improving overall environmental performances and ultimately enhancing overall productivity.

Internal and external communication systems have been well adopted in almost all the industries for disseminating the information regarding different activities like employee meeting, interdepartmental meeting, training, employee's orientation, work policy and marketing.

## Changes brought by EMS

Industries have realized and expressed some of the appreciable changes brought by the EMS implementation in their industries. Figure 2, given below, reflects the changes brought by the EMS in the industries. Working efficiency enhancement and reduction in pollution are the two major changes brought by the implementation of EMS.

Majority of the industries have claimed that the productivity is in increasing trend after the EMS implementation, one of the contributing factors may be the increased working efficiency of the workers.

Periodic review and identification of environmental aspects and setting of the objectives/targets to address them are being practiced by the ISO 14001 certificated industries (two operating industries). They also have well maintained documentation and records including the list of non-conformance and corrective as well as preventive actions taken, customer feedback, raw materials consumptions, waste generation and disposal practices adopted etc. One of these two industries has not continued the external auditing and even not renewed the ISO 14001 certificate, realizing that renewal of ISO 9001 certificate will be sufficient as an appropriate tool for marketing.

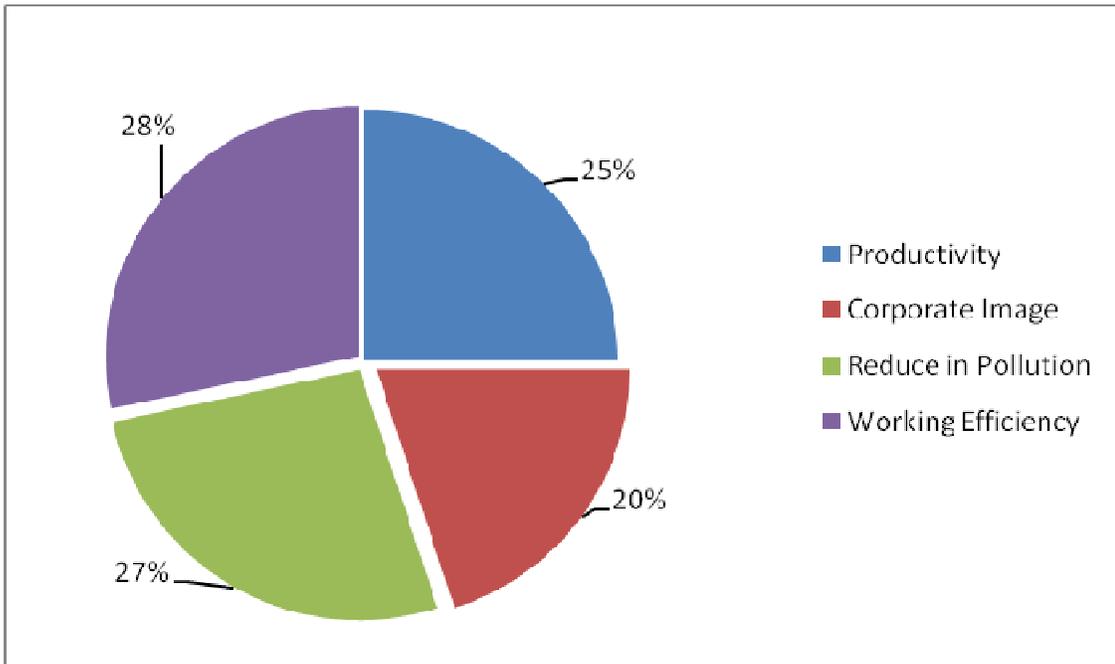


Figure 2: Changes brought by EMS.

Other industries, still following some of the norms of EMS, have not maintained the documentation and records properly. The problems being faced by such industries are mainly lack of the capability to draft EMS manual; carry out internal audit and lack of easy access and communication with certifying body.

