

# TOWARDS A SUSTAINABLE FUTURE...

**A community more than a firm, the Kerala-based Centre for Eco-sensitive and Sustainable Development (ESDC), acquires its resources from the natural landscape and in return gives back a construction typology.**

Text : Natasha Iype  
Photographs : Courtesy the architect



On the banks of the Kaniampuzha river, in Ernakulam, Kerala, stands the Centre for Eco-sensitive and Sustainable Development (ESDC), which was started in 1987 by a group of architects, engineers and artisans. Inspired by the work of Laurie Baker, the group looks at architecture as a lifestyle, which relates to the psychological and cultural sensibilities of people and at the same time maintains harmony with the environment. Experimenting with alternative ways of living and building, the emphasis has been to absorb traditional techniques that consider the availability of resources and also apply relevant climatic principles, thereby creating a sustainable society that tries to maintain equilibrium between the built structure and the immediate surrounding.

New concepts and ideas are quintessential, followed by innumerable brainstorming sessions, which focus on parameters that go beyond just architecture. This approach of ESDC's has resulted in ventures like community housing and organic farming. Functioning professionally as 'House of Consultants', ESDC has been working all over South India, and has centres in Calicut,

Bangalore and Mumbai. In search of an appropriate organisational structure, the group has been experimenting with various management structures. They are presently working in small, decentralised groups, which handle different projects individually. The identity of their work lies not with the individuals in the group, but with the entire team. As Ar Jeeth Iype puts it, "ESDC should continue even after this generation of architects and engineers have moved on, and be known by the work it represents". Stanley George, engineer and one of the pioneers of the group, stresses on the importance of a team, "If the engineers and artisans are also involved in the design from the onset, it contributes to efficiency and economy of design and in managing the project."

In the initial days, after the preliminary sketch design was finalised, there would be no further drawings, but the details would evolve on site, with the mason, architect and client working together. "This allowed us far greater spontaneity in design and also co-related the microclimate of the site to the spaces beautifully. But as the projects got larger, and more in

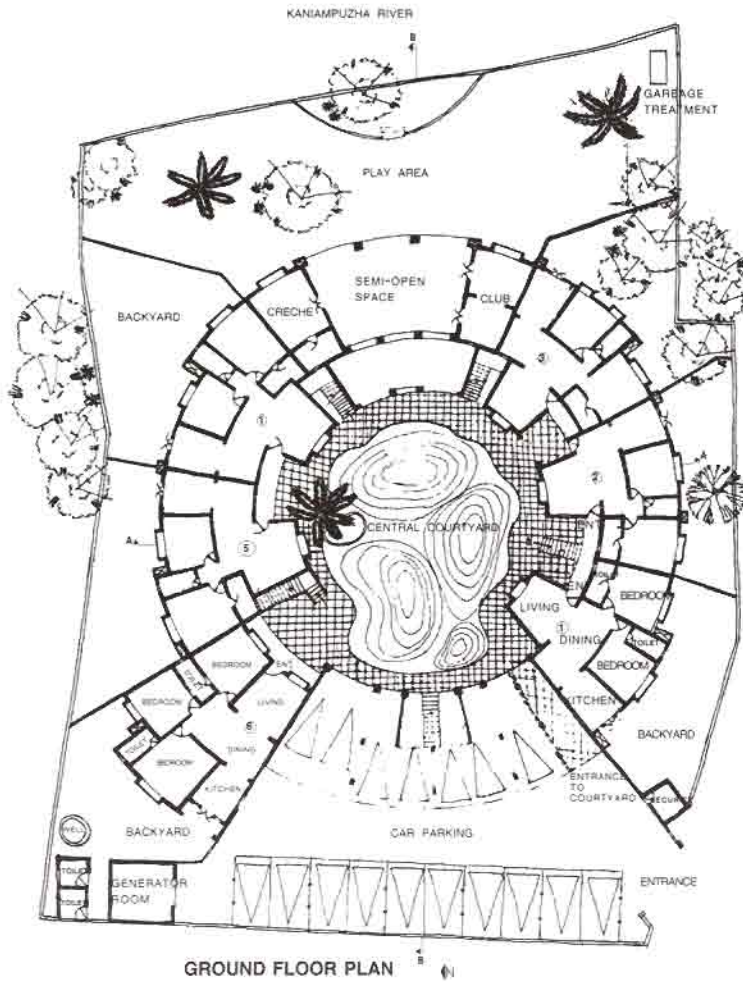
number, this became difficult," says architect Vinod Cyriac.

