

TOWARDS ENVIRONMENTAL SUSTAINABILITY

Sound waste management practices are an integral component of living sustainably, as solid wastes are one of the major products of human settlements. It is vital that wastes are avoided wherever possible, and that products are viewed from a life cycle perspective and retained in circulation for as long as possible. In the context of sustainability, waste management has moved to the sphere of resource management, where wastes are utilised as resources through innovative reuse and recycling processes. Hazardous wastes, medical wastes, and residual wastes must all be managed to ensure the quality of life of future and present generations are not compromised. This requires careful storage, handling and disposal to ensure environmental risks are minimised.

The combination of the Asia-Urbs project and the ongoing development of the Auroville Master Plan, make the timing for developing a detailed Solid Waste Management Strategy in Auroville ideal. Both of these projects focus on living sustainably, and current waste management practices in Auroville require substantial upgrades to achieve this goal. It is critical that waste management planning, development and capacity building is undertaken now, prior to further population growth and the associated growth in waste production.

AUROVILLE MASTER PLAN



Auroville has recently developed a City Master Plan. This document provides an overview of the development pathway for the city. A major emphasis of the Plan is managing the environmental impacts of urban development. Pollution of water, soil and air, and loss of amenity is the usual price for unplanned development. Sustainability requires an approach that minimises our impacts on current and future generations, seeks

to preserve bio-diversity, utilises a precautionary approach, and seeks to internalise environmental costs.¹

Sustainable development is more than a scientific trend, it is an ethical principle underlying the value choices made by a community or organisation. It is also a

¹ Ronnie Harding: *Sustainability: principles to practice. Outcomes*

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social process, with fundamental change to human behaviour a pre-requisite to a sustainable society.²

Within the Master Plan, solid waste management is examined as an integral component of environmental sustainability. The Plan documents contemporary solid waste management practices. However, already these practices have changed and the Master Plan does not accurately reflect the current disposal situation. This demonstrates that waste management systems are often in a state of flux.

The Master Plan lists the following issues as the pathway for further development of solid waste management:

- “Finding practical and ecological packing alternatives to reduce non-degradable wastes
- Sorting wastes at source into 5 or 6 streams – paper, plastic, metal, glass, organic, batteries etc.
- Converting recyclable wastes into useful products. This would include conversion of compostable material to soil enrichers.
- Using building debris as road / building material.
- Using incinerable wastes to generate electricity
- Scientific and safe disposal of bio-medical and hazardous wastes”³

These issues have all been explored within the Auroville Solid Waste Management Strategy.

The Master Plan emphasises support for the ‘zero garbage’ philosophy in order to minimise the need for sanitary landfilling and transport requirements. The Auroville Solid Waste Management Strategy has taken this philosophy as the basis for the Strategy development.

The micro planning aspects within the Master Plan will evolve over the next two years, providing more detailed guidance on the position of infrastructure. This micro-planning includes specific work to be undertaken in the field of solid waste management. It is envisaged that the Auroville Solid Waste Management Strategy will provide a sound foundation for the work. The development of hydro-geological survey data and transport networks will be vital to the placement of waste management facilities over the longer term.

² Thaddeus C Trzyna): *A Sustainable World. Defining and Measuring Sustainable Development.*

³ Auroville Master Plan

ASIA-URBS PROJECT

The timing of developing an Auroville Waste Management Strategy links conveniently with the Asia-Urbs project. This project is a collaborative project aimed at assisting cities to strengthen their urban management capacity.⁴

Working co-operatively with the two cities of Cologne and Venice, Auroville will be strengthening its capacity in areas such as water management, alternative transport and traffic management, energy, town planning, and solid waste management.

Funded under this project will be a town hall building to house essential municipal services and town planning development. While no specific waste management programs have been put forward in the current project, there may be scope to include waste management at a later stage for funding, or to integrate waste management within the planned upgrading of municipal services.

The Asia-Urbs project also has capacity for research to be undertaken in the areas of sustainable urban development. The project will provide both facilities and documentation to facilitate research students from both India and Europe who are addressing a range of issues and technologies related to sustainability. Research and development is an important component of the Auroville Solid Waste Management Strategy, with two projects identified as priorities. These projects are:

1. Research on residual waste disposal, looking at waste stabilisation using Effective Micro-organisms (EM), waste to energy, and the use of waste in compressed building technologies.
2. To develop micro-enterprises to value add and create markets for recyclable material in the waste stream, in particular plastic wastes.

The Asia-Urbs project provides a sound framework for this research to be conducted. Under the broader parameter of sustainability, the research projects have a very practical focus, and could make a significant contribution to the field of solid waste management on an international basis.

The following document, *Auroville Innovative Urban Management*, provides a summary of the Asia-Urbs project.

⁴ Auroville Outreach, January 2001

Project title: **AUROVILLE INNOVATIVE URBAN MANAGEMENT**

Project Holder: Auroville's Future - Auroville
In partnership with: Municipality of Cologne
 Municipality of Venice

Approved by the European Commission under the Asia Urbs Programme.

Total Budget:	Eur 732,528.00	~	Rs. 3,07,66,176.00
(Fully allocated to the AV services according to their requests)			
Contribution by European Community:	Eur 471,085.40	~	Rs. 1,97,85,586.80
Total Contribution by Partners:			
(Partly in cash and partly in kind).....	Eur 261,442.60	~	Rs. 1,09,80,589.20
- Contribution by Auroville:			
(Including the Aurovilians working voluntarily)	Eur 130,326.60	~	Rs. 54,73,717.20
- Contribution by Venice:	Eur 68,500.00	~	Rs. 28,77,000.00
- Contribution by Cologne:	Eur 62,616.00	~	Rs. 26,29,872.00

Implementation time: 2 years

Expected Starting Date: March 2001

Project Coordinator: Luigi

Coordinators of the Activities: Anupama, Ponnuswami, Rama, Tom, Joss.

