Revelation reveals its surprises

Four major parks are planned to separate the four zones of Auroville. They have been named after the four aspects of The Mother as described by Sri Aurobindo: Maheshwari, Mahakali, Mahalakhsmi and Mahasaraswati. Revelation is to become the Mahakali Park.
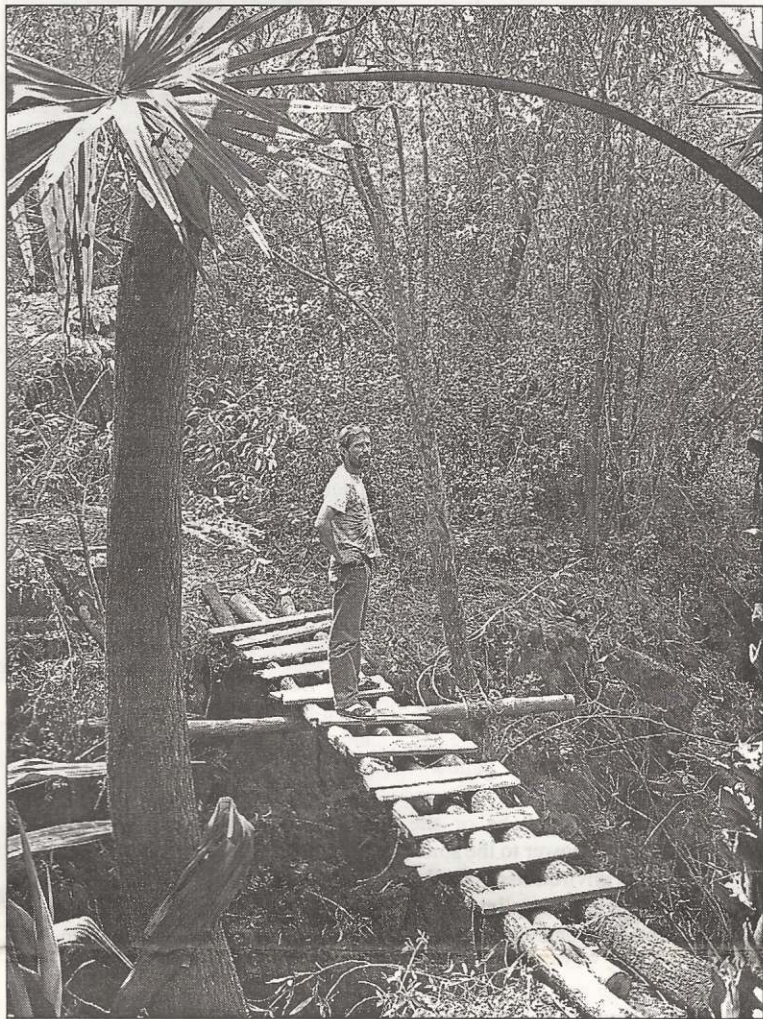
Patrick

A simple bridge crosses one of the many canyons in Revelation

"That's Bourbon Vanilla." Patrick points at an orchid with waxy leaves, and shows a flower bud hidden in an axil. "Some years ago I brought a vine from La Réunion, the French island near Madagascar. It usually takes three years before the first flowers appear. We pollinate them by hand, then they'll produce pods like big green beans, which develop their unique aroma after a special processing." He grins. "We had our first Auroville vanilla three years ago." Pointing at a tree with a particularly dark trunk he continues, "That's a small ebony, a dioecious species; we have both the male and the female plants. That sapling over there is naturally generated sandal. And the bush with those red berries is coffee."

It's early morning, I am on a guided tour through Revelation. Patrick, the land steward for the last 22 years, shows me around. The tour proceeds along small paths bordered by fruit and forest trees, passing clearings of farm land. Overhead, a large bird – a black eagle, confirms Patrick – soars the sky before alighting on a high tree. The sudden roar of a chainsaw followed by a crash indicates that tree clearing is in process. "They

are cutting a work tree," scowls Patrick. "The tree is too close to the overhead electricity lines. We have three such lines crossing Revelation, and every year we have to spend a lot of time and money to clear the undergrowth. We have removed the line for our well as we are now pumping with an Aureka windmill and a solar pump. But it seems to be very difficult to bury or remove the other lines."

Revelation is the name of an 85-acre area located in the north of

Solar and wind energy are being used extensively to diminish dependency on the grid

Auroville. It is wedge-shaped, the tip towards the city centre, broadening out in the greenbelt. Revelation started in 1975 as a patchwork of lands owned by Auroville. The area was almost totally desertified. "The few remnant bushes in the northern part became the core of what we today call the Mahakali sanctuary," says Patrick. "It is a wild area

with ravines. We have done a lot of planting there – in particular the species belonging to the original flora of the area, known as Tropical Dry Evergreen Forest. We also did the complete water conservation work, with bunds and dams. As a result, the fauna has come back dramatically. We have spotted rare birds such as the endangered black eagle. But also civet cats, monitor lizards, jackals, hares, painted bats and flying foxes; even tortoises and rare barking deer have made an appearance. We have always kept this large area undisturbed and well-protected, to study its natural regeneration."

The southern part of Revelation will become the future Mahakali Park, the largest park within the city area. "When I arrived in Auroville, the greenbelters had already started to plant many ornamental trees and shrubs in this area. For already at that time, it was clear this would be one of the future parks of Auroville. Many of these saplings have now matured into immense trees, creating the basis for a beautiful park." This part is also home to the experimental Revelation farm. "We've tried permaculture, raised chicken for meat, kept chicken for eggs and did quite a few other experiments. Today we concentrate on producing milk and growing thirty varieties of organic fruits," says Patrick. "But the animals of the sanctuary feed on the fruits, so there is a loss. We don't mind, there is plenty to share."

Forty-five year old Patrick was born in a Paris suburb into, as he says, "a rather bourgeois family." Though his origins are half Dutch, a quarter British and a quarter French, he received a French education and studied higher mathematics before realising that this was not his way. "I took my backpack, and found myself at a later stage in southern France experimenting with wild life." He joined a community in Ardèche and learned about Auroville as some of its former members had become Aurovilians. "I lived for 2½ years in a tepee in the mountains. It was the beginning of my personal yoga to come back to nature and get in touch with matter, studying the writings of The Mother, Sri Aurobindo and Satprem. For my 24th birthday I decided to come to Auroville. I had the proper preparations to become a pioneer as the city had not been started. Basically, the green belt was everything there was in Auroville." It was December 1983. After a few months of wandering around, he settled in Revelation.

Patrick returned to France in 1986, after his parents died in a car accident. When he came back he decided with the Revelation community to use the money he had inherited for land purchase and reclamation. "We bought about 20 acres of eroded waste and

canyon lands, consolidating and completing Revelation as we know it today." Asked if there was any hesitation in using his inheritance for Auroville, Patrick pauses before answering. "Today I am basically broke. I live on an insufficient maintenance provided by the community. In a few weeks, I'll have to return to France to earn money so that I can continue to live here with my family. From that perspective, I would have been better off keeping my money. But at that time, for us working in the greenbelt, land was an urgency and there was never any hesitation to donate for that." He smiles, "So I think I did the right thing."

Asked what he considers to be the biggest achievement of Revelation, Patrick points at the successful water conservation measures. "In the early days, when I started the sanctuary work, I employed people from the villages below. The land was so barren and hard that they doubtless thought I was crazy, and they were not very cooperative. Seven years later I introduced more TDEF species, and employed again some of the same villagers. They saw that a forest canopy had come into existence, and that their earlier work had born fruit. I got much better cooperation. Then, in 1996, extreme monsoon rains led to the flooding and even destruction of quite a few villages in Tamil Nadu. But the villages below Revelation were not flooded and the headmen understood that this was because of the huge quantities of water stored behind the dams in Revelation and Nine Palms, the neighbouring community. Today, as a result of all that harvesting work, Revelation is one of the very few communities in Auroville that still draws water from the first aquifer all year round. Now we have been asked to provide water to the Industrial Zones. But Auroville should realize that this water is only available because of all the green-work done."

With the growth of the city, the concept of the Mahakali Park is gaining importance, though its present limits are being challenged. "We are having great concerns about the future road network proposed by the town planners that would cross Revelation and greatly reduce its actual size,' says Patrick. "But I hope that the highest consciousness wanted by The Mother will prevail in that matter." His views on the Park itself are slowly developing. "Mahakali is Mother's aspect of force and strength. She demands unconditional surrender. We have translated that into a certain idea of wilderness, diversity and exuberance,
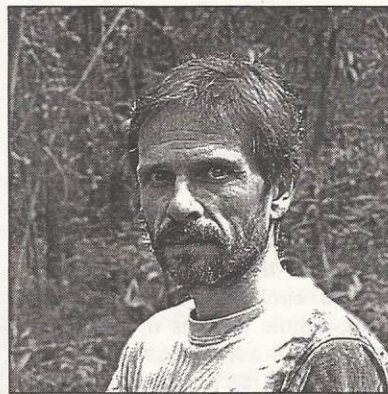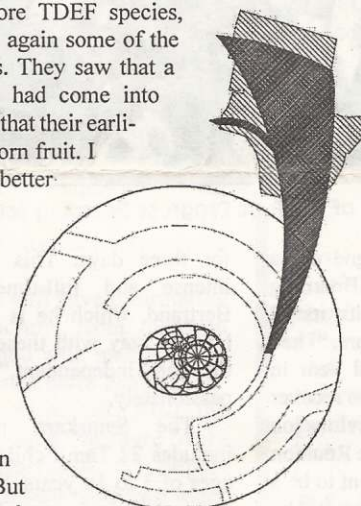
leaving Mother Nature to do as she pleases, with a minimum of human interference. We have started to create pathways planted with evergreen vegetation around a long meadow and we would like to complete the work with flowering bushes and trees, bringing in water lines to create ponds, and other necessary infrastructure. Paths would be marked so that people don't get lost, and there would be descriptions of the major trees and bushes. The main function of the park is for educational purposes, especially with Transition school nearby."

The bottleneck, it appears, is the financial situation. "Revelation is in a critical situation and we need a regular budget for its maintenance as the Park doesn't provide much income. A large financial input is necessary for its future development as one of the main Parks of Auroville. So far, the community hasn't provided any support apart from paying partly for the wages of three watchmen – which haven't increased in the last five years. And that is another reason why I return now to France, to raise funds for Revelation. I have concerns for the welfare of my workers who have been here for 20 years like me. They deserve better wages and social protection 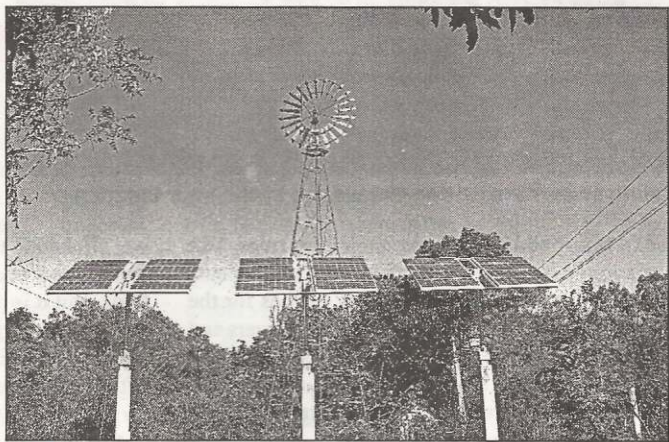for their devotion to Auroville. To date, Revelation's development has been funded by the Forest group and myself. It's now time for Auroville to take up the challenge."

Patrick has also started to practice teaching greenwork to students. He is currently building a computer databank about Revelation. "We are working out a project that aims at bringing international students to learn from Auroville greenwork achievements, using places like Revelation as a living university. The two thirds of greenbelt land that remains to be acquired by Auroville could become the educational ground for practical greenwork." And he adds resolutely, "Now, with the global climate change, it has become extremely urgent to reforest the planet, specially the tropics around the globe. The Auroville greenbelt experience could contribute substantially to the cause of natural tropical reforestation, which is still very poorly known by the scientific community. We could help the youth today to undertake this challenge for their own future."

In conversation with Carel

The wedge-shaped Mahakali Park (black). The present Revelation area is in light-grey

Samskara – The transformation from childhood to adulthood

"I see no difference between a village child and an Aurovilian child", says Newcomer Bertrand Magne de la Croix of the Free Progress Boarding school at New Creation.

It is a late summer morning at New Creation community. The school is closed for the holidays, the playgrounds are empty and all is quiet. The stillness is broken only by the raucous calls of a lone crow or the flash of a mynah taking off in flight. But one corner of the community is buzzing with activity. In the art room of the Free Progress Boarding, young children are working with red-ochre palettes, bowls of gooey mud concoctions which they are using as paint. From a circle of studiously bent heads, a little girl sits up carefully holding a still-wet work on paper. The slim young art teacher stops to admire it. "Renault, c'est Kireet (Renault, that is Kireet)," the girl points excitedly to a figure in her painting. A tall man in a big hat appears to lead a line of children through a canyon landscape, its surface criss-crossing like multiple camel humps. Bertrand translates for my benefit. "Last week, the kids went on a canyon walk with Kireet, and they brought back some red earth to paint with."

"I did not at all expect to do this work," says Bertrand Magne de la Croix of the Free Progress Boarding school in New Creation with its 22 children aged from 5 to 9 years. "I had come to spend a sabbatical year in India, to rest…" He needed to recover from a burn-out from his previous job as a teacher in a school in the Réunion Islands. "And what was meant to be a year's break will soon be 3 years!" he exclaims.

When Bertrand arrived in Auroville in September 2002, he offered to help André with his Boarding school. André had started the project to provide a unique living and learning experience to underprivileged children from the bioregion. "The philosophy was that children learn best what they live day to day. The basis of the project was that children would leave their families and come to live together in a special nurturing environment in the residential school." At the start of the project when André made the announcement in the villages requesting families to participate, he got an overwhelming response. "Many children, all in the 3 to 5 year age group, were sent by their families to participate. But after a few months, he couldn't manage. There were just too many." When Bert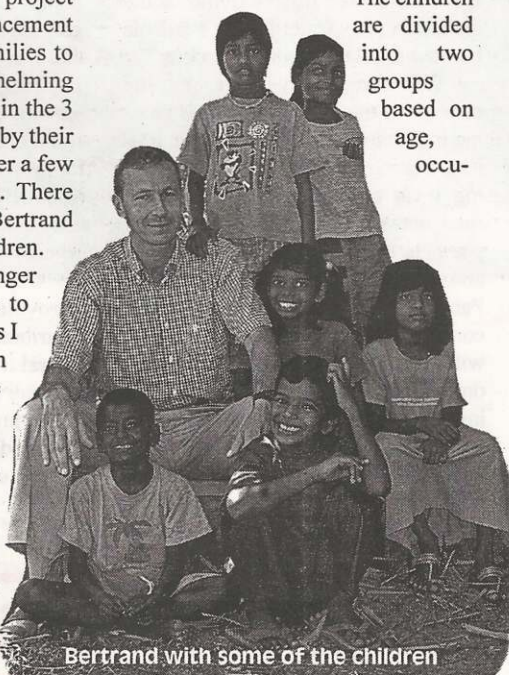rand joined, there were 22 children. "When I decided to stay longer and help, I asked André not to take anymore for the present as I was alone. More children would have been impossible to manage by myself."