The major challenges for the industries to manage and dispose the wastes are the unavailability of specific waste management guidelines for industrial sectors of Nepal, wastewater treatment cost, training, monitoring, and hazardous waste management, lengthy and time consuming documentation requirements of EMS especially for small scale industries are other challenges observed by the industry in implementing EMS. Some of the industry also put up the remarks that one time intervention by ESPS was not sufficient for them to implement ISO 14001, rather, concerned agency could have supported and followed up the industries in a regular time interval.

### Strength of industries to sustain the EMS

From the figure 3, it is clear that commitment and vision are the major strengths behind sustaining the EMS in participated industries. Physical infrastructure and skilled manpower are least supportive for sustaining EMS.

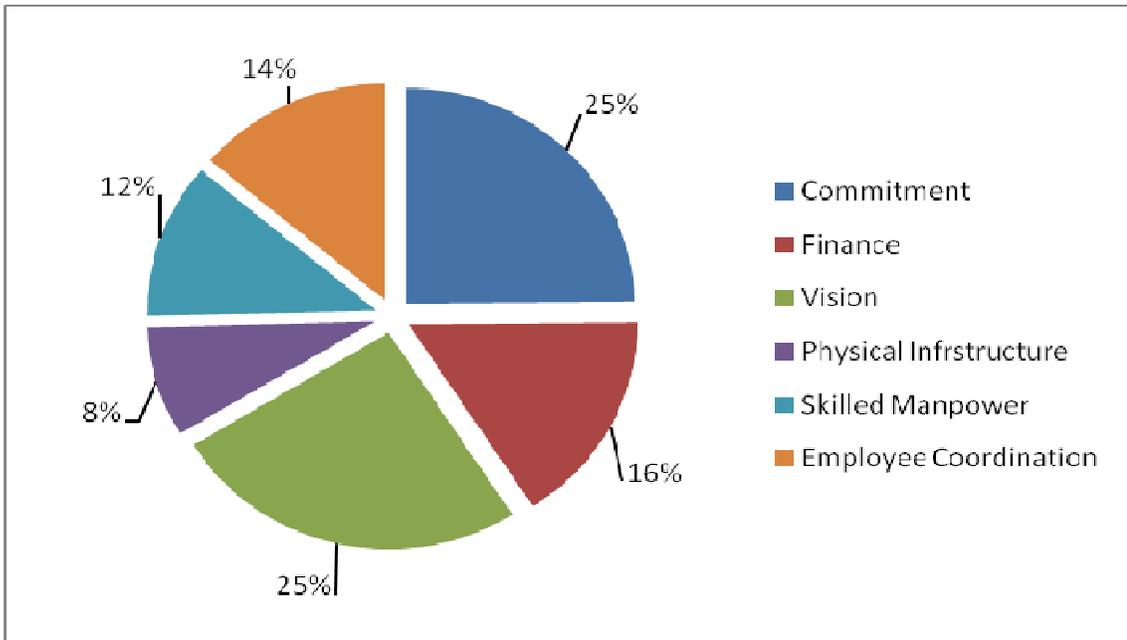


Figure 3: Strength of Industry to Sustain EMS

Although most of the industries do not have proper documentation on EMS implementation, they have claimed the “commitment” and “vision” as the major strengths to sustain EMS in their industries. But the real scenario is different from their claim; most of the industries have not implemented EMS and also not maintained the proper records and documentation. However, they have shown their keen interest for continual improvement and have strong desire to adopt the EMS as a part of their core management system.

Detail information regarding EMS status of individual industries are presented in annex 1- annex 8.