To its credit, ESDC has designed a number of buildings ranging from small houses to institutions, in various locales in Kerala, rural and urban, to coastal Karnataka and Bangalore, Auroville in Tamil Nadu, to Mumbai in Maharashtra, for a cross section of economical, cultural and geographical groups, and each work is unique in these respects.

The building that houses their headquarters in Ernakulam is an example of how different ideas, materials, and technologies can be combined to form a harmonious whole. Adapting to the heavy Kerala monsoon, the hot, humid summer, and the requirements of the group, these structures have undergone various modifications, from repairing leaks and innovations to combat the heat, to reorganising the spaces and changing their use.

This adaptation continues in other projects of theirs resulting in a vocabulary of natural materials like mud, brick, stone, thatch or tiles, with techniques like filler slab, soil cement blocks and Ferro cement.

## GOOD EARTH HAMLET - a community for like-minded people



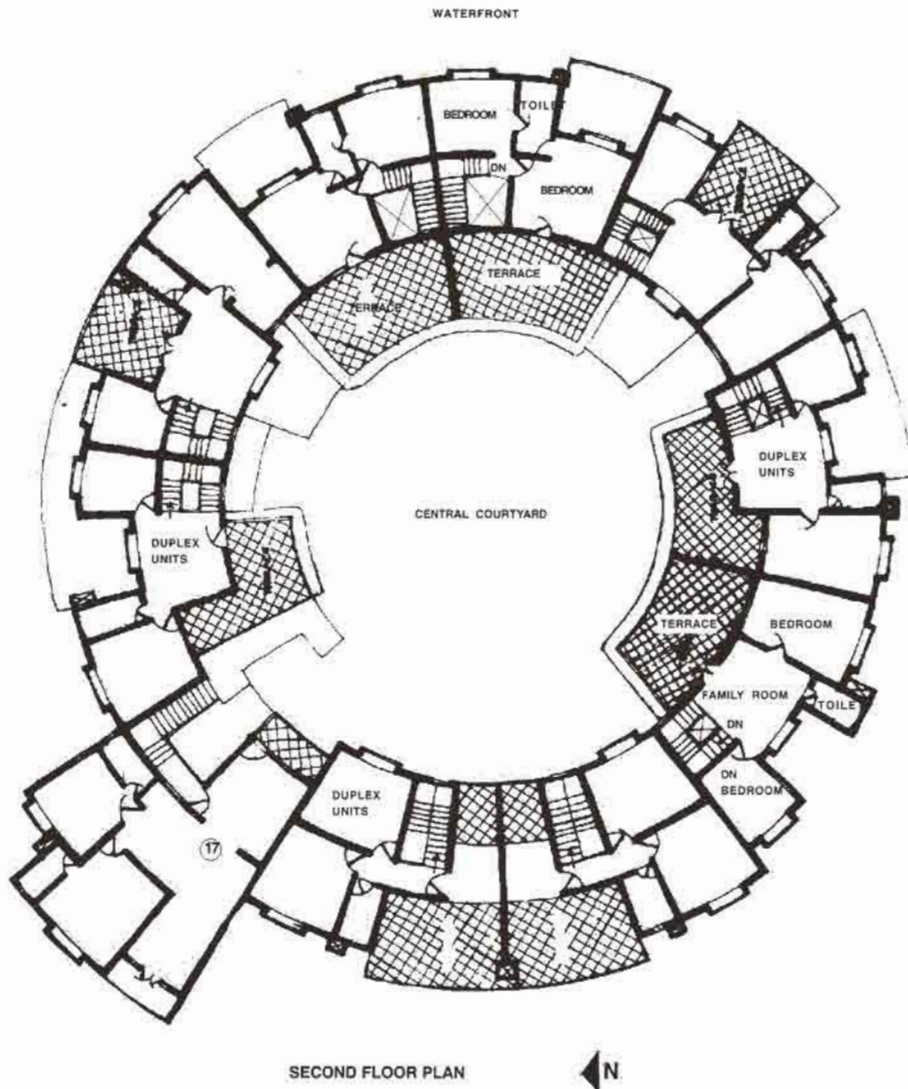
'Green Earth Planners and Developers'. It also proved the team's belief that sensitive construction can be achieved in a commercial development.

