

ENVIRONMENTAL SCIENCES



DEPARTMENT OF ENVIRONMENTAL SCIENCES

The department provides services like environmental clearance, environmental audits, analytical services to the sugar and allied by-product industries. It also gives guidance to these industries in preventing and controlling pollution. The department carries out research related to distillery spent wash treatment and its disposal. It conducts two year post graduate diploma course in Environmental Sciences leading to M.Sc (Environmental Sciences) of University of Pune. The Institute is also recognized as research center for studies leading to Ph.D in Environmental Sciences. The department also holds workshops on various aspects related to Environmental Sciences.

RESEARCH AND DEVELOPMENT

Development of Guidelines for Biocomposting of Distillery Spentwash

Various laboratory experiments were carried out under the project “Development of guidelines for biocomposting by utilizing pressmud, agrowastes and distillery spentwash” which was sponsored by the CPCB, New Delhi. Composting of distillery spentwash by using rice straw, sugarcane trash, wheat straw, coir pith and pressmud cake was carried out. Experiments were conducted in various distilleries using raw, biomethanated, concentrated and RO reject spentwash. The results of all these experiments were compiled and a draft final report of the project was submitted to CPCB. The report included conclusions of the project and detailed guidelines regarding filler material, environmental factors, spraying, turning, monitoring of the process, surface of compost yard, duration of composting cycle, compost site, personnel etc related to composting. The following were the conclusions in brief:

- It was possible to use various agrowastes as alternate filler materials for the composting of distillery spentwash in combination with pressmud. This would help distilleries to overcome the shortage of filler material.
- The percentage of agrowaste in the filler material with pressmud should be 25% or less otherwise the C:N ratio of the material increases ultimately becoming progressively difficult to degrade.

- The availability of agrowastes is a problem in certain areas, as it is dependent on the type of crops grown, the season and the other use of the particular agrowaste in that area.
- It was possible to compost agrowastes and pressmud with all types of distillery spentwash i.e. raw, biomethanated, RO reject as well as concentrated. There are few concerns about the use of concentrated spentwash since the TDS i.e. inorganic solids in the leachate and the electrical conductivity were found to be high as compared to leachate of biomethanated and raw spentwash compost.

Life Cycle Assessment of Sugar Production

Life Cycle Assessment or Analysis (LCA) is an environmental management tool that enables quantification of environmental burdens and their resultant potential impact on the whole life cycle of a product, process or activity. LCA studies the environmental aspects and potential impacts throughout a product's life from raw material acquisition to production, use and disposal.

Four sugar factories viz. Pandurang SSK, Vighnagar SSK, Kisanveer Satara SSK and Yeshwant SSK, Theur were selected for study. The whole life cycle of sugar production including sugarcane cultivation, transport and processing was studied. The data regarding all these processes were collected and analysed. The requirements for producing one tonne sugar was calculated, which included chemicals used, water requirement, fertilizer doses, energy input etc. The waste generated and emissions arising from the various processes and from the transport of sugarcane from field to factory were also quantified.

EXTENSION AND ADVISORY SERVICES

Environmental Clearance

Environmental clearance in accordance with the National Environmental Policy is mandatory for all new projects and expansion or modernization of existing projects as per the procedures stipulated by the Government. The department assists the industry in obtaining environmental clearance for sugar, cogeneration and distillery projects. The following table gives the progress of such projects. (Table 39)



Table 39 : Progress of various projects

Name of Factory	Details	Status
T.K. Warana SSK	Expansion of distillery from 60 to 90 KLPD	The project was exempted from public hearing and Environmental clearance was obtained from MoEF.
Bhima SSK Ltd. Patas	Establishment of new 45 KLPD distillery	Public hearing was conducted successfully and Environmental clearance was obtained from MoEF.
Nira Bhima SSK	Establishment of new 30 KLPD distillery	Public hearing was conducted successfully and Environmental clearance was obtained from MoEF.
Bhoruka Power Corporation Ltd., Karnataka	Establishment of new distillery and cogeneration project	Application was submitted to MoEF. Monitoring of the project site was completed. The project has been put on hold.
Pandurang SSK	Establishment of new 45 KLPD distillery	Terms of reference obtained from MoEF. Monitoring of the project site was completed.
Dr. Babasaheb Ambedkar SSK	Establishment of 16 MW Cogeneration unit	Application was submitted to State Environment Department. Environmental Impact Assessment (EIA) report was prepared.
Vikas SSK	Expansion of distillery from 30 to 60 KLPD and establishment of 18 MW Cogeneration unit	Terms of reference obtained from MoEF. Monitoring of the project site was completed
Dhavalpratapsinh Mohite Patil Agro Industries Ltd.	Establishment of new 30 KLPD grain based distillery	Terms of reference obtained from MoEF
Ankur Biochem Ltd., Jharkhand	Establishment of new 60 KLPD grain based distillery	Application was submitted to MoEF for terms of reference.

Analytical work

The department helps the industry by offering chemical and microbial analysis facilities for various

environmental samples. Around 53 samples of water, wastewater, compost etc. received from the industry were tested and analyzed for variety of parameters.



Ms. Nimbalkar, briefing Mr. Rahul Gandhi, Member of Parliament



Inauguration of Workshop on "Carbon Trading New Vista" by Mr. Patngrao Kadam, Minister of Cooperation, Maharashtra State