What motivated Bertrand who is not a father himself, to take up the full-time role of a foster-parent to about two dozen children? "Before I came into teaching, I was a physical therapist in France working with adults and children. But I discovered in my work with the children that there is a different reality. Children, because they are more open, can get to the root of things right away." It was this discovery that pushed Bertrand to leave his then profession, take up teacher training, get formally certified and move into teaching.

In Auroville, Bertrand got deeply involved in the project, which received the name of 'Samskara'. "Samskara in Hindu philosophy means a kind of transformation," he explains. "These are stages in a human being's life which sanctify the body, the intellect and the spirit, and integrate the individual into the society." This, he shares, is the image that he holds inside, and that which gives him energy in his work.

The project is both ambitious in scope and experimentation. The children stay in the boarding for almost the entire year, and all their needs are met. They are allowed to receive their families once a week on Sunday, and twice a year (during the festival times of Pongal and Deepavali), they are permitted to go home to their families for three days. This makes it an intense and full-time work for Bertrand, which he is ready for. "I hope to stay with these children till they are independent," he declares passionately.

The Samskara project now includes 22 Tamil children from the ages of 3 to 10 years. "Last year we had to take in 5 extra children. They were all emergency cases." There were 2 sisters whose mother was in a desperate situation. "She had been thrown out of her house and was homeless. She had been to several orphanages in Pondicherry but none would take her children. She finally came here and pleaded with us to take her daughters in. And we couldn't refuse." For Bertrand, it is not easy to forget the background from which many of the children have come, but he chooses instead to focus on the positive and what lies ahead.

The children are divided into two groups based on age, occu-

Bertrand with some of the children

pying two homes in the New Creation community separated by a cow shed. "We soon hope to build a large gymnasium-styled hall for physical activities, and have a boys' wing on the top, now that the children are growing up." The houses appear sprawling and child-friendly, designed to fit their small-sized residents. A private courtyard with trees and a garden adds a cool green touch. Two young Tamil women, Sivakala from Edaiyanchavadi and Ruth from Pondicherry, are permanent residents playing the role of 'house-mothers' to the children. In addition, two assistants help with the housekeeping.

The day begins for the children at 6.30 am when Bertrand takes them out for sports activities, sometimes swimming at the nearby New Creation pool. Then it is time to get ready for school. School involves both formal and non-formal instruction. Children have classes in arts, languages, music, and general studies. The school follows a triple-language policy, with the primary language of instruction being French. Tamil and English are the other languages taught. "People are often surprised that we use French as the teaching medium. But you'll be surprised at how quickly children pick up new languages." Will this language policy not alienate the children from Tamil culture? Bertrand explains, "The children have Tamil classes, where they get instructions. They interact with Tamil people, and between themselves they converse in Tamil so there is no loss of culture. There is in fact an enrichment."

Besides classroom activities, field trips, discussions, circle sharings, nature walks and cycle trips within Auroville are common. "For me, the ultimate goal of this project is to impart to these children the ability to arrive at their own truths. It is not about 'knowledge' but 'wisdom'. I would say that the main focus is on techniques of communication." Once a week, usually on Saturdays, Bertrand spends time with the children exploring the events that have happened in their lives. He uses several alternative communication tools during these sessions. "Like the 'relational scarf' where the relation between two or more beings are visualized using scarves; the 'talking stick' which is an ancient tribal ritual where the holder of the stick calls for attention and respect. Then there is the 'inter-personal dustbin' where children are encouraged to have a breathing space to keep negativity from invading them. So we are trying to give them many tools that will allow them to express what they feel inside." He observes how quickly the children have picked up these techniques and use them with ease.

How does Bertrand respond to the prevailing doubts in Auroville about village children being 'plucked out' of their native cultural milieu and brought up in a predominantly Western manner. Will this not be disruptive to a child's emotional grounding, will it not alienate them from their native cul-

The cosy book corner, a welcoming space for reading. "The children love books," says Bertrand. "Picture books, fairy tales, encyclopaedias – when a new book comes, they are all ready to pounce on it!"

ture? He disagrees. "Take the example of the young Tamil Aurovilians. One can see how well integrated and grounded they are. All of them grew up in Auroville and many of them passed through Andre's New Creation boarding." He adds, "One cannot make a differentiation between a village child and an Aurovilian child! Children have a level of awareness irrespective of social strata or background. This means you can take any child – red, white, black or yellow – from any level, put the child in a supportive environment and he or she will blossom like a flower to the sun."

The house environment at the boarding is seen as a very important learning space. Bertrand explains how the children are encouraged to take care of each other and run the place. "Here, there is much freedom and at the same time, responsibility. We have recently introduced a democratic process where they are given respon-

Young swimmers testing the waters at the New Creation pool

sibility to make their own rules, like who is to keep the book-corner clean, who collects the dirty clothes for the laundry, who arranges the flowers and changes the water and so on." The house rules seem to be a unique blend of Eastern and Western values. Eastern values like sharing of resources and caring for the collective property, and Western values like privacy. For Bertrand, the concept of privacy is very important and has been a challenging concept to introduce. "I remember the first time I was here we bought them their own beds. But they refused to sleep in them. They preferred to sleep together on the floor, pell-mell. And it was not easy!" But Bertrand believes that privacy is very essential for the children. "It is only in a private space that one can rest without people looking at you or touching you, and without outside interference. Last year we went a step further, and put curtains around each bed. And the

rule is 'when a curtain is closed, don't look inside', and they respect that. There is one boy who to this day, takes his toy car, goes to his bed, closes the curtain, and stays alone playing! The closing of the curtain is very symbolic – 'I come inside, I am in my space and I am in myself'."

Despite the good will and enthusiasm, Bertrand like many innovative 'idea-holders' in Auroville, faces the universal challenge of finding a steady support base, both monetary and in human resources. The boarding school currently does not come under the SAIIER outreach education umbrella, as it is separate from the New Creation Day School. "There has been some support mainly from AVI France for infrastructure only," says Bertrand, "The day to day expenses are met from the guest house contribution from New Creation, a few Auroville units, and friends. I know I should be doing some fundraising, but I have just no time for that."

Bertrand's official status in Auroville is that of a Newcomer. Asked about how he views his relationship to Auroville, especially since his project is not openly recognized by Auroville, Bertrand has this to say. "For me it is not a question of Auroville or not Auroville. I have been working with the principles of Sri Aurobindo since the very beginning. And we all know that one can practice one's yoga even in the subways of Paris. But it is here in Auroville that I have the opportunity to do this great experiment. This work that I am doing with the children is just not possible to do in France. It is incredible! When people visit me from France and look what we're doing, they are amazed. In the Reunion Islands, it was not possible to manifest this work, and I was even stopped! So I have a lot to thank André for – the confidence he placed in me and for entrusting me with the children to attempt this work."

As for the dreams for the future, Bertrand is down to earth and pragmatic. "To get pleasure in the work I do, to be happy every day and to be with the children. If people are coming to help me, they are welcome. I don't need specialists – just people working from the heart."

Priya Sundaravalli

The football team of the Free Progress Boarding School

Village health mapping

An ambitious project to create a powerful information tool

Different people have different problems because no two people are the same. The villages where the Auroville Health Centre operates also differ from each other. So they have different problems, and each village may need a unique approach suiting its specific situation.

Bommayarpalayam, for example, is quite a big village with around 5,000 residents, situated along the busy East Coast Road. Most of them are fishermen. They face different health problems than people from the village of Aprampattu, which is inhabited mostly by small farmers. Communities and neighbourhoods within villages also differ profoundly from each other in terms of income, employment, education, or access to health care facilities. To figure out the right approach towards improving the overall health situation, detailed and precise information is needed: on the village, on communities, on neigh-

be developed and implemented.

A Village Health Map should not be confused with a monthly report. The latter contains subjects and numbers that can be counted easily every month, like total population, births and deaths and amount of visits to the Local Health Centre. Such data naturally will be part of the map. But a Village Health Map contains much more data, from the number of water taps and the conditions of the roads, to jobs and income-levels.

The Map is made at a specific moment in time. However, it can be updated after one or two years. Over the years, it will enable the Health Centre to detect major changes and trends in the villages and to update its approach.

The programme is not just ambitious in its scope and aim. It is also a very labour-intensive project, involving visits to every single household and extensive neighbourhood research. Once all the data has been collected, it is fed into the computer.
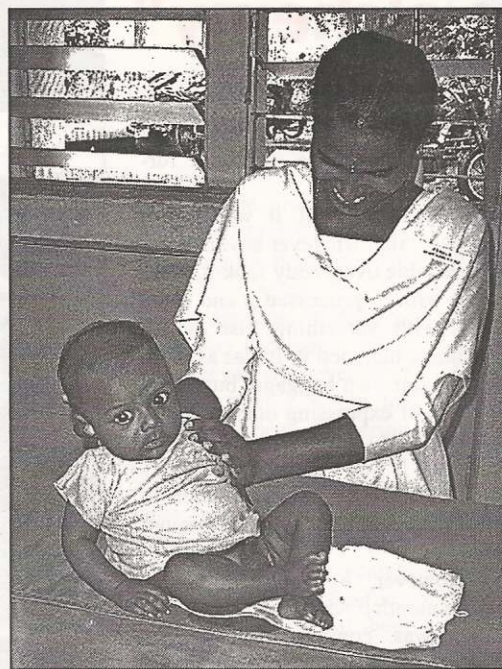
To date, two villages, Mattur and Putturai, have been researched. The local health workers and their coordinators have been carry-

Baby care in a sub-centre

A sub-centre at the neighbouring village of Edaiyanchavadi

bourhoods, and on households. Ideally, we should know and understand the health situation and specific circumstances and needs of a group of people with just one click of a mouse.

Unfortunately, the mouse does not start clicking by itself. Therefore, the Auroville Health Centre has started an ambitious program of compiling Village Health Maps with the help of a GIS (Geographical Information System). A Village Health Map describes all the factors that directly and indirectly affect the health of the village residents. It will enable the Health Centre to have an informed view of each of the 30 villages and hamlets where it is working. Reliable and precise information will help to plan and monitor health interventions, and carry out educational and communicative activities. The current ongoing village health programmes and preventive strategies can be strengthened and, if needed, can be more precisely adapted to the needs of a particular community or part of a village. Knowing the specific health risks, targeted prevention programmes can

ing out this work. For the cooperation of the residents and the accuracy of the data, it helps a lot that the health workers are well known, trusted and respected by the residents.

Information charted by the Village Health Map

The first and most important step in creating the Map is to count the total population of an area. A distinction is made between males and females, children (especially under-fives) and the elderly. In addition to that, every household is questioned about access and use of health care facilities. Not only is the Health Centre interested in the actual medical history, but also in the underlying decision-making process. Apart from very practical factors, such as the distance and availability of transport to a health care facility, it wants to know the beliefs, values, prejudices and experiences that influence the use of certain facilities. If there is a medical problem, a villager can choose to visit a local natural healer, a govern-

ment hospital, a private hospital, an NGO, or a health worker, who can advise on further steps to take. The availability of choices can result in a long decision-making process and subsequent loss of valuable time. By knowing the choices and the influencing factors in the context of the specific neighbourhood and community, the Health Centre hopes to be able to refine our preventive strategies and strengthen the offered facilities.

Another important determining factor of health is the economical wellbeing of a household, a community or the entire village. Incomes and employment opportunities are unevenly spread over the different villages and within villages. A Village Map will give insights in such factors as income distribution, employment possibilities and the occurrence of unemployment, sources of income (for example through farming, fishing, or occasional contract labour) and money-spending patterns.

Closely linked to available income is the variety and quality of food that households have access to. It will make a difference if there is a market in the village or if people are fully dependent on their own crops. How well aware are the residents of what is nutritious food, how to recognize malnutrition and how to hygienically prepare and store food?

Finally the Health Map will have information on housing and infrastructure, from roads to water taps. A neighbourhood with mainly straw huts will probably experience more health problems than one with concrete houses. Also, the more people living in one house, the more likely people are to get sick. Furthermore, it is important to know whether a family has their own water tap or hand pump, as well as their own toilet.

Dr. Piyali

New pilot project for clean drinking water in Auroville's bioregion

Women's groups from 21 villages in Auroville's bioregion recently met in Palmyra's headquarters, Aurobrindavan, on the issue of clean drinking water. Water specialist Klaas van der Ven from The Netherlands demonstrated his system of killing viruses, bacteria and parasites by means of UV-light. According to Van der Ven, his installation that consists of a UV-lamp and a filter is a proven system and already in use in developing countries. Project-holder Ries says that "The system is meant for villages that have polluted drinking water. The existing piped water can be of poor quality, due to illegal connections, leaking pipes or insufficient purification."

Klaas van der Ven's system consists of a tank with a filter, a UV lamp in a box, a small structure to house the installation and security. Palmyra has embraced the system and tests are being conducted in their laboratory. The first public installation is planned in a school in the village of

Keezhkoothapakkam. Says Ries: "It will create awareness of the need of clean water, starting with the children. In a later phase more systems could be built in the village, and if this is accepted, the village can become a model village."

Ries realises that caste can be a problem. "Higher castes will not accept water from a tap that is situated in a lower cast area, so in these cases we will have to install more systems." According to Ries the system will provide clean drinking water at very low cost: "The system can be locally-manufactured for Rs 20,000, but that is without a structure to house the installation. The test installation in Keezhkoothapakkam will be financed by Ries and by Dutch environmentalist Pallas Hendriks, but in the future the villagers also will have to pay their share. "The cost price of the water will be up to 1.5 rupees for 20 litres," explains Ries. "This covers the wage of a person who is selling the water. But we learned from the meeting with the women's groups that

people here cannot pay more than 25 or 50 paisa for 20 litres. We will try to raise extra funds, but we insist that people should pay something. In that way they will feel more conscious about the importance of clean drinking water." Ries points at a small suitcase that he calls "The Magic Box". In it are educational tools for raising water awareness, like dolls to make a theatre play on water issues, books on water subjects and a glass sphere for inspiration. The Magic Box is only a prototype, made by Pallas Hendriks. She wants the content to be copied by local artists so that more boxes will be available.

Ries Korsse and Klaas van der Ven

Teachers and social workers can use the box in the classroom and for field-work.

Ries points out that the costs of these installations are such that individuals in the West could adopt a village to provide safe drinking water.

Robert Hessing

For more information contact ries@auroville.org.in

"It's a bit like alchemy"

Exploring 'second-tier' architecture

It doesn't stand out from the road. But if you turn in at the Vérité gate and walk past the big hall, you'll spot a low, white building. It's nothing particularly special, but if you continue along one wall until you reach the entrance and step inside...suddenly you're in a different world, a world of space, light and freedom. The dark stone floor, the light walls, the strip of water, the carved black stone accentuated by the refined minimalism of the surroundings, all create an impression of Zen, of simplicity and transparency.

But what exactly is this place?

"The brief we were given by the residents of Vérité," explains David Nightingale, one of the building's architects, "was to create a reception and support centre for the Integral Learning Centre, which includes the big hall next door. This meant toilets, changing facilities, offices etc. but it also included a new, acoustically-

not a specific building, but if you like the flavour we can work further.'"