## **8. Conclusion and Recommendation**

### **8.1 Conclusion**

Officially environmental management programme in the industrial sector in Nepal was initiated during 1993 by United Nation Development Programme (UNDP)/ Industrial Pollution Control Management (IPCM) project. There have been numerous projects launched for environmental management of brown sector in Nepal. ESPS, a project of three line ministries, MOI, MOPE and MOLT was launched in 2000 and as one of its activity; EMS intervention was made in the different industries of Nepal. EMS implementation programme was continued even after ESPS by the ministry. MOI is intending to know the EMS implementation status of participated industries in Kathmandu valley. Out of identified 11 participated industries, 3 industries have been closed down at present. Total 8 industries were visited frequently for studying the EMS implementing status. It can be well said that after ESPS programme level of awareness in EMS has been drastically raised. However, good level of EMS has been practiced in 7 industries. These 7 industries have not maintained anyn documentation and records to support the continual improvement. Continual cycle of planning, implementation, regular monitoring as reviewing of the activities is questionable in 8 industries. Only two industries namely Trishakti Cable and Dheurali Janta Pharmaceuticals have been maintaining the EMS and already been ISO 14001 certificated. These two industries are ISO 9001 certificated also. Radha Structure is also ISO 9001 certificated industry and has maintained certain level of documentation. Dheurali Janta Pharmaceuticals has not carried out the regular external audit and also not renewed the certificate of ISO 14001.

Despite the improper infrastructures, trained manpower, regular monitoring and government enforcement all the industries which were participated during ESPS programme have really raised up their level of awareness in EMS and continually adopting the practice where ever applicable. As per the requirement of the EMS clauses, industries are not maintaining the document properly; however in Nepalese perspective, their efforts in EMS are appreciable.

Based on the field visit and interaction, most of the industry expressed their gratefulness to the MOI for providing opportunity to participate in EMS programme. They are further seeking for assistance and training to their manpower to continue the EMS practices.

### **8.2 Recommendations**

1. Develop legislative framework, plan and policy for regular monitoring of EMS programme in the industries
2. Enforcement of exiting pollution control standards and formulate the guidelines/ standards in waste management for specific industries.
3. Expand the EMS training in other industries as well to ensure the continual improvement in the industrial sector of Nepal

4. Open opportunity and identify those industries which are really self-motivated to participate in EMS implementation for any future programme of MOI.
5. Provide regular training/ feedback/ monitoring of the implemented project in the industry.
6. Request once again to all the ESPS participated industries to maintain EMS document at least by developing EMS manual and carry out internal audit. Provide the necessary support to cooperate them.
7. Financial incentive is necessary to motivate industry in wastewater treatment plant in collaborative approach (especially in dyeing complex at Mulpani).
8. Request Nepal Drugs Authority (NDA) to incorporate EMS in pharmaceuticals company along with Good Manufacturing Practices (GMP).
9. Arrangement should be made by the ministry for bilateral and multilateral cooperation for further EMS intervention in Nepalese industries
10. Conduct at least one general meeting/discussion in a year with stakeholders and consulting firm in regards to EMS scope and challenges.

## **Annex 1: EMS implementation Status of Sagarmatha Silks**

**Location: New Baneshwor**

**Contact Person: Mohan Panthi ( Manager)**

**Contact No: 01-4781300**

**Date of visit: June 4, 2009**

### *i) Achievements*

- EMS awareness level of the workers as well as the management has been raised.
- They tried to manage the various issues identified during the EMS training but success has been achieved mostly in energy consumption (i.e. 5% gaseous fuel saved.)
- Construction of racks saved space and increased the working efficiency of the workers.

### *ii) Problem Issues*

- The wastes like plastics as well as pieces of threads could not be managed as the scrapers do not take it and also unaware of its market, so have a problem in its management.
- Thick round shaped plastic were recommended in weaving machine to reduce noise but it did not work efficiently.

### *iii) Barriers*

- Documentation
- Environmental audit
- Focus on quality rather than environment
- Financial problem in construction of Wastewater Treatment plant.

*Summary:* The industry have participated in EMS training but not undergone for ISO certification and the implementation status of EMS is not satisfactory. Few important initiative were taken to correct, however, achieved only in energy saving.

