

EMS / ISO-14001 IMPLEMENTATION THROUGH GREEN PRODUCTIVITY – A unique experience of an Indian Municipality



A. Shajahan
Formerly with National Productivity Council as
Deputy Director (Environment) Email : alishajahan@gmail.com

1.0 INTRODUCTION

Namakkal is a small commercial town located in the state of Tamil Nadu in the Southern Part of India, having population of about 53,041 (as per 2001 census) with 16,000 houses occupying an area of 10.24 sq. km. Namakkal municipality has 232 employees and carries out the activities / services to its residents such as Water treatment and supply, Street lighting, Road / Street laying, Maintenance & Cleaning, Drainage Construction, Maintenance and Cleaning, MSW collection, transport, processing and disposal, Town planning and control, Maintenance of public places, etc

Namakkal Municipality is implementing a Green Productivity Demonstration Project (GPDP) along with Asian Productivity Organization, Tokyo and National Productivity Council, India (NPC) to move towards making the Namakkal town a model “Eco-city” through Green Productivity (GP) Approach.

Eco-city means working together for better social, economic and environmental outcomes for our children, our grand children and ourselves. It means working together with people and communities to build strong local economy, create attractive town centers with good road and passenger transport access, protect and expand the green network which links our streams and parks, use resources better and produces less waste and improves the well being of resident. In other words, community live in Harmony With the Environment.

Activities in the municipal area primarily generate domestic sewage, municipal solid waste, bio-medical waste, odor, vehicular air pollution and noise.

EMS is being implemented through GP approach with a high degree of top management commitment and it is used as a tool to look for ways and means for environmental and productivity improvement. EMS is being planned and implemented to institutionalize and sustain GP even after GP Demonstration Project period. This has

resulted in planning and implementing the system to the letter and spirit of the International Standard.

2.0 EMS PLANNING

Initial environmental review, identification of significant and other environmental aspects was carried out. Based on the above, the top management formulated the environmental policy to chart the course of EMS.

2.1 Environmental policy

An environmental policy, in line with GP, was evolved to steer the town towards development of “Eco-city”. **The environmental policy states:**

“Namakkal Municipality is committed to develop the town as “Eco-city” through GP and achieve continual environmental improvements by:

- **Managing sewage and solid waste effectively.**
- **Conserving water and energy.**
- **Improving productivity through waste reduction, recycle, reuse & recovery and e-governance.**
- **Implementing poverty alleviation and women empowerment programs for overall socio-economic development.**
- **Inculcating Environment, Health and Safety conscious work culture in its employees and lifestyle in its residents through awareness creation, training and motivation.**
- **Complying with legal and other requirements.”**

Commissioner

2.2 Environmental objectives and Targets

Based on the environmental policy directions and significant environmental aspects, the EMS task force and top management of the unit formulated the environmental objectives and targets. ~~Most of the~~ Environmental objectives are aimed at environmental and productivity improvement. Some of the Environmental Objectives and Targets are:

Environmental Objectives	Environmental Targets
1.0 Proper Solid Waste Management System	1.1 Preparation of DPR for municipal solid waste and implementation of recommendation by Dec 2005.
	1.2 Site assessment, detailed design of sanitary landfill and construction of 1 st cell by Dec 2005.
	1.3 Proper disposal of Bio-Medical waste from Municipal Maternity Center by December 2004.

	1.4 Increasing capacity of vermin-compost plant by 50 % by March 2005
	1.5 Implement segregation by 10 % households using color-coded containers by December 2004 and remaining in phased manner.
	1.6 Implement door-to-door collection with color-coded containers by December 2004
	1.7 Up-gradation of existing dump site by March, 2005
	1.8 Development of GIS based municipal solid waste tracking system by December 2004
	Procurement and use of one street cleaning machine by June 2005
	1.10 Increasing push carts for street sweepings collection from 1 per Km to 2 per Km by March 2005.
2.0 Augment Rain water Harvesting	2.1 Preparation of Concrete action plan and demonstration through a pilot project in one area by March 2005
3.0 Improve Productivity in Municipality by GIS-MIS Integration	3.1 Preparation of base map including major roads, ward boundaries and major landmarks by October 2004
	3.2 Preparation of detailed maps in GIS format and integration with MIS for relevant attributes for ward nos. 19 & 20 by November 2004.
4.0 Reduce Electricity consumption.	4.1 Conduct energy audit by December 2004 & then implement energy conservation measures.
	4.2 Identify renewable sources of energy and Replace electric lights by solar lamps on important roads by December 2005.
	4.3 Install illumination based automatic street-light switching system in one area by December 2004.
5.0 Improve resource management	5.1 Feasibility study for recycle/reuse of solid waste by December 2004
6.0 Implement poverty alleviation program	6.1 Identification of revenue generating activities for woman self help groups by December, 2004
7.0 Reduce fugitive emissions.	7.1 Providing BT Municipal Roads on end-to-end pattern from 20 Km to 25 Km by March 2005.
8.0 Green Belt Development	8.1 Planting 10,000 saplings by March 2005
	8.2 Greening of 5 selected public places by December, 2004
9.0 Creation of Environment,	9.1 Awareness training for all municipal employees on EMS and Environmental issues by Sept. 2004