"The beauty of it was," says Ganesh, "that whatever anybody put on the table everybody took it, went away with it, processed it and came back with something else which somehow included it. It was as if we all had our own baggage, but in the process of expressing ourselves and listening to others, something changed. It was a little bit like alchemy: we were all being moulded to enable something to emerge through us."

However, by the end of the fourth month it wasn't clear that anything was coming through that everybody could agree upon. David and Ganesh were working on their fourth design and when they compared their most recent ideas they knew they hadn't yet caught 'it'. "Then," remembers David, "Ganesh rather sheepishly said, 'I did have a

Volumes and light

The team (from left): Ajay, David, Baskar, Ganesh

designed hall." "The way we approached it," adds Ganesh, David's architect partner, "was that the new building would be the little sister to the big sister across the way."

Perhaps not. But the new building is utterly unlike not only the old hall but every other building in Verite. It feels like an infusion of a totally new energy. So did something special go into its planning and construction?

"Definitely", says David. "For years I'd been looking for a chance to explore a totally new architect-client relationship, a new way of doing architecture, the seed of which had been planted years ago in the AuroAnnam building. The Vérité project seemed like an exciting opportunity to continue along the same line." "From the very beginning," explains Ganesh, "it was very informal. David made it clear that we would start a process with the residents, but if nothing came out of it, we'd simply shake hands and leave: we didn't even ask for any remuneration for the initial exploratory process." "I was willing to do that," explains David, "to find out if it was really what I wanted to do for the next 2 years, which is a huge chunk of my life. Also, I didn't want to feel that just because they had paid us we had to conform to any expectations."
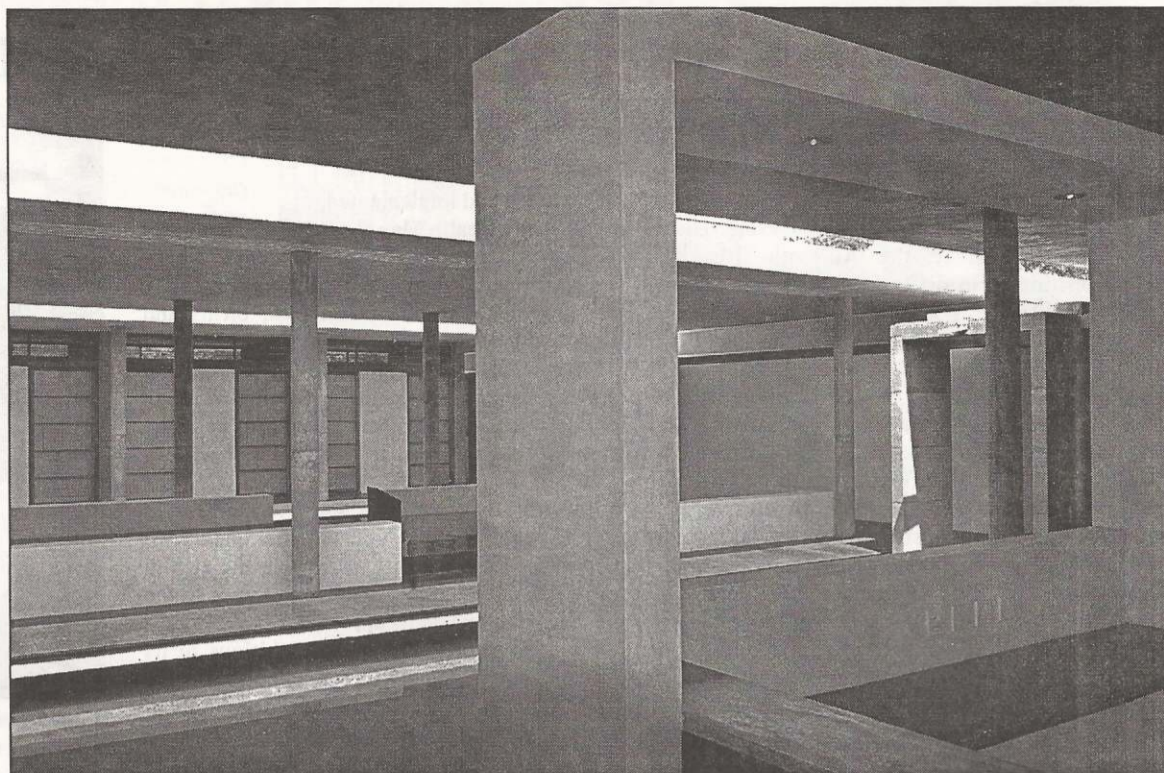
The exploratory period lasted 4-5 months and saw the team coming up with four completely different designs. "At the beginning we stayed very much on the level of dream," explains David. "I didn't want us to get bogged down in details. I told them, 'We're offering you a flavour,

crazy idea' and he put this sketch on the table. As soon as I saw it, I knew this was it." "That design wasn't 'mine'", emphasises Ganesh, "it was the outcome of all our discussions. That's why we say that the building is not just the architects': it was the whole group that created it." "It's also important to mention," adds David, "that the final design has a feeling of being the highest common factor of a number of people's inputs rather than the lowest common denominator, which is often what happens."

"We began construction without having a finalised design for the hall," admits David, "but because we'd created a sense of trust in the process, there was confidence that all the pieces would fall into place."

The fact that everybody involved was a co-creator resulted in a number of serendipitous initiatives. Aurelio suggested putting wind-chimes in an opening in one corner of the building. "I'd always wanted something like a sculptural element at that end of the building," says David, "but the wind-chimes proved perfect for that wind-tunnel space. Now Aurelio wants to put a wind-harp in a slit above the hall, so the whole building will be coming alive with sound. It's brought an element into the architecture that I never dreamed of at the beginning." The latest addition is the black 'singing-stone' which stands like a small polished altar in the central open space. This stone, which 'sings' when it is rubbed, was made by Aurelio with the help of the son of its German inventer.

The building as it stands now has most of the facilities Vérité had orig-

inally requested. When further funding is available the present open space will be partially enclosed to create a library; a covered passage will also link the 'little sister' to Vérité Hall. The building is also constructed in such a way that a further floor can be added above. Yet the present building emanates a quiet perfection, "due, very largely," says David, "to Baskar who supervised construction and who has been a key player in the building's physical manifestation." So are David and his team not attached to the building as it is? Are they open to it changing? "We'd be mad not to be," replies David. "But as we feel we've created a special relationship with our clients, we'd hope they would come back to us when they wish to continue its evolution. We're not turning our back on this building; we've made a commitment to a much longer process."

Could this experiment be a template for other architects to adopt? "It's difficult to talk about a template when you're forging new ground," says David. "Also we have to accept a certain uniqueness in this situation." That uniqueness includes dealing with a client group in which everybody knew each other well and was very committed to an ongoing process, and the fact that David and his team don't have the usual overheads – like an office, for example – which influence the way conventional architectural practices are run: "Most architects don't have the time or money to do what we did," admits David.

So how far are we talking about a new way of doing architecture here? David affirms that the idea of exploring what he terms 'second-tier architecture' was one of his core issues in starting this building. 'Second-tier' is a term from 'Spiral Dynamics', a theory of human development initially developed by Clare Graves, but you don't have to understand the theory to grasp what David's driving at. As he describes it, there have been distinct phases in the evolution of architecture. Firstly, there were the cathedral and temple-builders – generally, anonymous master builders and masons. Then architecture became a profession, with institutes and rules of professional-

ism. "The idea here is that the architect is providing a service to someone who needs it. The client goes to an architect with a brief, the architect comes back with a design and, beyond accepting or rejecting it, the client often does not have much say in the process."

This is still the norm worldwide. "However, in Auroville the pendulum frequently swings completely to the other side. Now the architect may become the servant of the client. Ultimately, the client may get what

View from present entrance

he or she thinks they want, but it's often the lowest common denominator because they haven't been through a deeper process. When we evolve to second-tier architecture the architect is re-empowered as the conductor, the choreographer of what is going on, but, in exchange, the archi-

tect respects the input of the client, embraces it and moves with it. This is what we tried in Vérité – and we owe a huge debt of gratitude to Vérité for being willing to go for a totally new process. This experience has made me more sure than ever it's the direction I want to pursue."
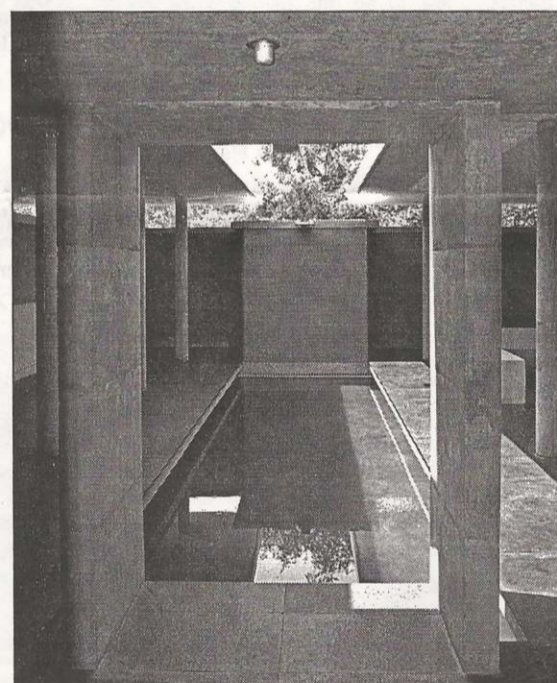
Ganesh puts it another way. "What happens in this process is that the architect is not just working for the client, and the client is not at the mercy of the architect: both the architect and the client are working for the building. When this happens you create something with a life of its own; the building becomes an entity with its own dynamism which you need to listen to, to become. And once you become the building, you can no more wrong it than you can do wrong to yourself."

"What happens with second-tier architecture," continues David, "is that all the 'isms' – modernism, post-modernism etc. – go out of the window because it's no longer a question of style, but of process: what wants to manifest will manifest, whatever you want to call it. Timelessness, that's the essence." "And clarity," adds Ajay, who joined the team recently. "When you look at a building and ask 'Who are you?' the building should have an answer. This building has it, it's transparent."

"The best way to do architecture is not to do architecture," concludes Ganesh. "You let what needs to emerge come out without putting any influence on it."
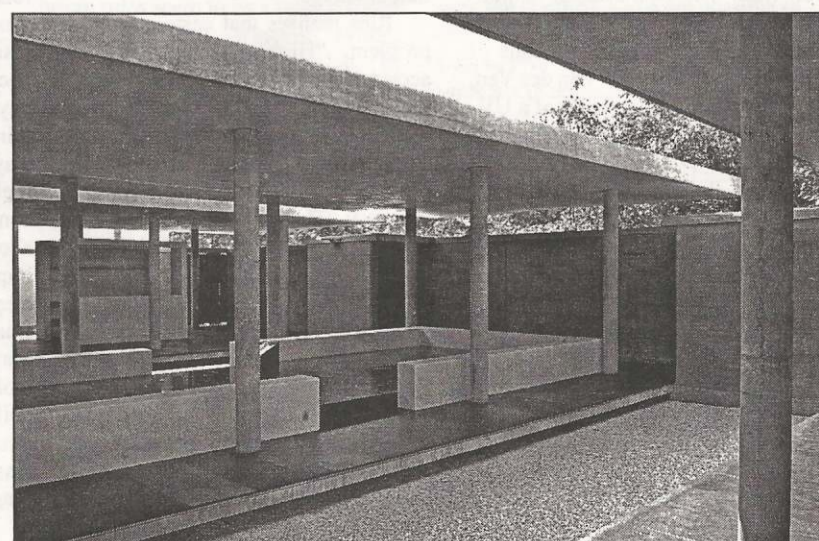
We fall silent at this taoist gem. The building has spoken...

Alan

Open sky, pebbles and "no-space"

Julietta and the City

It all began in the waiting room of a dental clinic in Hamburg, Germany, where Julietta picked up an issue of 'Brigitte', a popular German women's magazine. Leafing through it absent-mindedly, she stumbled upon an article entitled "Auroville, the freest place on Earth". Before actually reading the article, Julietta decided: "That's where I'm going!", then, as she started reading, she realized that Auroville was in South India, but that detail, however major, didn't deter her. She contacted the magazine's information desk, which put her in touch with AVI Germany, where she got more information on Auroville. In January 1997, Julietta arrived in Auroville for the first time, where she had enrolled for a two week long organized tour, with a packed, well-planned programme, conducted by Joster and Shama.

When Julietta returned to Germany after this trip, the record company she had been working for was downsizing, and she was one of the many employees who got fired that year. The financial compensation she received gave her the opportunity to travel around Europe and the US: it was a year of changes. "My astrologer had told me to always have a packed bag next to my door, so I could make a quick escape," she remembers. And at some point, she just decided that she was going to return to Auroville to settle. (And Julietta is that type of person. When she decides to do something, she just goes ahead and does it!) So she moved out of the house boat where she had been living in the harbor of Hamburg, sold everything she owned that was 'sellable', stored the rest in her parent's attic, packed her bags and left...She arrived in Auroville, for the second time, on the 21st of March, 1999, on the day of the spring solstice. When asked what made her take the decision to come and settle in Auroville, Julietta hesitates: "That's always the most difficult question to answer...There was that call...I had to come, I had no choice!"

After a few years of moving from community to community, of shifting from house to house, Julietta settled into a new one-room apartment with kitchenette and attached bathroom in Courage. And she's done it up with such taste, she definitely has the skills of an interior decorator! With its ochre yellow floors, and saris in bright reds, yellows and oranges hanging as curtains, it exudes warmth. It is spacious and uncluttered, as there is no heavy furniture. Comfortable and cozy, it is also incredibly neat and tidy. Of course, Julietta, who is very organized and practical (I believe these are German characteristics) has a secret: a walk-in closet, where she stacks all her clothes, books, and her extensive music collection.

Since she arrived in Auroville, Julietta has not only been shifting from house to house, but also from job to job. Over the years, she has worked in the offices of the Travel Shop; in the kitchens of the Cafeteria, and various other restaurants as a cook (she's quite a chef!); conducted the 'Auroville Introduction Tour' together with Ross – cycling around Auroville in the hot sun with different groups of guests and serving as a 'tour guide' (Julietta likes social interaction and being with people); took on assignments for the Auroville web page; and even contributed occasional articles on various subjects to Auroville Today (Julietta loves writing, and has her own, very distinct writing style.) She is also the official contact person for the 'German Social Workers' in Auroville ...And the list just goes on! Julietta thinks that the opportunity people have in Auroville of trying their hand at various jobs and getting work experiences in so many different areas is exceptional.

"I came here to help in building the 'City of the Future'. I do have some problems with commitment, though," she confesses. "It's not that I'm irresponsible. If I say I'll do something, I really try my best to do it. If I have to be somewhere and do a job, I'll be there and do it. It's just that I don't like to be fenced in. I have so many different interests, and I want to be free to pursue them. For that reason, I've taken on a lot of temporary jobs, dropping in and out wherever and whenever I'm needed, and contributing my time and my skills."

Music is one of Julietta's passions. It has always been a very important part of her life. In Hamburg she ran the first hotel 'for musicians only', called After Midnight. "That was the time the music virus infected me to the point of no return," she remembers. All in all she spent fifteen years in the 'Rock'n'Roll business'– touring with various known and unknown bands, and then later working for different record companies, including the famous Mercury Records Company, where she worked as an assistant in the marketing department.