Monitoring: Luigi, Sauro, Joseba, Anandi

Advisory Board: Several Aurovilians from various working areas have been asked to give advise during the implementation of the project and act as a sounding board.

Summary of the project:

The project proposes the creation of an *Auroville Municipal Management Facility* consisting of a *building, equipment and human resources* where the activities of the present urban and regional development services of Auroville can be integrated, co-ordinated and enhanced in a more effective way. The project is subdivided into several activities of researches, communication and exchanges, training, and direct action upon municipal and town planning services. All the actions are unified under a common vision aiming at the growth of Auroville and at the diffusion in the region of the experience, of the know-how and the capacity acquired. The different activities of the project can be grouped into the following sections:

A: Centre for urban development studies, researches, planning and development: The place should constitute a centre for exchange of experiences and communication between Indian and European experts, technicians, administrators and students involved in the sustainable development of cities. It will have a fully equipped *conference room*, including simultaneous translation facilities, a *multimedia centre cum library* with documentation on town planning, urban challenges in India, Asia and the world. *Construction of the building* is forecasted to be within 12 months from the commencement of the project. After completion of the building the following activities will be undertaken:

- I. A program of *several workshops* with the participation of foreign experts from Cologne and Venice, especially addressed to district and civic officers from Tamil Nadu and Pondicherry. The workshops will be attended also by members of other organisations working in the area. One of these workshops will be held in Cologne. The topics for the workshops will be:
 - Innovative waste management
 - Innovative water management
 - Innovative energy planning at municipal level
 - Innovative traffic management and alternative transport
 - Innovative town planning
- II. To provide *facilities and documentation for individual researches* (Indian and European students) on topics related to urbanisation, sustainable growth of cities and the diffusion of appropriate technologies in city development.
- III. To arrange one purse for a *thesis* on matters related to urban sustainable development and appropriate technologies for an Indian student.
- IV. To hold an *exhibition in Venice* dedicated to activities undertaken by Auroville with the Asia-Urbs program.

- V. **Publications and exhibitions** as a support to the workshops and the other activities of the project and as part of outreach, diffusion and dissemination activities.

B: Town-planning, co-ordination and upgrading of municipal services

In order to ensure a better co-ordination of the municipal services and also to provide a point of reference for the area, it is proposed to host the *head-office of the main utilities* in the same building of the centre for urban development. The area of upgrading of municipal services contains the following activities:

- I. **Town Planning:** One detailed *Auroville Master Plan* will be produced at the end of the program and will include many indications and inputs received during the various activities undertaken with this proposal. The master plan will be elaborated also with the collaboration of experts sent by the partners and with the participation of Indian consultant town planners and architects hired for two years.
- II. **Energy:** Preparation of a *Municipal Energy Plan* (After evaluation of the present pattern of energy consumption) with recommendations at town planning level to improve grid performances and to promote a more diffused consumption of renewable energy.
- III. Preparation of a *Master Plan for Future Installation of Low Tension and High Tension Lines* cum pre-feasibility study for the installation of an electrical sub-station.
- IV. **Training:** It is envisaged to train *10 young people* of the nearby region, *every year*, as electricians. Some of the trainees will be employed by the Auroville Electrical Service.
- V. **Solar Energy:** It is proposed to *display and demonstrate solar systems* in various centres and in nearby villages and public buildings. It is forecasted to provide demonstrations to 1,000 people in about two years. The demonstrations will be followed by training programs.
- VI. **Training:** it is envisaged also to undertake *10 training programs for 10 local students* and for the duration of 1 month each, as well as students sent by other organisations from other parts of India.
- VII. **Urban watershed management:** It is proposed to undertake a *pre-feasibility study* in collaboration with international consultants on the proposed plans for water management in Auroville.
- VIII. **Waste Water management:** It is proposed to prepare a *plan for the installation* of various decentralised treatment *plants for the treatment of waste water*. The Center for Urban Development studies will be equipped with one of them as a demonstration unit.
- IX. **Monitoring:** It is proposed to *upgrade the laboratory* of the Water Service with new equipment, including one Gas Chromatograph and two Global Positioning System (GSP) rover units which will enable locating with accuracy each spot which has been sampled, thus allowing the *creation of a computer model* to understand the progress of the pollution. The lab will be equipped also with an atomic absorption spectrophotometer to be used mainly for soil analysis. The laboratory is planning to undertake an *extensive program of monitoring activities in Auroville and the surrounding villages for pollution control* in soil, water and food, that will include:
 - Analysis of 250 samples of water per month collected over an area 120 sq.km corresponding to 70 per cent of the local water supply.
 - 100 analyses per month of milk and dairy products, food samples, fruits, vegetables and locally processed and packed food.
 - 150 soil tests per month on pesticides contamination, chemically hazardous waste, PCB phenols, heavy metals, etc.
- X. **Auroville Urban Greenwork:** It is proposed to undertake the following activities for the greening of Auroville city area:
 - XI. The *plantation* of 13 acres of *parks*, 9 acres of *green corridors* and 4.5 km of *avenue trees*.
 - XII. The development of 3,000 sq.ms. of *catchment ponds*, 10,000 ms. of *bundling* and 700 cb.ms. of *check-dams*.
 - XIII. To set up a *green city service nurseries, garden equipment and personnel* for the development of green areas in the city and the region.
 - XIV. **Training:** It is planned to train *15 people per year, during two years*, in gardening and urban landscaping.