The brief was to create community housing which bridged the existing gap between independent houses and the urban stereotype block of flats. Fifteen to twenty units of two and three bedrooms were required to make the project financially viable. Emphasis was to be on community spaces to encourage interaction while at the same time providing for individual privacy. As project consultants, ESDC was involved with the hamlet from its conception. The site was a flat half-acre plot, on the banks of the Kaniampuzha river located in a quiet suburb of Cochin. The concept of a central courtyard evolved creating an intimate space, free from vehicles and safe for children to play. The circular form worked out to be the most economical, both in terms of space and structure. Seventeen units were worked out, using an FSI of one, and a height of ground and two upper storeys was found to be appropriate, considering structural economics, as well as the blending in with the surroundings. The setback area served as private backyards for the ground floor units, and the first floor duplex units had terraces at each level.

As one enters the hamlet through wooden gates, a paved pathway leads to

1. The eco-sensitive headquarters of ESDC.  
2. A bird's eye view of the central courtyard that acts as a source of light.

Kerala brings to mind images of serene backwaters, of lush green paddy fields, and a rich heritage of traditional architecture. But in Cochin, one of the fastest growing cities of Kerala, these images are being replaced by images of polluted backwaters, congested roads, and multistoried buildings. The culture of living in large homes, surrounded by plantations and familiar neighbours, is giving way to a typically anonymous city culture of cramped apartments with few open spaces. The ESDC's first venture into community housing was 'Good Earth Hamlet', promoted by their sister concern,

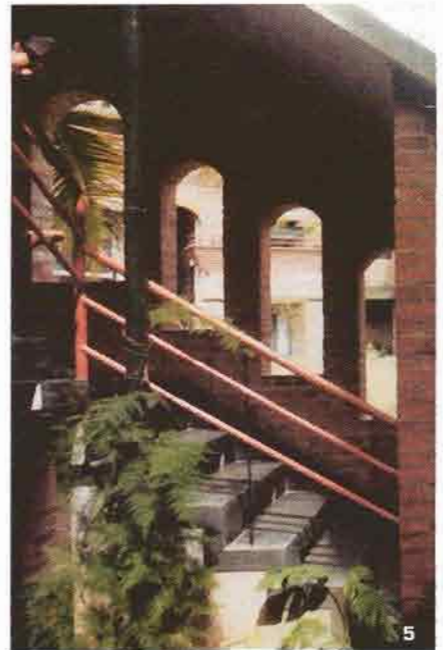
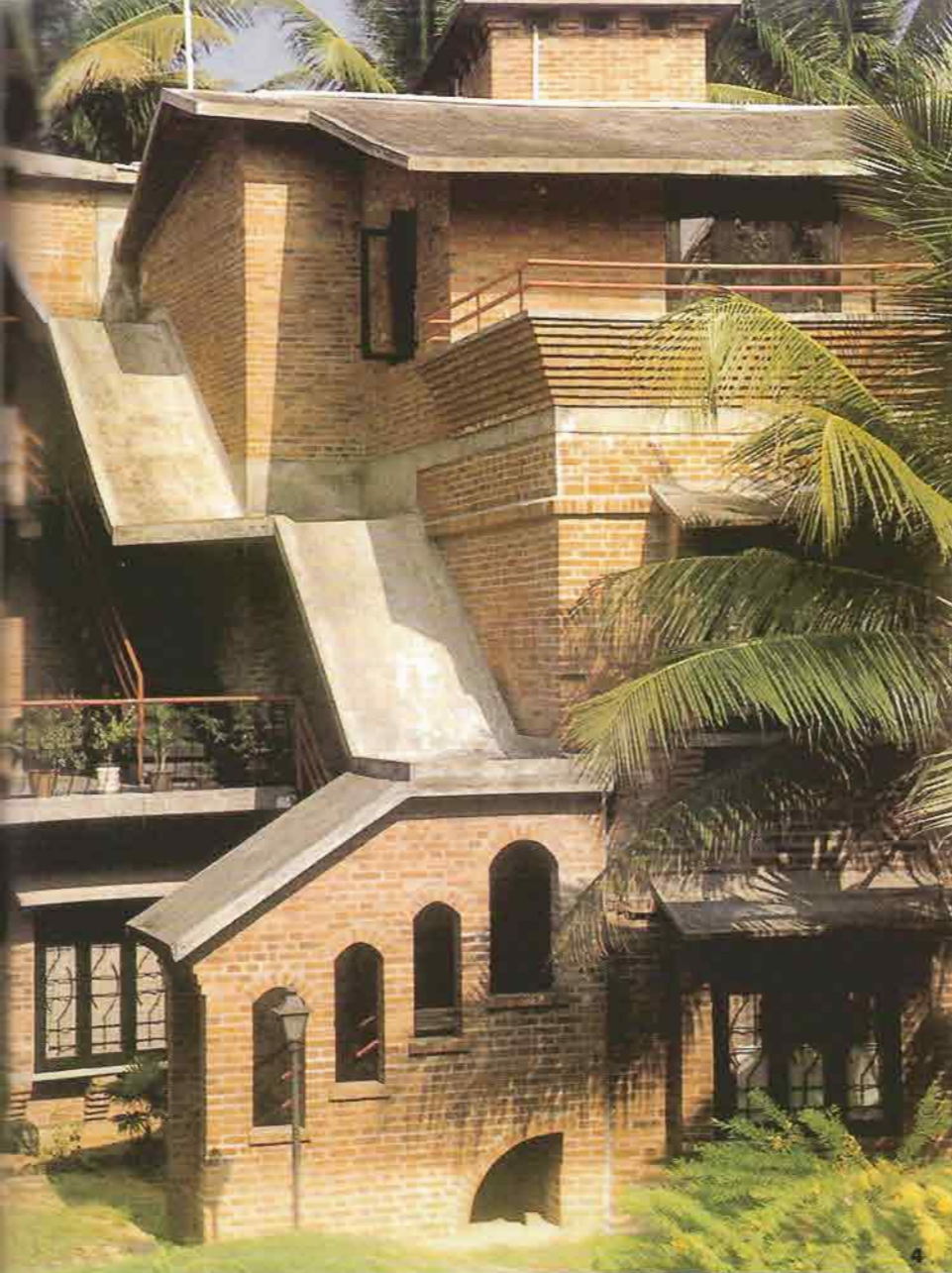