Though Julietta doesn't play an instrument or make music herself, she loves to DJ, and is often sighted at dance evenings in Auroville. "As a DJ, you conduct the scene," she says. "The DJ is basically the main host of the evening. If people like the music, the party is usually a success. Of course, I have my own style and tastes in music, but I also try to bring in variety, to have something for everyone." One of Julietta's dreams is having a space in Auroville where people could go and spend time in the evenings if they feel like, where they could interact socially, listen to music, or dance, have tea, coffee, or fruit juices, even snacks, and just chill out. "It would be a place where people can have fun, and dance. And not only the young! Older people love to dance too." If one day this 'Chill Out Club' does open, Julietta would be only too happy to play music there.

Another of Julietta's passions is pottery. Her first encounter with clay was many, many years ago, in Greece. However, she never went back to it until coming to Auroville, where, for the past few years, she has been 'pottering around' at different potters' studios. She learned the basics of hand modeling and started making tea pots, vases and the like (some of her work has been displayed at various pottery exhibitions in Auroville over the last years). But what she likes best is hand-modeling heads. And she has a little collection of them neatly displayed on shelves in her apartment. "They cheer people up, more than pots do," says Julietta with a smile. And it is true! A lot are funny, with comical expressions: the little old man with a mustache wearing round spectacles amongst others. Then there's the American Indian with a dignified bearing and proud profile accentuated by his eagle beak shaped nose. They all look different: some have a puzzled expression, others look aloof and totally unconcerned, some seem to be reflecting, or in deep meditation, and yet others appear to just have had a good laugh...Two sets of her heads were recently displayed at the 2005 Harmony show in Mumbai, in which a number of Auroville potters took part. Tina Ambani bought one of them. "She was the curator of the show," says Julietta. "And having her buy my piece, amongst many others, was kind of flattering."

A set of Julietta's ceramic heads, displayed at the Harmony Show 2005 in Mumbai. *Photo by Ireno*

Until now Julietta never actually went for pottery training beyond the basics. Three months ago, however, she decided to take part in an intensive seven-month pottery workshop at the Golden Bridge Pottery studio in Pondicherry, conducted by senior potter Ray Meeker together with Aurovilian potter, Rakhee Kane. "First, we learned how to make the clay," explains Julietta, "It is quite demanding physically: first crushing the rock to make it into powder, and then carrying pots filled with water around, pouring them into tanks, mixing the water into the clay, then sieving the clay and putting it out to dry...During the first month, I came home totally exhausted every evening. Then there was the throwing process on the wheel, and during the first two weeks of that, I had back pain, as we use the kick wheel, and one really needs to get the hang of it. "

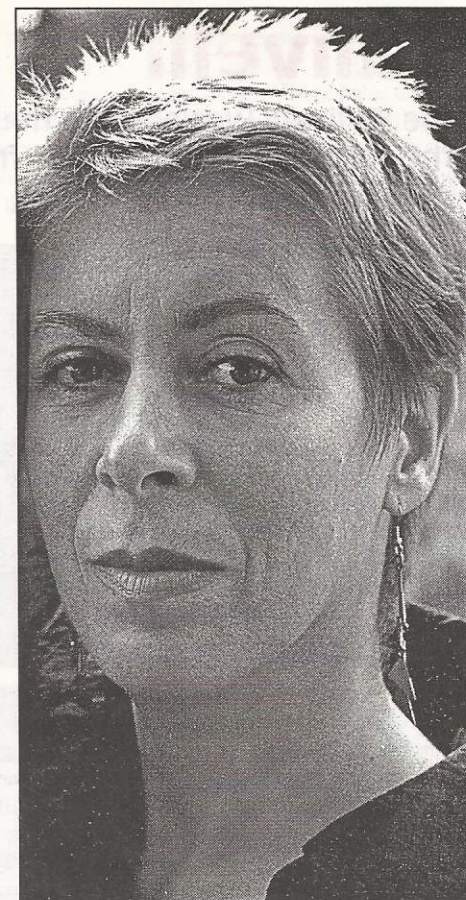"The problem is that I'm quite impatient," she continues, "and sometimes I have trouble concentrating on what I'm doing. But in spite of that, slowly I'm getting there. At least I manage to throw a proper cylinder now. What I don't like about these workshops, though, is that I have to make twenty yam cups or mugs, or bottles, and they all have to look the same...How boring is that! But they say you first have to learn the technique, and then you can be creative, do whatever you want, get wild. And I know that's the first step, but I just wish it didn't take so long. When I model my heads, I take a ball of clay, I play around with it, and then the head is there, it is born. And I probably will never be able to reproduce it. That's what I like most about pottery, the creative process."

Though Julietta is taking the workshop seriously, she has no plans of really becoming a studio potter. "Of course I'll continue to potter around, as I enjoy it so much. But I will see what other opportunities to serve the Divine pop up next year."

Julietta has attitude, there's absolutely no doubt about that! She is direct and not afraid to speak her mind...and she sometimes does so quite abruptly too. She's also a little cynical sometimes, but has a great sense of humour, and is lots of fun to be with (when she's in a good mood.) "I suffer from the pressure-cooker syndrome," she confesses, "I explode very easily, sometimes about small things. But normally I also calm down very fast. Also India, and especially Auroville, have taught me some very important lessons. One of them is always touch your own nose (mind your own business). The other is never throw the first stone."

Whatever she does, whether she's playing German heavy metal, dying her hair an electric blue (yes, she did it – "It gave people something to talk about," she laughs), modeling funny heads with clay or just eating cheese bread (which she loves, she wanted me to mention it)...well, Julietta is Julietta!

Emmanuelle

Julietta is Julietta

Exploring no-space

Recently I conducted an interview in 'no-space'. There's a rational explanation for this – 'no-space' is the name given to an area without a clearly-defined function in the new Vérité building – but it was the wonderful, zen-like quality of the term that kept it resonating within me. To me at least, 'no-space' implies not absence of space but rather a place of unbounded, infinite potential.

No-space came at the right time for me. I'd been feeling more and more constricted by the progressive rationalisation of what we used to call 'the Auroville process'. Not that there's anything wrong with a spoonful or two of reason. After all, along with all the idealism we've also had our Inquisition, our witch trials and book-burnings. Even today, many promising initiatives founder not because of lack of resources but because of the pesky human factor, because of the impossibility a finds of working with b (not to speak of c, d and e). In fact, interpersonal difficulties are the sub-text in many Auroville Today articles, the 'x' factor that we don't mention because we don't want to hang all our dirty washing out in print.

The growth of rationalism in the community has also been hastened by long-term Aurovilians who are tired of guerrilla warfare politics, of personal issues hijacking collective priorities, and by a new breed of 'can-do' Aurovilians who know and care nothing about old vendettas. At the same time the government is exerting increasing pressure upon us to conform to more 'rational' norms of process and behaviour.

The new rationalism can be seen in many things, but most obviously, perhaps, in concerted attempts to put our collective functioning upon a new footing. This includes specifying procedures that need to be followed for collective decision-making and for the appointment of major working groups, and attempts to define mandates for working groups.

Nothing much wrong with this, is there? No. In fact, I applaud such initiatives. The problem only comes when reason supplants everything else, when reason, in other words, become an end in itself rather than a staging-post to something greater. For while reason can be a marvellous prophylactic against hobgoblins and irrational behaviour ("the sleep of reason brings forth monsters" warned Goya), it, too, has its limitations. Its analytical bias makes it cold, dry and, above all, uninspiring – nobody stormed a fortress quoting the utilitarian philosophers. Reason also tends to lose the bigger picture and underestimate or ignore the heart, intuition and the higher ranges of consciousness.

So what I'm suggesting is that, rather than ignoring reason, which we do at our peril, we simultaneously cultivate another kind of space where all of us, with our very different propensities, perceptions and cultural sensitivities, can meet. A kind of 'no-space' where we can, at last, lay down our individual and cultural baggage and listen for the true note which is being played through each of us as the wind plays through a harp.
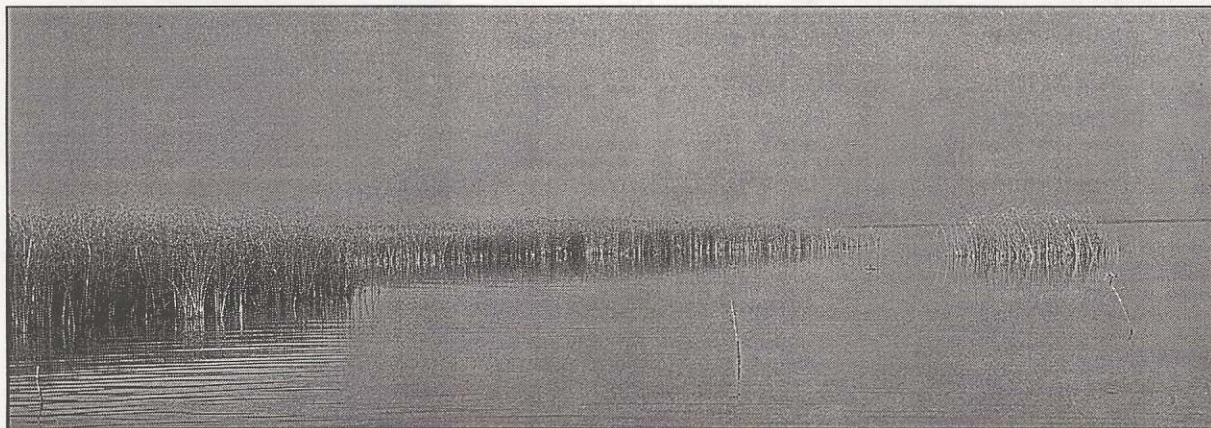
That won't be easy. But it would be fun to try. *Alan*

Kalivelli

The Kalivelli Wetland is a major recharge area for the Auroville aquifers.
The following is an excerpt from the booklet, "Kalivelli Wetlands", by Gopinath S. and Srinivas V., (FERAL, Pondicherry, 2004)

PHOTO: GOPINATH S.

Part of the Kalivelli tank. It gets sixty percent of its water from the North-East monsoon

Map indicating the locations of Pondicherry, Auroville (circle) and Kalivelli

In the year 1999, India Canada Environment Facility (ICEF), New Delhi funded an innovative effort to rehabilitate the minor irrigation tanks in the Kalivelli watershed. This effort undertaken by Palmyra, Auroville in collaboration with the Foundation for Ecological Research, Advocacy and Learning (FERAL) focuses on developing institutional structures that are sustainable, democratic and gender sensitive, which would ensure rehabilitation and sensible management of these tanks and their natural resources.

Other than physical intervention, this effort provides assistance for increasing awareness on environmental issues and encouraging community participation in management of land and water. Lessons from this five year project will not only provide inputs for better management of the wetland itself, but will also identify community processes and dynamics that are crucial for natural resource management.

The Wetland

Kalivelli, the second largest brackish water lake in South India is located 18 kilometres north of Pondicherry in the Villupuram district of Tamil Nadu. It receives most of its fresh water from an intricate and age-old network of 225 tanks and their channels. Mismanagement, changing socio economics and policies have led to degradation of these rainwater harvesting structures, thus altering the properties of the wetland itself.

The Kalivelli watershed is spread over 776 sq km and the wetland spread over 68 sq km forms the ecological hotspot of the watershed. There are 22 villages that surround the wetland, of which 16 villages have their revenue boundaries along the lake. In all, the wetland supports about 64,800 people.

The lake opens to the sea at the Yedayanthittu estuary in the north,

PHOTO: GOPINATH S.

Reed is the single largest natural resource base of the Kalivelli tank.

and extends southwards parallel to the east coast. The lake has two distinct parts, an estuarine part at its mouth and a fresh water part towards the southern end. Fed by the Bay of Bengal, the estuarine part has water round the year while the fresh water part remains seasonal, getting most of its water during the North East monsoon.

The saline and fresh water nature of the lake forms a rich ecosystem that supports a variety of plants and animals. The highlight of the wetland is the large number of resident and migratory birds that one can witness during winter.

The Flora

The wetland is largely covered with tall reeds (Typha augustata) and several species of grasses and herbs. Some parts of the wetland have also been planted with Prosopis. The reeds are harvested to provide roofing material. The grasses and herbs provide forage. The esturine part of the wetland is characterised by plants typically found in salt marshes. Some parts of the estuary also house patches of mangroves.

In the past, a sizeable area around the lake was under what is botanically referred to as a Tropical Dry Evergreen Forest (TDEF). Most trees which go to make a forest of this kind are evergreen in nature and retain leaves all round the year, even though they do not occur in a high rainfall area. These trees are much shorter than their counterparts found in the tropical evergreen forest of the Western Ghats.

The Tropical Dry Evergreen Forest was once common along the southeast coast of India, and was the predominant vegetation of coastal Tamil Nadu. Today, only remnants of these are found in the area, with most having been cleared for agriculture and settlements. In fact, vast areas that were originally covered by this kind of forest, are now wastelands. The main causes for the degradation of this kind of forest have been fuel wood collection and grazing.

The last three pockets of TDEF around the lake are found in Marakkanam (North of the lake), Uppuvellore (to the West) and Kizhputhupet (to the Southeast). All three patches are highly degraded. The patch at Kizhputhupet, which is about 12 hectares, is also a sacred grove. This patch is considered to be the best amongst the three because it still retains the Tropical Dry Evergreen Forest structure and species, but research points out that this patch faces the danger of being wiped out, as there is almost no regeneration.

There have been some efforts to restore the TDEF by planting native and indigenous species, but these have again failed due to bad planning and implementation. Other attempts at reforestation have ignored the indigenous species and planted Eucalyptus as part of a social forestry program.

Fauna

Rampant poaching has wiped out all wild animals in this region over the years. The forest patches still serve as a haven for a few birds and animals like the jackal, hare, Common Mongoose, Small Indian Civet, Palm Civet, a variety of rodents and bats.

Kalivelli is a bird hotspot: the presence of fish and reeds creates a condition favourable for a variety of migratory birds to visit Kalivelli during winter. Many stop here on their way to Point Calimere and Sri Lanka. Some come all the way from Siberia to winter here. The migratory period extends between October to March depending upon the availability of water. Kalivelli hosts over 180 species of birds. Birds under risk like the Pallid Harrier, Spot Billed Pelican, White Ibis and Painted Storks can be spotted here. Some of these birds migrate from as far as Northern Europe, like the Spotted Red Shank and the Eurasian Curlew. Among the lapwings the Grey Headed Lapwing, a rare bird with limited distribution, has recently been recorded from the wetland. In spite of its richness, there are no detailed ecological assessments on the birds of Kalivelli. The available data is largely compiled by amateur bird enthusiasts. The impact of human activities such as reed collection on bird habitat are yet to be studied.
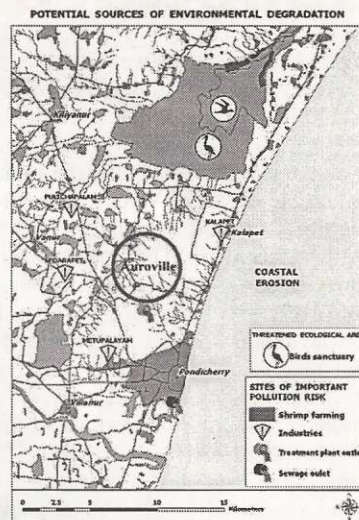
Other than birds, 29 species of reptiles, 17 species of mammals and 12 species of fishe have been recorded in and around the wetland. Information on small mammals like rodents and bats is severely lacking. Also information on fishes is limited to only those that are commercially harvested. There is almost no information on the amphibians found in the wetland.