## **Annex 2: EMS implementation Status of Radha structures and Engineering Pvt. Ltd**

**Location: Mid Baneshwor( office), Thimi ( factory)**

**Contact Person: Rakchya Dhital (MR)**

**Contact No: 01 6631120, 4491132**

**Date of visit: June 2, 2009**

### *i) Achievements*

- ISO 9001 certificated
- Maintain pH level of the waste water from the galvanizing division
- Income from metal waste

### *ii) Problem Issues*

- Understanding that clauses of QMS are related to EMS, so adopting some of the clauses switched to QMS
- Convince the workers about the EMS

### *iii) Barriers*

- Lack of motivator
- Priority to QMS
- Lack of trained manpower

*Summary:* The industry have participated in EMS training but not undergone for ISO certification. However, industry has ISO 9001 certificated and has maintain the document related to ISO 9001 (QMS). This certification also helped industry to follow some EMS practices. An immediate market benefit is the main reason behind implementation of QMS.

## **Annex 3: EMS implementation Status of Trishakti Cables Industries Pvt. Ltd**

**Location: Sitapaila ( factory)**

**Contact Person: Thakur Prasad Khanal (MR)**

**Contact No:01-4279219**

**Date of visit: June 9, 2009**

### *i) Achievements*

- ISO 14001 certificated
- ISO 9001 certificated
- The generations of metal scrap as well as waste PVC and LD/PE have been minimized and kept it below targeted level. Copper reduced by 0.25% by weight, Aluminum 0.75% by weight, CCST 0.75% by weight, Steel 0.5% by weight, PVC 0.05% by weight and LD/PE 2.5% by weight.
- Concentration of gaseous from the extrusion process have been reduced and is under limit
- Accumulated and segregate the scrap waste and sold to kabadi.
- Uses of plastic material for packing coils were reduced by the replacements of PP plastics by LDP plastics.

### *ii) Problem Issues*

- To Convince the workers about the EMS

### *iii) Barriers*

- Improving the efficiency of annealing furnace and reduce the unwanted power consumption.

*Summary:* The industry has participated in EMS training and the implementation status of EMS is good. Internal audit and external audit are regularly carried and maintain the document related to EMS. This is the industry which has certificated with ISO 14001 and ISO 9001. Thus, EMS performance is continually improving.

## **Annex 4: EMS implementation Status of Kishor Carpet**

**Location: Tinkune ( factory)**

**Contact Person: Harka Dev Siwakoti (Production Manager)**

**Contact No:01-4111780**

**Date of visit: June 21, 2009**

### *i) Achievements*

- Waste water managed
- Pieces of thread managed

### *ii) Problem Issues*

- Convince to workers about EMS
- Shifting of factory location
- Changes of new staff
- Group separation of trained staff

### *iii) Barriers*

- Documentation
- Management problem
- Lack of enforcement by responsible bodies
- Carrot and stick incentives

*Summary:* The industry have participated in EMS training but not undergone for ISO certification and the implementation status of EMS is not satisfactory. Frequent shifting of the factory location and away of trained manpower is the major problem behind the poor EMS implementation.

## **Annex 5: EMS implementation Status of Standard Nurseries**

**Location: Jamal ( Office)**

**Contact Person: Rajesh Shrestha (Director)**

**Contact No: 9851062446**

**Date of visit: June 24, 2009**

### *i) Achievements*

- Awareness level has been increased in EMS
- Management improvement
- Use of agro/organic based pesticides

### *ii) Problem Issues*

- Perception that EMS not applicable
- Small economic activity
- Perception that market has less value of certification

### *iii) Barriers*

- Documentation
- Trained manpower
- Financial burden
- Less encouraging practice

*Summary:* The industry have participated in EMS training but dropped out since 2008. The main reason behind it is the financial burden of the company as well as the understanding that EMS is not highly relevant in nurseries production.