<p>Health & safety & EMS awareness to Municipal employees & public On regular basis.</p>	
	<p>9.2 Creation of awareness on EMS and Environmental issues & Promotion of Waste Minimization culture through Door to Door campaign, Street Plays, pamphlets, posters etc, by Dec 2004</p>

3.0 IMPLEMENTATION OF EMS

3.1 Implementation of environmental objectives and targets

Implementation of these targets is carried out through appropriate environmental management programs. The environmental management program activities involved broadly improvements under

- Solid Waste Management System
- Improvement of Productivity of Municipality
- Energy and other Resource Conservation
- Poverty Alleviation and Women Empowerment
- Augmenting Rainwater Harvesting

3.2 Operational Control

In addition to existing procedures, operational control procedures for Air Pollution Management, Water and Waste Water Management, Solid Waste Management, Management of Supplier & Contractor Activities and environmental work instructions have been formulated to address issues relating to various significant environmental aspects. The following procedural elements have been introduced to improve environmental performance and productivity of municipality.

- Waterline and telephone cable damages are avoided by educating workers of municipality and other departments.
- Training has been given to sweepers to segregate organic and inorganic waste to the extent possible.
- Composting operations are being checked on a monthly basis.
- Training of all employees on EMS and Environmental awareness
- Suppliers of chemicals and any other hazardous materials are communicated to provide MSDS to the Municipality.
- Contractors are insisted to follow the environmental and safety requirements by prescribing as conditions in the tender.

- Register is introduced for tank cleaning activities. Tank cleaning sludge is being filled in low lying area.
- Pamphlets having eco messages are issued to the public.
- Waste Collection and transportation agency has been informed to keep hazardous waste such as batteries, expired medicines etc. in drums separately.
- Linking all immovable properties and water connections of an resident by changes in MIS of municipality to provide complete information to the assesses in information centre and to tax collectors for better tax collection and productivity improvement.

3.3 Emergency Preparedness and Response

Emergency work instructions have been formulated and followed. First Aid training has been provided to some employees to handle electric shock victims.

4.0 CHECKING AND CORRECTIVE ACTION

4.1 Monitoring and Measurement

Environmental management programs are being monitored and reviewed by the top management at periodic intervals. Key characteristics have been evolved and are being monitored as follows .

Key Characteristic	Frequency of monitoring
Office electricity use - No. of units for 2 months	Bi-monthly
No. of water line leaks per month	Monthly
Water quality in borewell (one borewell every 2 months)	Bi-monthly
Water quality of river water supplied(one in every 2 months)	Bi-monthly
Water contamination cases (No per month)	Monthly
Malaria cases per month	Monthly
Plastic waste generation (Ton / day)	Daily
Fuel consumption (litre of diesel / ton transported to dumpsite)	Monthly
No of trees planted and maintained by municipality	Quarterly

4.2 EMS audits and management review

EMS audits and periodic review by task force and top management are being carried out to check and ensure implementation of the EMS as per the plan.

5.0 SUMMARY & CONCLUSION

The environmental, health, safety, productivity improvement and other benefits achieved are

- i. Identification of energy savings potential of Rs.13.6 lakhs
- ii. Improvement in Resource recycling and recovery
- iii. Reduction in water pollution, land contamination, bird menace, odor and fly nuisance in MSW dumpsite.
- iv. Reduction in Health hazards to public and sanitary workers
- v. Improvement of productivity of municipality by improved MIS, GIS-MIS integration, Waste tracking through GIS, MSW transport route optimization, etc
- vi. Green belt development and Greening of public places

The above case study proves that implementation of GP and EMS in its spirit inculcates and institutionalizes a EHS and Productivity Improvement culture in municipal bodies implementing them.