Issues and constraints

Some of the issues that critically affect the wetland and it life forms are briefly addressed here.

During the migratory season, as the concentration of birds increases, poaching and hunting are rampant. A hide made out of a palmyra frond is placed in the middle of the water body and left undisturbed for a few days. As the birds get used to its presence, hunters hide behind this, and the birds are shot at point blank range. Interviews with locals reveal that during the migratory season many amateur hunters arrive from the nearby towns.

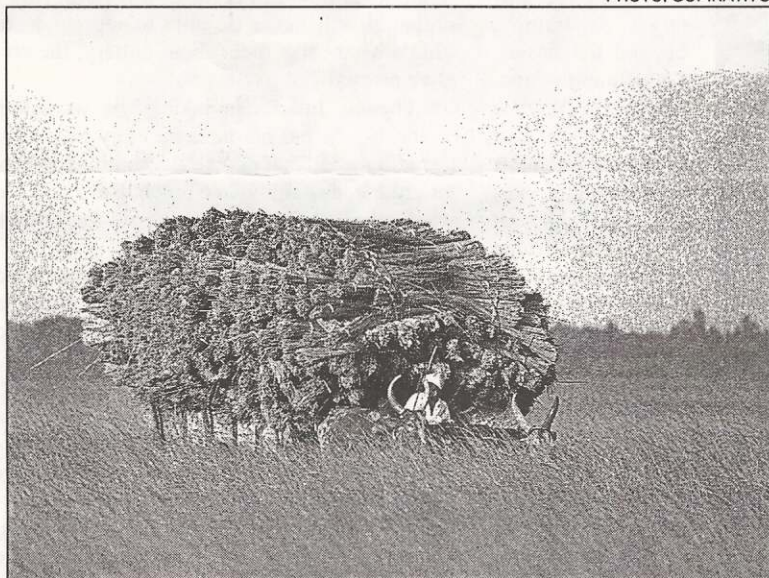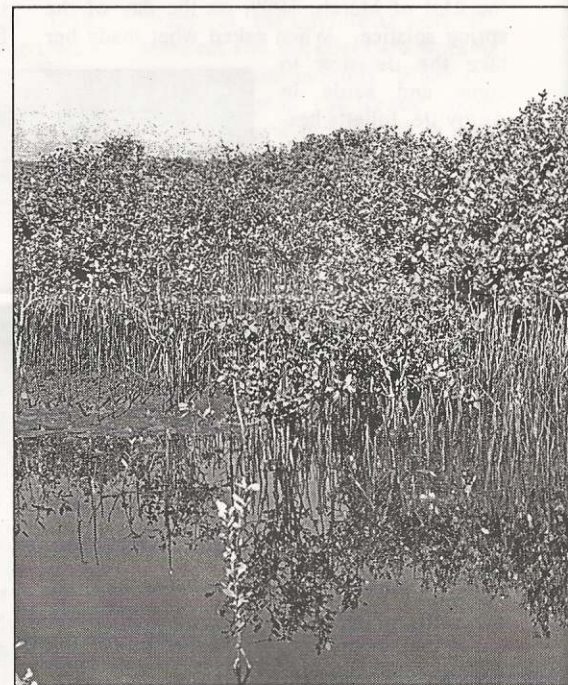The only community that has a legal provision to hunt is the Nari Kuravar community. Contrary to the

A degraded mangrove patch near t

belief that their hunting is need based and sustainable, over time the lifestyle of the community has changed greatly, and this privilege is misused. It is quite common to see Nari Kuravars selling birds in the local markets or hawking their kill in village streets. There are a number of restaurants in the adjoining towns and villages that boast of "wild" a la carte items on their menus to lure customers.

All the 22 villages are heavily dependent on the natural resources of the lake. Of the many resources provided by the lake, reeds form the single largest revenue generating commodity. Reeds are traditional materials which are widely used for thatching, from small huts to large houses. A reed thatch lasts for about 5 to 6 years before needing replacement. Reed harvesting begins in the month of March when patches along the

The Kaliv

Why do we need Kalivelli?

1. Wetlands have an incredible capacity to accommodate a large quantity of water. During the rainy season, they play a crucial role in preventing floods by controlling rapid run-off of water.
2. Kalivelli's capacity to store a huge amount of water helps in effective water table recharge.
3. Wetlands like Kalivelli host a variety of plant and animal life forms.
4. The organic and inorganic nutrients present in Kalivelli create a favourable situation for feeding and spawning of fish, crustaceans, molluscs and myriad other life forms.
5. Presence of abundant food attracts birds. Many migratory birds choose Kalivelli as their wintering ground.
6. Kalivelli with its natural resources directly helps the subsistence of more than 64,800 people in the region.
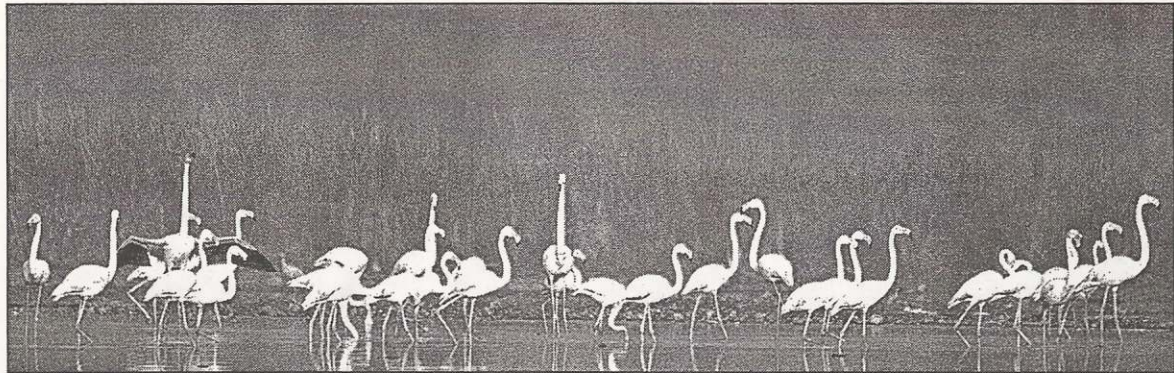
PHOTO:AMITHAB DWIVEDI

Kalivelli hosts over 180 species of birds. The available data is largely compiled by amateur enthusiasts.

periphery of the lake begin to dry up. Collection continues till about mid June.

Once reeds are cleared the land gets parched as water evaporates, leaving the land barren. In an effort to regenerate the reeds, towards the end of the season, villagers set the remaining reed on fire. A survey indicates that fires are almost always intentional: though there were a few instances of fire caused by careless disposal of cigarette butts by grazers or passers- by. Often fire spreads to patches belonging to other villages where reed collection is yet to be done. This triggers inter village conflicts.

Reed collection is a source of livelihood for the surrounding villages. At the same time there are several management issues to be addressed, like, how much reed needs

PHOTO: GOPINATH S.

e Yedayanthittu Estuary

to be cut? Does annual removal of reeds cause problems? If so, of what nature? Should removal be on a rotational basis? If so what should be the period of non harvest? How ecologically significant are the reeds for birds, amphibians and fish? Does reed collection result in habitat loss? What

effect does fire have on the reeds? Only further studies can answer all these questions!

Grass covers the lake-bed and grazing starts once the water level begins to recede. The paucity of fodder drives more than 30,000 livestock into the lakebed. In many villages Dalits are entrusted with the grazers' job. They herd the cattle or sheep from each house at daybreak and ensure that they return in the evening. In some villages each household pays about Rs 5 a month as grazer's fee and alternately one household takes the responsibility of providing food for the grazers. The labourers (grazers) also generate an additional income through the products made from collected cow dung. The majority of the cattle are of a native breed, and after a whole day of grazing they give about half a litre of milk. A study is required to provide inputs for higher milk production and at the same time reduce grazing pressures on the wetland.

Among other pressures on the Kalivelli wetlands, agricultural encroachments are the most lethal of all as they rob the lake of its land. On encroached land, at the end of each monsoon period when the water measures only a few centimetres in depth, crops are sown and left unattended. For the farmer if the seeds survive it

Salient features of Mangroves

1. Mangroves have the capacity to fix more carbon dioxide per square meter than most other plants.
2. When mangroves are degraded, greenhouse gases are released into the atmosphere causing adverse effects.
3. The firmly established roots of mangrove forests along the coastal wetlands hold the soil in place thereby reducing soil and coastal erosion. As they are also capable of dealing with tidal extremes, mangroves double up as effective buffer zones during cyclones.

PHOTO: GOPINATH S.

lli saltpans

is a bonus; otherwise it is not much of a loss either.

The main crop grown is paddy. As paddy is a water intensive crop, the much needed water is drawn out through bore wells. Over exploitation and inefficient use of ground water has resulted in a serious reduction in the ground water table and ingress of seawater along the coast.

The need of the hour is to help farmers in farming techniques, water management and in fertiliser and pesticide use. Interviews with farmers indicate that pesticide vendors and illegal manufacturers, capitalizing on the farmer's ignorance, promote banned pesticides. During the monsoon, as the water submerges the land, the chemicals end their way into the lake. The negative impacts of these chemicals on the lake's plants, fish and birds are yet to be studied.

Kalivelli faces a serious threat from invasive species like the weed Ipomea carnea. The weed finds its way into the lake through agriculturalists and fishermen.

When land is encroached for agricultural purposes, the weed is planted to demarcate the boundaries. During the fishing season the weed is planted to hold the nets in place, and is left behind at the end of the season. The weed, being a hardy species, invades the lake-bed at an alarming rate. The only known usage of the weed is the use of its dried stem to weave baskets. The baskets are used for locally transporting construction materials like bricks, cement, blue-metal etc. This extraction is still insufficient to check the rate at which the weed encroaches the lakebed.

In many places the encroached agricultural plots have been converted to shrimp farms. Villagers of Nadukuppam, Vandipalayam and Kaaliyankuppam, found along the saline part of the lake, specialize in shrimp culture and farming. Nadukuppam village alone has about 20 farms and their numbers have tripled in the last six months. The topography of these villages is such that the tidal waters from the Bay of Bengal flow up to them. Also the subsurface water in these parts has become saline due to the presence of these farms. Taking advantage of the saline water the villagers have taken up shrimp farming. As the market with its insatiable appetite comes into play, farm territories are extended to the fresh water part of the lake. Despite a Supreme Court ban on converting agricultural land into shrimp farms, new farms continue to be carved out of agricultural land. Despite bad experiences in the surrounding districts, where shrimp farms have caused irreversible damage to the land, they flourish in these parts of the lake. This practice greatly

alters the characteristics of the lake ecosystem. The last year saw dismantling of about 80 illegal shrimps farms that were established on community land or paramboke. Still more than 100 shrimp farms are functioning on private land in and around the wetland.

The mud flats around the estuarine area of the lake are converted into saltpans. Many saltpans found around this area belong to the Government of India's Directorate of Salt. These were created after clearing the mangroves that were originally found in these areas. The salt marshes around these areas are fast becoming saltpans. Only a small amount of land is still under mangrove cover. Due to prolonged use the ground water has become saline and the saltpans pump ground water to produce salt. As the

PHOTO: GOPINATH S.

Labourers at work in one of Kalivelli's saltpans

market overshadows environmental concerns, more land around the fresh water edge of the lake is being converted into saltpans. This alters the salinity gradient of the soil, which affects the plant and animal life of the lake.

Kalivelli faces other threats and problems too. Ever increasing encroachment of land for various commercial activities is one of the serious problems threatening the existence of Kalivelli. Urbanization in the region for its part also exerts a lot of pressure on the wetland. The threat from the industrial sector is menacing and there have been proposals in the

past for a thermal power station, a sugar refinery and a fertiliser manufacturing unit. There have also been proposals to convert the wetland into a fresh water source to supply drinking water to Chennai. Though none of these projects have been executed, the threat still remains.

Conservation priorities

Kalivelli is not declared as a protected area as of now. It is unfortunate that a lake with such importance does not fall under the Department of Forests and Environment; instead the Revenue Department controls this wetland. There are a number of laws that can be directly applied in protecting Kalivelli, such as the 73rd Amendment of the Constitution of India; the Wildlife (Protection) Act, 1972; the Indian Forest Act, 1927; the Forest Conservation Act, 1980; the Environment (Protection) Act, 1986; the Water (Prevention and Control of Pollution) Act, 1974 and the Indian Fisheries Act, 1897. India is also a signatory of the Ramsar Convention, 1971 for protection of wetland ecosystems; the World Heritage Convention, 1973 and the Convention on Biological Diversity, 1992.

Protecting Kalivelli could be an important starting point.

Gopinath S
Srinivas V

Foundation for Ecological Research Advocacy and Learning

Shrimps: the Farmer's Agony

Vada Agaram. Just north of the wetland, the farmers confront a new farming problem: that of shrimps. This small agricultural village, connecting the estuary and wetland, is served by a perennial natural spring for its irrigation and drinking water needs. Like in many of the surrounding villages, agricultural land here has been converted to raise shrimps. But in this village the shrimp farm is located amidst other actively cultivable lands. Traditionally shrimp have been raised on a sustainable basis along with paddy in many states in India. It was a low investment effort and an additional source of income. But this practice has now become commercial.

There is now extensive ground water usage with drainage canals and periodic water exchange is required for the purpose. There are pond aerators and use of external feed. High energy indigenous feeds, antibiotics and

chemicals are applied. The negative impacts of these are already visible to the helpless farmers of this village. They see their lands being affected by the "rust" (sludge) discharged by the shrimp farm.

With the soil slowly becoming saline, crop yields have reduced, forcing the farmers to give up cultivation altogether. The efforts made by farmers to prevent this damage have not met with any success. Although a ban was imposed on shrimp farming by the Supreme Court of India in 1996, such shrimp farms continue to be operational and new ones are being started. This has been made possible by the Aquaculture Authority Bill passed in the Rajya Sabha in 1997. Such bad policies and the lack of political will to protect the environment has not only affected the farmers of this small village but, if not prevented, will soon affect the wetland itself.

Going through the initiation of fire

"There is no such thing as Disaster," say Uma and Manoj who lost their home in Bliss to a fire in August 2004. Eight months later they begin a new life.

The new home in Bliss

It was an unusual invitation that appeared in the Auroville News and Notes in early April: "We are happy to inform that the old house which was consumed by a great fire of purification and transformation on the night of August 8th has taken a new birth, a new body, a new life...Whatever may be the difficulties we in Auroville as a whole are facing internally and externally, one thing that is absolutely clear to us beyond any doubt is that Auroville is a great family; the ideal of human unity is a living fact, not an unrealized dream... We invite everyone to Bliss on Sunday at 8 am to share our oneness and joy." An invitation from Uma and Manoj to the entire Auroville community to take part in their house-warming celebration, and then join them for a breakfast later! Here they share the experiences of a personal tragedy, losing their home to a fire, the deeper lessons they learnt, and the triumph at the end marked by a collective healing of sorts for the entire Auroville community.