## **Annex 6: EMS implementation Status of Boudha Dyeing House**

**Location: Dyeing Complex, Mulpani (Office/factory)**

**Contact Person: Ratee Shrestha (MR)**

**Contact No:01-6213572**

**Date of visit: June 16, 2009**

### *i) Achievements*

- Development of EMS manual
- Overall system was well organized
- New boiler installed that reduced energy
- Thread waste sold and kept as a employee trust
- Insulation of steam supply pipes
- Emergency exits in production department

### *ii) Problem Issues*

- Waste water treatment
- Problems in audit due to lack of trained manpower
- Frequent change in train manpower

### *iii) Barriers*

- Proper documentation

*Summary:*The industry have participated in EMS training but not undergone for ISO certification and the implementation status of EMS is satisfactory. They have try their best to manage almost all the issues identified during EMS training and to some extent achievements have been observed regardless in waste water treatment. It is really appreciable job that they have developed the EMS manual and eager to get ISO certificate. The major problem in implementation of EMS is due to lack of train manpower to carry internal audit.

## **Annex 7: EMS implementation Status of Deurali Janta Pharmaceuticals**

**Location: Dhapasi (factory)**

**Contact Person: Mani Ratna Shakya (Vice president)**

**Contact No:01-4371061**

**Date of visit: June 10, 2009**

### *i) Achievements*

- ISO 14001 certificated
- ISO 9001 Certificated
- Regular internal audit
- income through scrap waste
- Installation of Air Handling Unit(AHU) in production department
- 25% water reuse for gardening and toilet

### *ii) Problem Issues*

- Management and disposal of returned medicines
- Unable to quantify the amount of chemicals from lab
- Unknown about the disposal methods of chemicals like chloroform
- Construction of effluent treatment plant( ETP)

### *i) Barriers*

- Government enforcement lack in disposal of waste.
- Lack of appreciation and praise from government ISO 14001 implementation
- NDA mainly focus on GMP guidelines rather than focusing ISO 14001

*Summary:* industry have participated in EMS training and has certificate with ISO 14001 and ISO 9001.EMS implementation status is quite good in this industry. This is one of the first ISO certificated pharmaceutical industry in Nepal, however they finally dropped the external audit and ISO 14001 renewable. Basically this industry is giving high preference for ISO 9001 rather than ISO 14001.

## **Annex 8: EMS implementation Status of Creative Woman's Creation**

**Location: Chhauni (factory)**  
**Contact Person: Anjana Tamrakar**  
**Contact No:01-4279269**  
**Date of visit: June 11, 2009**

Though the industry was visited two times, Contact person was out of station, rest of the employee was totally unknown about the implementation status, documentation wise. According to the employees Pollution is gradually decreasing and sanitary condition is also well taken care of.

## Annex 9: Questionnaire Used in monitoring

### Assessment of EMS Implementation in Participated Industries of the Kathmandu Valley

A: Questionnaires for MD/Manager

Date:

#### Industry Information

1. Name: \_\_\_\_\_
2. Type of Organization: a P. Ltd   b Public \_c
3. Location:
4. Year of the establishment: \_\_\_\_\_
5. Area Occupied: \_\_\_\_\_
6. Number of Employees: Total \_\_\_\_\_   Male \_\_\_\_\_   Female \_\_\_\_\_  
Technical \_\_\_\_\_   Admin. \_\_\_\_\_, Graduates \_\_\_\_\_
7. Telephone: \_\_\_\_\_
8. E-mail / web address: \_\_\_\_\_
9. Contact person / designation: \_\_\_\_\_
10. Year of EMS implementation: \_\_\_\_\_  
Supporting Agency \_\_\_\_\_ Consultant
11. Certifications/year,  
ISO 14001:   a. Yes \_\_\_\_\_   b. No                      c. Others \_\_\_\_\_
12. Certifying Body: \_\_\_\_\_
13. Present Implementing status: A. Continued B, Discontinued  
If not continued, Reason behind

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If continued, proceed

14. What is the present status of internal and external audit \_\_\_\_\_

**Management Issues**

1. No of trained personnel in field of environmental management? please specify the number:

a. During implementation \_\_\_\_\_ b. At present \_\_\_\_\_

2. Why do you think EMS is necessary for your industry? Please rank/prioritize

- i. International market \_\_\_\_\_
- ii. Work Efficiency \_\_\_\_\_
- iii. Vendor certification requirement \_\_\_\_\_
- iv. Neighbors complaint \_\_\_\_\_
- v. Legal compliance \_\_\_\_\_
- vi. Control pollution/prevention \_\_\_\_\_
- vii. Others \_\_\_\_\_

3. What are the changes you have experienced after implementation of EMS in you industry? Please rank/prioritize:

- i. Productivity \_\_\_\_\_
- ii. Corporate Image \_\_\_\_\_
- iii. Reduce in Pollution \_\_\_\_\_
- iv. Working Efficiency \_\_\_\_\_
- v. Others \_\_\_\_\_

4. Were there any conflicts with local communities concerning environment? If yes, please specify what was/ere the problem/s and how was/were tackled during implementation \_\_\_\_\_ of \_\_\_\_\_ EMS \_\_\_\_\_ ?

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5. What challenges did you face to implement EMS in your industry?

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6. What challenges are you facing to continue EMS in your industry?

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**B: Questionnaires for MR**

**Environmental Performance**

- 1. Name of Management Representative : \_\_\_\_\_
- 2. Professional Background \_\_\_\_\_
- 3. How long have you been working as MR in this industry? \_\_\_\_\_  
 If any changes, specify \_\_\_\_\_

4. What are the medium for internal/external communication system maintained in your industry?

SN	Internal		External	
	Medium	Purpose	Medium	Purpose

5. When an Internal and External audit were last conducted at your industry? Please , specify date and auditor:

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6. List of Objectives/Targets and Programs

SN	Env. Objectives	Env. Targets	Programme(s)	Financial Analysis		Deadline	Reference
				Investment	Pay back period		

7. What are the list of non-conformance and action taken, in table?

SN	Non-conformance	Action taken	Remarks

8. Environmental Performance

S.N	Type of Waste		Generation per Month/Annum (Quantity)	
			IER Report	Audit Report (recent)
1	Solid waste	Paper		
		Plastics/rubbers		
		Metals		
		Glasses		
		Hazardous		
		Others		
2	Liquid waste			
3	Gaseous emission			
4	Other			

9. Waste management/disposal approach

S.N	Type of Waste		IER Report		Audit Report (recent)	
			Practices	Unit cost	Practices	Unit cost
1	Solid waste	Paper				
		Plastics/rubbers				
		Metals				
		Glasses				
		Hazardous				
		Others				
2	Liquid waste					
3	Gaseous emission					
4	Other					

10. What are the major improvements in occupational health and Safety of workers?

Please specify them:

S.N	Exposure	How they are managed?			
		Before EMS		After EMS	
1	Noise				
2	Dust				
3	Gaseous				
4	Illumination				
5	Heat				
6	Odor				
7	Vibration				
8	Accident record	Fatality	Injury	Fatality	Injury
9	Others (if any)				

**Economic Assessment**

1. Major Products

SN	Item Produced	At the time of EMS Implementation		At Present	
		Annual production	Unit cost ( NRs)	Annual Production	Unit cost (NRs)

2. At least three years data of production before and after EMS implementation

Year				Implementation year		
Production	Quantity					
	NRs					

3. Consumption of raw materials (majors)

SN	Raw materials	At the time of EMS Implementation		At Present	
		Annual consumption	Unit cost NRs	Annual consumption	Unit cost NRs

4. Benefits from 3R (Waste)

SN	Type of waste	Generation per month	Unit cost	Total	Remarks

5. What are your strengths to sustain EMS? Please rank/prioritize:

- i. Commitment\_\_\_\_\_
- ii. Finance\_\_\_\_\_
- iii. Vision\_\_\_\_\_
- iv. Physical Infrastructure\_\_\_\_\_
- v. Skilled Manpower\_\_\_\_\_
- vi. Employee coordination\_\_\_\_\_
- vii. Market demand\_\_\_\_\_
- viii. Others\_\_\_\_\_
- ix.

6. What are the major comments about your product / service made by the customers after EMS Implementation?