"This experience taught us that there is no such thing as 'disaster'," says Uma. "The whole process may be painful and messy, but it is only an awakening to a higher state of being." "We were so attached to the form that we would not let it go," says Manoj of their old home. "There was a time it was infested with termites, the roof was leaking, but we wouldn't let go! We knew that there was a catch to our attachment, and the night the house caught fire, it was glaring to us that we deserved it!" Strange words indeed, coming from this young couple whose home was burnt down. But Uma and Manoj are not your average run-of-the-mill pair, even by Aurovilian standards. They have the reputation for holding rather unconventional perspectives on life. Says Uma, "We were happily getting fed somewhere, while the house was merrily burning away. Later, after absorbing the shock, we looked at each other and burst out lauging! Mother had caught us, and we had to laugh at Her careful planning and the naughtiness of it all.

"There was also this strange series of coincidences," she continues. "The day after the fire when Manoj and I went back to view the damage, everything appeared arranged in such a loving and caring manner. All our books and daily clothing had been saved by the Aurovilians - as if those were the only things we needed. Our motor bike had been unusually parked at the Matrimandir parking lot instead of at home, and so it was saved. And to top it all, Ursula, our dear friend, had handed over the keys to her little garden house for that summer so we even had a 'ready-to-move-in' home for the coming months! We cried at the detailing done by the Divine."

Manoj has a more philosophical take. "Bliss was a small hut, a physical expression of our attachment to the ascetic lifestyle that had almost become an ego. We have a saying in Indian culture, 'Where there is Saraswathi, Lakshmi will not come; where there is Lakshmi, Saraswathi will not be there.' It is a kind of Indian default setting where one goddess will not step in if the other is present! So in a house of arts, learning and spirituality, there will be no wealth and abundance, and vice versa. We noticed that we had not accepted Mahalakshmi consciously in our lives, and had made the mistake of glorifying the ascetic part. There was an imbalance and it had to be modified consciously. We saw the fire as the force of Mahakali clearing the way to bring in both aspects - Mahalakshmi's gifts of abundance along with Mahasaraswathi's arts and learning. Now the challenge for us was to blend and integrate the two aspects into our life.

"It was also clear to us that the fire was not only connected to our individual lives but had a larger collective significance. It was the time when Auroville was going through turmoil on

Ursula lights the lamp while Manoj and Uma look on

many levels. We discovered that three houses had been destroyed by fire within a short span of two weeks. We saw it as a *yagna*, a sacrifice, connected to Auroville as a whole." It was this recognition that made Uma and Manoj take the decision to rebuild their house by seeking help from the community. "It was no more just a personal tragedy, it was a collective *yajna*."

An appeal was posted on the Auroville News and Notes requesting financial support for their new home construction. "We wanted the collective to participate as much as possible. In Auroville, there is a lot of fear and insecurity connected with money. Though I could have taken money from Upasana, and that would be the easiest thing to do, we felt we had to make a small contribution to the thought processes that exist in this community. We needed to break down this idea that one had to have personal resources to be in Auroville. This insecurity about money had to be destroyed." It was a leap of faith, full of idealism and trust in the goodwill that exists in the community

While Uma took up the responsibility for the financing of the new home, Manoj oversaw its design aspects. "It had to be a space that we would feel connected to, and something that came from our own deeper roots. Our roots are our strengths, and it was important not to reject it." Manoj explored architectural forms of the tropical climate. "We were seeking a form that blended the past and the future together." Manoj came up with a basic design inspired by Balinese architecture, south Indian temples, and the *theravads* (ancestral homes) of Kerala, the state where he comes from. "Now the challenge was to find an architect who would make it a reality." In yet another strange coincidence, the architect was literally brought to their doorstep! It was Meera, Uma's sister from Delhi, who landed in Auroville a week after the fire.

"It was August 15th when I arrived," says Meera. "Didi (Uma) and Manoj took me first to see Bliss. They had told me about the fire, but I was not prepared for what I saw -bare plinth and nothing else!" Meera quickly got down to help Manoj, converting his conceptual design into an architectural plan. "I had brought my computer-aided-design software along just in case, so I made the basic 3-D drawing. It was a simple day's job," she says modestly. "And I was happy I could help them." Manoj interjects, "It was perhaps the fastest working drawings ever submitted in Auroville's history!"

Meera's role did not end there. "I thought my contribution was over now that the drawings had been made and approved. I got ready to enjoy the next few days in Auroville and then travel further south to Kanyakumari and other places." Since graduating from architecture school two years ago, she had been working for a firm in Delhi doing Dutch architecture. "I had reached saturation point, and felt the urge to do something new. As my birthday was coming, I had decided to come to Auroville, spend time with my sisters (Uma and Kiran of Nandanam crèche), and to look at Auroville architecture." But three days before she was to leave, Meera met with an accident, injured a leg, and was

Meera, the architect

advised to rest until the wound healed. "It was then, one evening, that Didi and Manoj were discussing who would be the supervisor to build Bliss. And I said 'Excuse me - nobody even bothers to ask. The supervisor is standing right in front of you!' Actually it was meant as a joke; I had my job in Delhi to go back to. But Didi suddenly turned to me and asked if I was serious and if I really wanted to do it." Meera was astounded. "No one gets this kind of opportunity. I was just fresh out of college and to get my own project so early in my career was just unthinkable!" The offer was irresistible. However she had to fulfil contractual obligations with her employer in Delhi, so she went back, wrapped up her pending work, and moved to Auroville to help with the construction.

Meanwhile the funds were flowing in, many people contributed generously and the work was progressing steadily. However what was received was not enough, Uma had to face the issue of taking money from Upasana and it was painful. "The moment I resolved my inner conflict and accepted money from Upasana, there was an immediate outer response which came in the form of the Housing Service making a lump sum contribution to the project. It was my personal *yagna*, something for me to let go." Uma's trust was restored, and the work was completed.
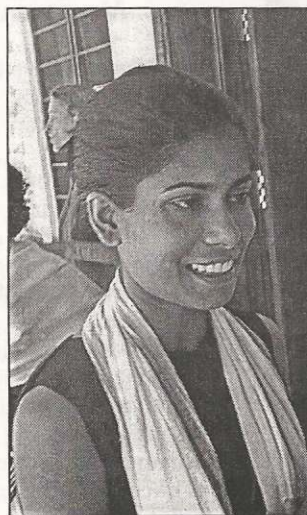
"There were many lessons we had to learn from the entire process," says Manoj. "It was a period for introspection and change. Everything had been comprehensively planned." Adds Uma, "It became so clear that our true wealth is our people. Regardless of all our differences we are one big family ... And we realized that it is at that level we are very rich in Auroville."

Priya Sundaravalli

Sunday April 24th dawns cool and fresh. An auspicious drizzle creates a welcome sprinkle. A long snaking path lined with native trees, leads one into the semi-clearing that is the Bliss community. The new home appears to have sprouted out of the earth. It is modest and unassuming, but with a timeless elegance... An open terracotta brick front, flaring pagoda-like tiled roof held by fluting wrought-iron grills, the pillared courtyard running playfully around, lotus pond on the left and on a patch of pebbles to the right, a gleaming black Ganesh. Details catch the eye. Black and ochre floor tiles, whimsical motifs of spirals and dancing figures embossed on a ceiling here and a beam there, stone clad stairs lead up to an expansive private space, airy and full of light. The guests float in and out, smiling, exchanging embraces, whispering softly their admiration.

It is time for the ceremony, and the flower and flame mandala awaits. Uma is radiant in a rustling drape of grey-blue silk, and Manoj a picture of white serenity in his signature cottons. Ursula doing the first honours, lights the tall bronze oil-lamp at the centre of the courtyard. As its five flames dance, the couple invoke blessings upon their new home - *"Om Vastudevaya Namaha"*. The chant picks up in intensity as the others join in. The atmosphere turns quiet, joyous and sanctified. And the magical collective of Auroville comes to life again.

"I'm always burning with some new project"

A profile of Olivier

With his youthful looks and bubbly enthusiasm, you'd think Olivier had just arrived, new-minted, in the community. Yet he's been here 17 years....and hasn't been wasting his time. Creative entrepreneur, dancer, builder, technician, alternative economist, organizer, grassroots initiator – Olivier, even by Auroville standards, is something of a multi-tasking phenomenon.

When Olivier left the army (he had been posted to Djibouti, Africa), he was very clear that he no longer wished to live in France. "I wanted to go abroad, but nothing worked out. Then one evening in a park in my home town of Strasbourg, as I was watching a bright sunset, something dropped on me and said, 'Just take your bag and go'....which I did, to the utter dismay of my parents."

Olivier helped sail a yacht to Mauritius, but left the boat when it reached Sri Lanka. "In France I had already been looking for something within, so now I wanted to journey to India because of the spirituality I'd heard was there." He met a man in a train who suggested he visit Pondicherry. "I'd never heard of Sri Aurobindo or the Ashram but, within three days of arriving there, 'pouf', it was as if everything had been arranged – somebody had invited me to stay in his place, I was working in the Dining Hall, I was reading Sri Aurobindo's, Mother's and Satprem's books..."

Eventually his visa expired and he returned to France. When he came back in 1988 he wanted to return to the Ashram where his partner, Adar, lived, but that didn't work out and he and his friend, Michael Spector, came to Discipline instead. "We were doing dance sessions with some Aurovilians. It was more of an inner exploration, using the body as a source of inner guidance and medium for evolution. We improvised, allowing body contact. At that time this was very advanced, not to say risqué: we almost had to do it behind closed doors!"

They searched everywhere for a place of their own and finally someone suggested the community, La Ferme. "The eastern part of La Ferme was completely neglected and abandoned: there was just one tiny broken-down hut which, after some renovations, became my home for the next three years." A cheese farm project had just been started there by Prem Malik and Giovanni, who were looking for people to manage it. Olivier and Michael agreed to take it on.

"At that time, protein was lacking in the Auroville diet and cheese is a very good way to provide vegetarian protein. But it took us ten years just to be able to meet the demand in the community. At the beginning we did not even have money to buy animal food. Then all these buffaloes that we'd bought to make mozzarella cheese started to dry up because it is almost impossible to get them to breed in captivity. We managed to get a loan to buy three cows, but we struggled for many years before we got a grant in 1991 to build a cool-room and purchase a generator. That was the real turning-point: now we could make hard cheeses that would not spoil."

In 1999 Olivier decided to try selling to the larger Indian market. Initially they did well, profits improved and they could donate more cheese to Auroville. However, recently the influx of competitive cheeses from abroad coupled with local 'copy-cat' cheeses have reduced their profits to almost zero.

"If we don't specialise now with a few top-selling products, we'll be finished within two years," admits Olivier. "Goat's cheese would be a niche item with a bright future, but getting hold of the right kind of goats has proved very elusive."

For some time Olivier had been looking for an outlet in Kuilapalayam village to sell cheese to day visitors and guests. "At first I was looking for an existing shop to sell our cheese, but the facilities were so hopeless that last year we decided to rent a shop instead. Rather than just selling cheese, I went back to an old idea - to provide an outlet for Aurovilians involved in food processing to have a showcase shop and sell their products to visitors." Farm Fresh, as the shop is called, gets good feedback from Aurovilians and visitors alike. However, its future is also in the balance because the economics of Auroville food outlets are very tricky, given the large seasonal influx and exodus of tourists and Aurovilians.

But there's more to Farm Fresh than making profits. Olivier also wanted to stimulate interchanges between Aurovilians by providing a place where they could make their favourite home-made delicacies available to other community members. This idea of encouraging individual creativity and energy exchange runs like a golden thread through all Olivier's projects and initiatives. Take, for example, the Mahasaraswati Free Store, which he began in the original Pour Tous building in 1995. The idea of a place where people could bring surplus or non-working items to be repaired and passed on to those who needed them came to Olivier in a meditation, but it was also a logical consequence of Olivier's skills as a fixer. "People were always bringing me things to repair – mixies, cassette players etc. – and I'd tinker with them between the cheese work or late at night. Unfortunately the Mahasaraswati Free Store didn't work in the way I'd intended because often people brought in decrepit stuff and all we could do was dismantle it and dispose of the waste safely. This only changed when we started giving credit in 'Aurose' for donated items that were still in good condition or repairable: people could use these Aurose to obtain other items. This gave a really tremendous boost to the service."

Olivier leans forward excitedly: the reference to 'Aurose', a form of complementary currency, brings him to something very close to his heart. "It all began in 1999 when I joined the Auroville Board of Commerce core group and got pushed nose first into the real financial situation of Auroville. I came in as an entrepreneur, a creative business artist, who was not so much interested in money-making – which always bored me – as in finding ways to answer people's needs. In this context, I became interested in LETS systems (Local Exchange Trading Systems) which were operating in communities in the U.S. and Europe as a means of encouraging creativity and exchange among their members. I soon realised that our Pour Tous accounts corresponded exactly to the definition of a complementary currency.

"All the alternative economy gurus were interested in the Auroville situation because it is a perfect site for economic experimentation. With their help, a small group of us studied, wrote proposals, ran seminars and by 2001 we'd worked out something that I believe was really beautiful. It included all the existing aspects of the Auroville economy, but connected them together for the first time and put them upon an entirely new basis. In a meeting on Mother's birthday, 2001, something like 300 Aurovilians agreed to go in this direction. It was one of the high points of my life in Auroville."

Very soon, however, a group of Aurovilians had effectively sunk the proposal. "They wouldn't even allow a trial. They said that a complementary currency is still money because you are putting a value on the goods, and Mother said there should be no money exchange within Auroville. They also said that Aurovilians should not be encouraged to trade among themselves. But I'm convinced that a virtual means of exchange, as we came to call it, was exactly what Mother was talking about in that famous conversation in The Agenda, when Satprem suggests a coupon system and Mother says something like 'Yes, yes, this is exactly it.' The insanity of it is that by intuition we have done exactly the right thing at every step of the game to establish a truly marvellous structure, and now we stubbornly keep on wanting to use this as a conventional money system when we have the foundation for a completely different approach and consciousness."

How did Olivier deal with the disappointment of two years of work seemingly coming to nothing? "Sure I felt very frustrated, it was a punch in the stomach, but I just offer it to The Mother constantly and hope that one day something will click and the pieces of the puzzle will fall together. Besides, I'm always burning with some new project, new activity. It's like a tap that's always flowing."

It's the Olivier most of us are familiar with, as he flies along the sand tracks on his mountain bike or clambers up the rock-climbing wall he built in the Aspiration canyon for smaller and bigger kids. Where does all this energy come from? "My inner work is a crucial counterbalance to my outer activity. Through all these years I've kept working with the body and I've been furiously keeping time aside for meditation: it's a very carefully protected part of my life as it gives me an insight into the transformation of the body. But that's also where I manage all my activities from, inside, it's never done by reasoning. All major decisions come like an adesh – 'do this, see that'."

Once he did ignore such an inner indication. During a visit to a new Kali temple on the edge of Auroville he suddenly realized that the statue of the goddess was facing Matrimandir. "I saw something very interesting behind it, and sat down one night to write an article on it for the Auroville News. But just when I was about to send it, I felt a warning. Mother was saying, 'Watch out. It's an occult thing. Be careful.' But somehow I could not prevent myself hitting the send key! Looking back, I knew I'd made a mistake." That mistake resulted in a Leave India notice. "There were all these General Meetings; it was really a big thing, I had to meet people, write apologies – which was not a problem because I hadn't intended any harm. But it was a very intense, depressing time for me, and I went back into my cave...

However, not surprisingly for someone who describes himself as "A typical Aries, the one who crashes ahead to bring the other ones behind", he soon bounced back. This year, for example, he directed the annual Auroville dance programme. He'd been to the previous programmes and been unimpressed. "I kept getting visions of how to put it together more interestingly, but I never seemed to have the time, my life was so tightly-packed, crystallised. But Mother, She keeps you so naïve! So, after She 'tricked' me into the Farm Fresh experience, which was the drop in the glass which really made it overflow, I had to learn more about directing people, and how to delegate rather than manage problematic situations myself. Together with changes in my personal life, this meant I suddenly had time again, so I thought, 'Why don't I try the dance performance thing?'

"I wanted to do something more interesting for the public – new, unexpected. The worst fight was against an established practice of just throwing the different groups together at the last minute. The dance groups had to learn to work together, to change their beginnings and their endings. There were some tense moments but in the end everybody enjoyed the result. I'm not inclined to do it next year, though. I couldn't work enough with the groups individually this time, and I would rather work with fewer people who are ready to begin from scratch and work towards a performance."

And the future? "When I received the Leave India notice I suddenly realized I have no place else to go. I left the Western world to avoid committing suicide or going mad. My soul is here. But that experience also taught me how to detach myself. Now I'm finally returning to France to visit my family (my grandfather is over 100 years old) and to get a new visa. I feel it's all in The Mother's hands. If She needs me here, She'll bring me back. If She wants me somewhere else, she'll arrange it."

Alan

The U.S.A. Pavilion

Sergio Palleroni describes the construction of an innovative building in the International Zone

After years of working in marginalized, informal communities in Mexico, an international community in the southern Indian state of Tamil Nadu presented a dramatic change of venue for the Global Community Service program. Auroville is still largely rural, and rather than developing within a frame work of infrastructure, seems to grow in small unrelated parcels when specific funding is granted. The Mother's vision included a section of the city that would become the international district, providing housing and meeting space for visitors from around the world. In 2001, several donors gave money for the construction of a U.S. pavilion. A previous delegation of students, from the University of Washington Comparative History of Ideas program, heard about the project and put Auroville representatives in touch with Design/Build Mexico.

The decision to accept this project for the 2002 design/build studio was not easy. For years, we had been working in impoverished communities, where our contributions fulfilled serious needs. Auroville is a well-funded community surrounded by people in serious need, and the well-funded portion would be the client for this project. On the other hand, the site, like most of Auroville, was completely without infrastructure, and this building would challenge our students to provide energy, water, and waste solutions that would test the design/build program's commitment to environmental sustainability. In the end, the opportunity to contribute an alternative model of infrastructure development that would serve to address Auroville, rural India, and many of the communities we serve worldwide by developing a building which was totally off the grid was too much of an educational opportunity for us to pass by. There was also the opportunity to learn from Auroville's and Southern India's strong legacy in use of traditional sustainable materials.
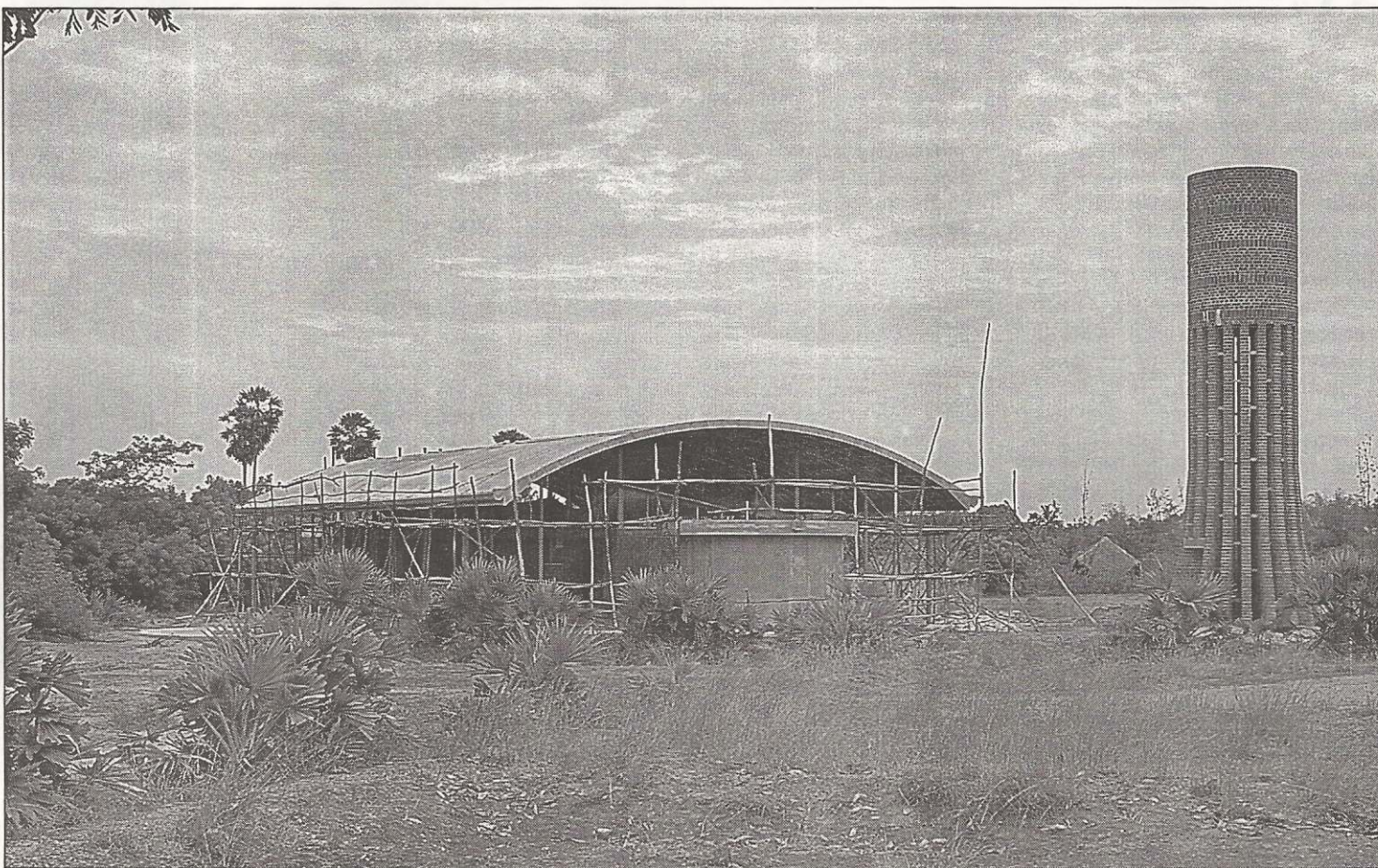
The U.S. Pavilion sits amid a dry plain in an undeveloped quadrant of Auroville, in the International Zone

program. The thirty-seven students met without ever having seen the site to design a building for a culture they couldn't possibly understand. The intellectual and practical challenges were immense.

In September of 2001, a delegation of three faculty members travelled to India to present the students' design to the Auroville review panel and to research practical construction matters. The resources available for construction looked good, but the building plans didn't. The panel of Aurovilians overseeing the project felt that the building didn't express the identity of Auroville. After some quick design development by the faculty delegation, the panel provisionally approved the building. This bought us the time we needed to redesign on-site, in the manner of our Mexico studio, when we arrived in India with the students.

Casuarina is used as scaffolding material

In Mexico, students had been able to design a building during a two-week-long interchange with the clients held when we first arrived. As soon as they finished designing, we would break ground. Working in informal settlements, we avoided any formal design review or official supervision. In Auroville, we had to submit plans for approval well in advance of construction, and this meant scheduling our design sessions for the summer preceding the

culture of Auroville so we wouldn't end up with a figural mass floating in an empty field. The students used the metaphor of an Indian banyan tree as the dominant building concept. Trees in general have immense symbolic importance in Auroville, thanks to the years of reforestatation work, and because the city is planned around a giant banyan tree, this species was considered spiritually important by the Mother.

The design called for a series of four small dorm rooms set beneath a giant, separate super-roof, to create the same quality of an "outdoor room" that a banyan tree provides in this climate. The design has the usual east-west linear orientation, presenting its broad front to the soft sunlight from the north. The super-roof shades out most of the hot Indian sun, allowing penetration only at dusk and dawn. The dorm rooms are built of heavy, earthy materials: mud bricks and rammed earth. The super-roof is built of light-weight steel and wood. In this way, the dorms seem to rise from the ground like a trunk, while the massive roof seems to hover lightly above, like branches and foliage. Each dorm room has a roof of its own, constructed of ferro-cement in the shape of a hyperbolic parabola. These four smaller roof forms seem to rest gently on the chunky building walls, suggesting leaves falling from a tree.

Every decision made in the siting and design of the building was meant to lessen the building's load on both the fragile natural environment and the limited infrastructure of this country. The first intention was to mitigate the intensity of the Southern Indian climate, which is known for its periods of oppressive heat and torrential rains. Compressed earth blocks (commonly called mud bricks) and rammed earth create thick wall sections that absorb heat in the dry climate and keep interiors cool. They also use a minimal amount of cement compared to normal bricks or concrete, maximizing the use of the cheapest and most abundant material around: dirt. While they perform well in heat, they should not be used in situations where they are exposed to intense rain, so the super-roof is instrumental in protecting the walls from monsoon rains. Furthermore, the size and height of the super-roof allows prevailing winds to pass through the larger building complex. The clerestories created by the four smaller parabolic roofs then bring these breezes into each dorm room.

The students realized early in the design process that the super-roof was a great opportunity to capture both solar power and rainwater. Several local Aurovilians donated a collection of solar arrays, and a group of students created an energy system that keeps the building entirely off the local grid. They not only planned how they were going to provide solar

The site struck us initially as large, flat, and dry: this was by far the emptiest site we'd ever been given. The first challenge for the students was to design a building that would anchor itself in the landscape and

Budget: $216,000 ($80,000 for building; $28,000 for roof system; $16,000 for site work and dams; $9,200 for solar energy system; $8,600 for composting toilets and waste treatment program; $6,000 for well)
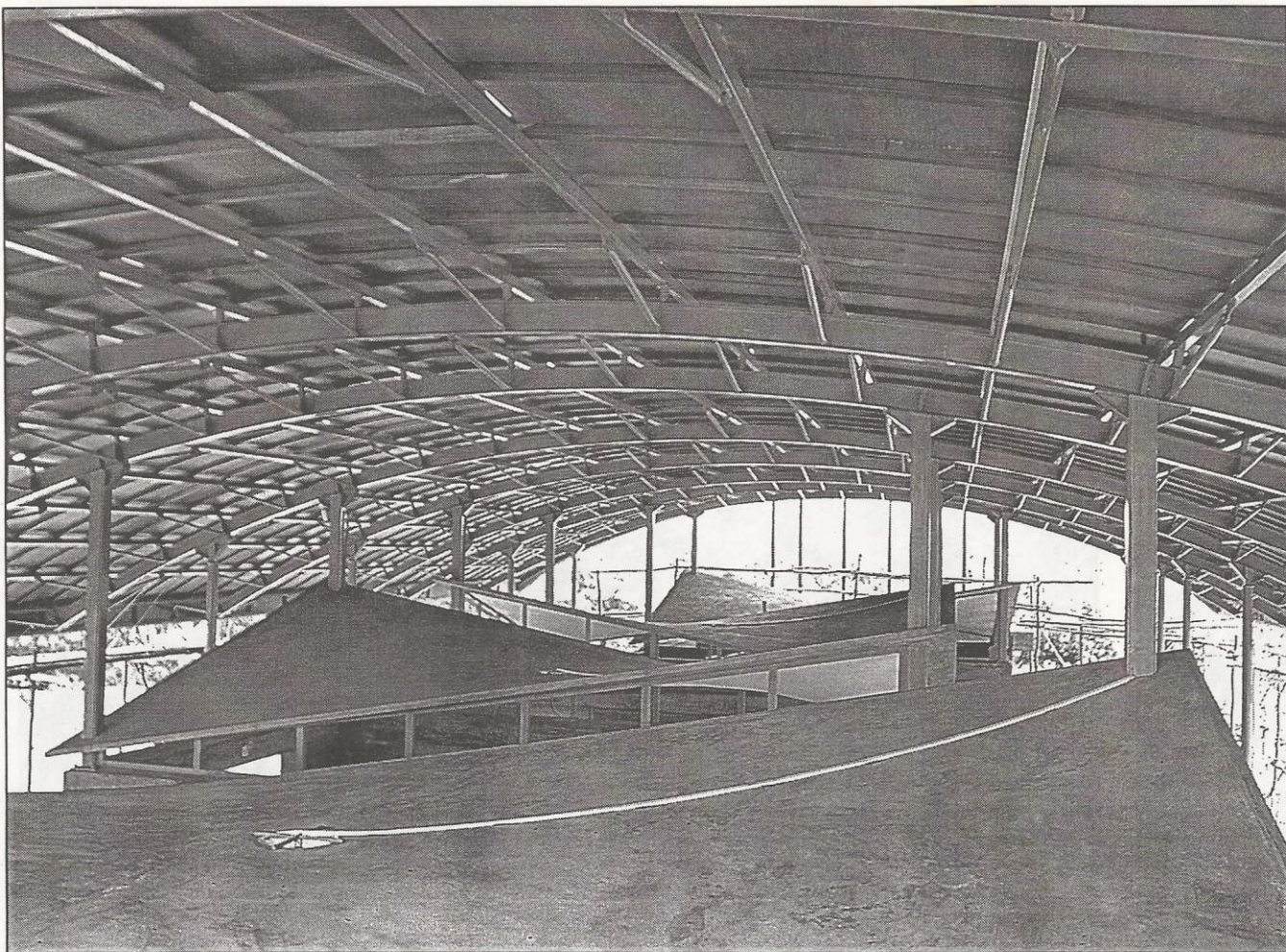**Programme:** dormitory building for 16 students; waste, water, and power infrastructure
Project Size: building: 2,760 sq. ft.; site work and infrastructure: 4,300sq. ft.
Lessons: The "developing world" is a classroom for exploring sustainable practices.
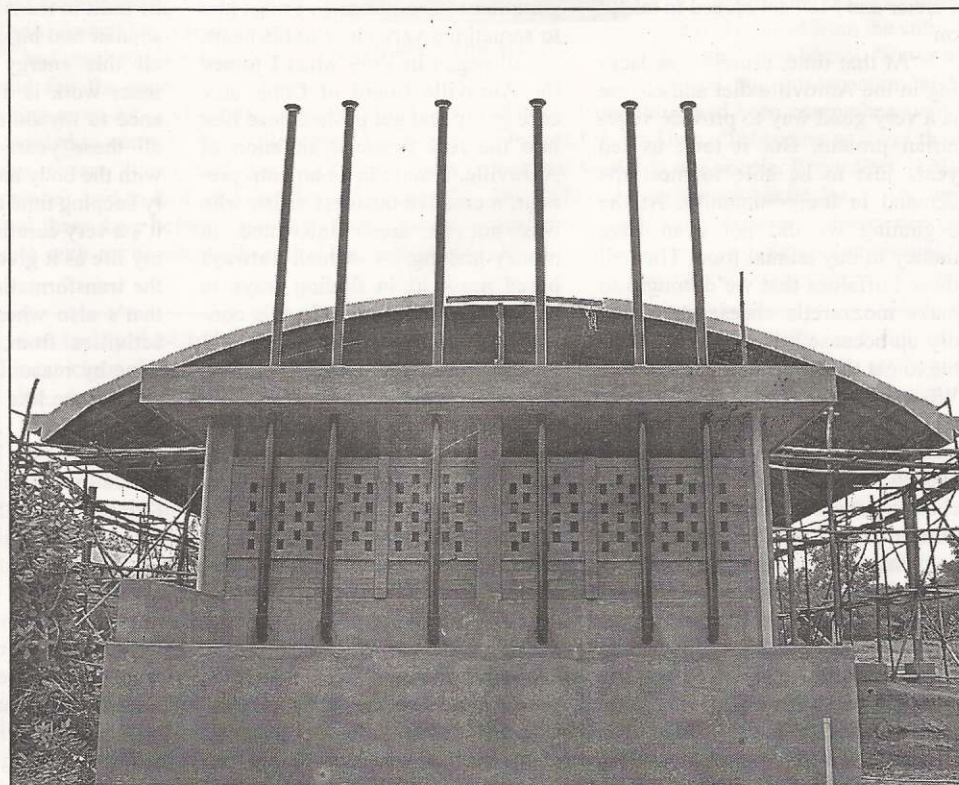
Pipes ventilate the building's six composting toilets

Top: The dorm rooms find protection under the canopy of the super-roof
Right: A channel of rainwater protects the building from insects

power, but also selected all low-energy fixtures and fans for the building, to limit the energy demands at the source. Meanwhile, another group of students designed a cistern and water tower to capture, store, and distribute all the rain-water collected from the roof during monsoon season.

The building's waste was another concern. Normally buildings in Auroville use standard septic tanks, but many are improperly maintained and leak dangerous waste into the groundwater table. Our students, under the direction of Professor of Forest Resources, Charles Henry, came up with a unique solution to this dilemma. They noted that black water, which includes solid waste from toilets, and grey water, which includes urine and wastewater from sinks, laundry, and showers need very different degrees of treatment, yet in a septic system they are treated together. Black water is highly toxic but requires much less treatment. Students divided the building's waste stream into two categories: black water and grey water. The black water is treated by using a composting toilet system, where waste sits in composting bins for six months as it dissolves into compost. Grey water is treated by a reed bed and planted infiltration trenches that form part of the building's landscape plan.

This divided system means that the streams have to be separated at the source, so, while there are showers in each dorm room, all toilets are in a large bathroom at the west end of the building. Certain toilets are designated for solid waste, and others for liquid. The solid waste toilets, or composting toilets, were designed entirely by our students using available local materials such as water bins and car jacks. These toilets pass the solid material to a cabinet beneath the bathrooms that is accessible from the lower, west end of the site. Here, the waste sits in modified water bins and becomes garden compost in six months. Meanwhile, the toilets for liquid waste divert urine to the building's wastewater stream (coming from showers and sinks) and this is passed into the gray water system. The grey water treatment process begins in a settling tank, where any leftover suspended solids settle out. The remaining grey water passes into a reed bed, where a mixture of gravel and plants naturally filter out the pollutants. The nearly clean water then passes into the infiltration trenches, which are essentially long planting beds. These trenches are planted with banana trees, which have a high tolerance for poor water quality and are able to take up the nearly clean water, thereby keeping it out of the groundwater but in the natural life-cycle.

During the construction of the U.S. Pavilion, students worked side by side with twenty to forty Indian labourers. The Indians often seemed amused or perplexed by the great lengths to which the students would go to find alternative solutions to construction and infrastructure challenges; using rammed earth proved to be much slower and more difficult than we ever imagined, the bathrooms had to be built entirely from scratch, and the super-roof was a major engineering struggle.

Accentuating the problems was the language barrier: few Indians in the site area spoke English. For communication we relied on a job captain whose construction skills were superb, but who often misunderstood us and, in a very South-Indian way, was too polite to let us know he didn't understand. In the end, however, the students created a building that is remarkably self-sufficient and sustainable. As long as the rains come and the sun shines, the building can produce all the energy and water sixteen guests would need, clean their waste, and keep them cool and dry. In addition, the GCS faculty considers it one of our most architecturally-rich projects to date. As the project neared completion, it was clear that the Indian workers' amusement had turned to curiosity and admiration. We hope to see some of the low-tech solutions employed in the U.S. Pavilion in use in the local village when we return some day to Auroville.

Sergio Palleroni

This is an edited version of an article that was first published in the book "Studio at Large: Architecture in Service of Global Communities"

Steel, ferro-cement, rammed earth and mahogany come together to create a rich palette of local materials.
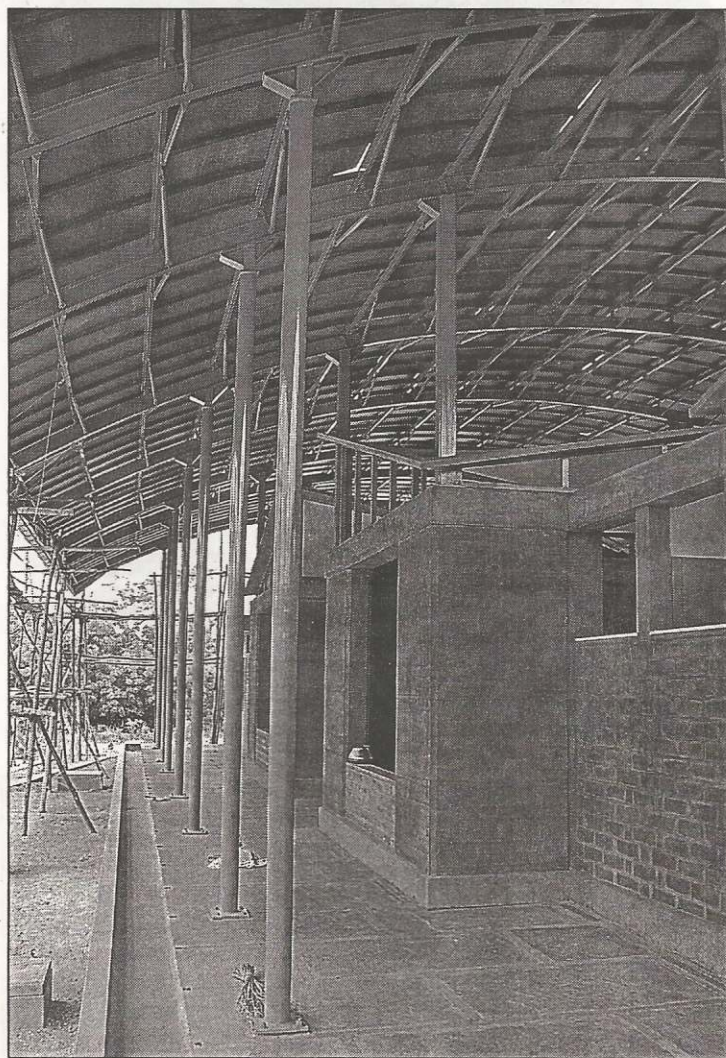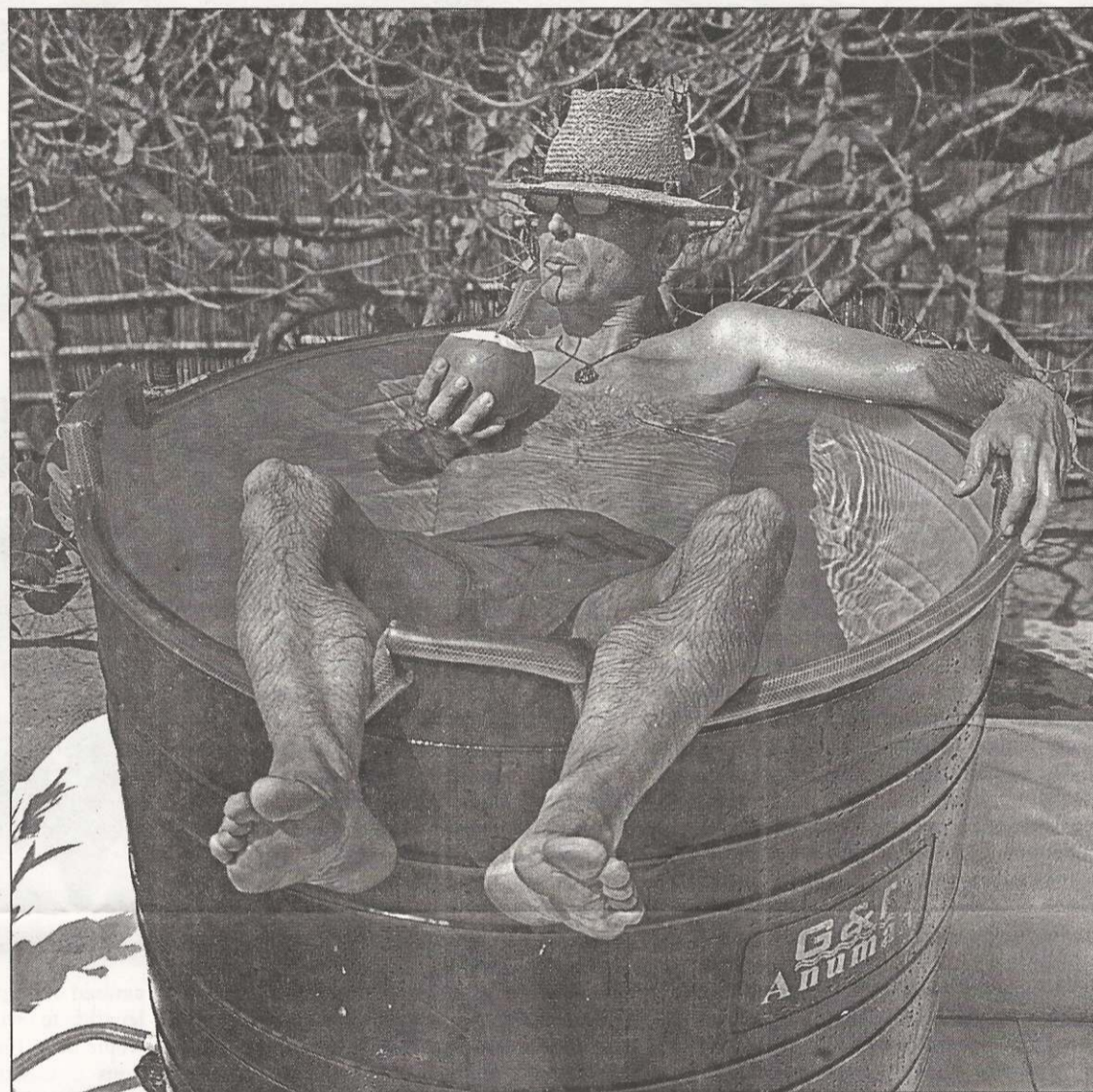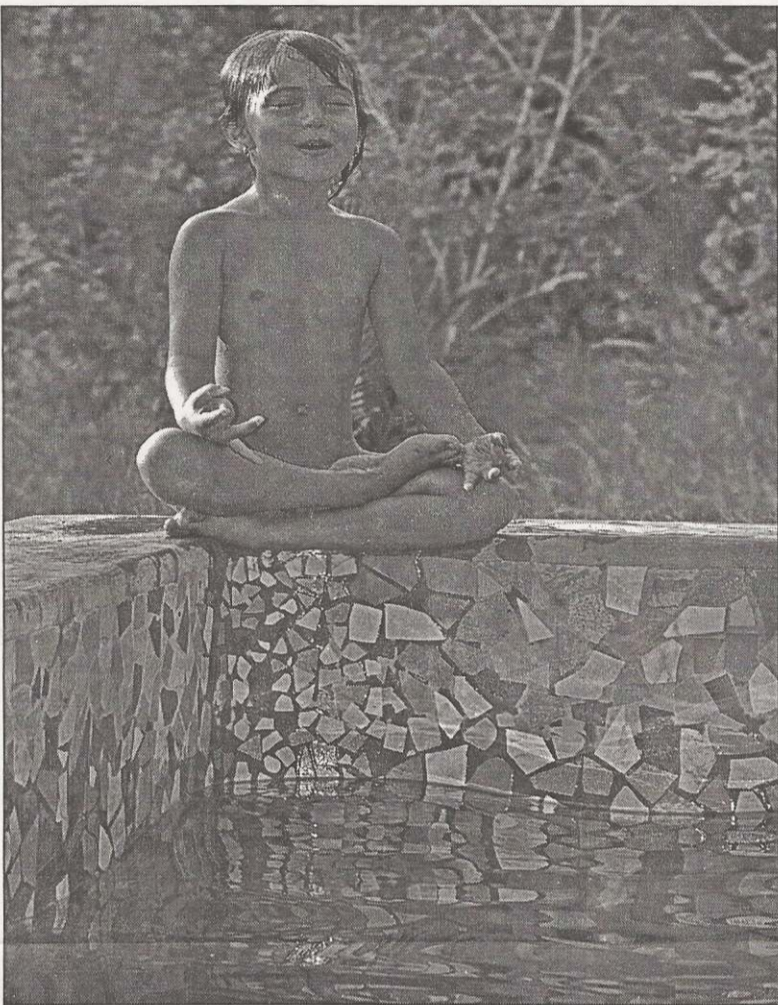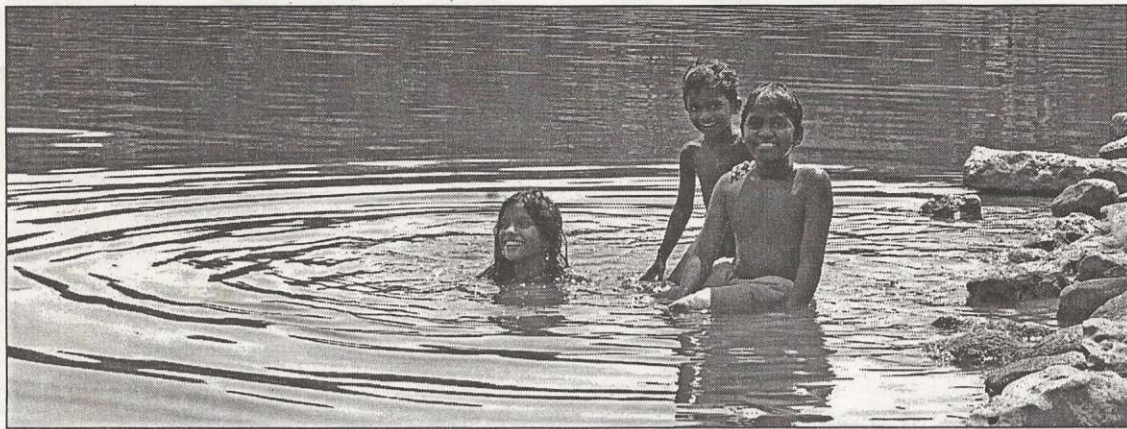
Mimicking a south-Indian banyan tree, the super roof creates shady verandahs on either side of the dorm rooms

40° Celsius

Auroville's Summer Remedies....