SECOND FLOOR PLAN

the green, undulating courtyard beyond which one catches a glimpse of the waterfront through the stilted semi-open area. The stilted areas on the ground floor act as wind tunnels and enhance the air circulation in the courtyard. The structure is recessed in parts at the first and second floor level to form terraces overlooking the courtyard. These terraces break down the mass of the structure and together with the sloping roofs make an interesting form. Walking around the courtyard, past the collage of corbelled seats and bay windows, one is drawn to the waterfront, where a club and crèche lie on either side of the semi-open space used for interaction.

Each individual unit has been designed to have an identity, in terms of its planning and location in the community. Every home has adequate natural light and cross ventilation. The interior spaces flow into each other, having walls only where required. The bedrooms are oriented towards the outside, while the living areas overlook the courtyard. In keeping with their principles of cost-effective construction, the designers created structures that minimised the use of reinforced concrete and steel. Instead there was a use of materials, which were appropriate and eco-friendly. A strip raft foundation was found to be sufficient for the three-storied circular load bearing brick structure. After testing a number of bricks, of various qualities, a wire-cut, country burnt brick, from a nearby kiln was selected for its size, strength and colour. The 9" brick walls had the outer face exposed and flush pointed, and the inside plastered. Arches were used to span large openings and windows, while doors were spanned with pre-cast thin lintels. Economical





3. The wooden entrance gates through which one enters the hamlet, where a paved pathway leads to the undulating courtyard. Beyond this, one catches a glimpse of the waterfront through the stilted semi-open area.
4. Terraces break down the mass of the structure, and together with the sloping roofs, make an interesting form.
5. Adequate natural light and cross ventilation are brought indoors via arches that span the large openings and windows.

timber sections of jack-wood and *anjali* were used for the doors and windows. Filler slabs, using rejected Mangalore tiles, made up the roof and the floors, thus making the slab lighter and also reducing structural steel. Besides being economical, the filler slab also keeps the inside cooler and is ideal for hot and humid climates. The interiors are kept simple with terracotta flooring and lime washed walls, with an occasional arch or a bay window to add character to the space.

The sewage system uses a series of septic tanks for the solid waste, while the grey water is separately treated. The rainwater from the roofs is allowed to percolate through the courtyard, thus recharging the ground water. Organic

waste is collected for composting, to achieve a sustainable recycling system. Thus the design worked efficiently, using minimum circulation space and a maximum of the site to create a built environment, which enhanced the lives of its inhabitants. A result of enthusiastic teamwork between the architects, engineers, masons and other skilled workers, the project was completed within the estimated cost, in a period of 16 months. The hamlet today, with perhaps a flower patterned curtain on a window, clothes hanging on a terrace, people conversing across terraces and a tricycle left in a courtyard, feels warm and secure, giving room for individual expressions while embracing them into the community.

#### FACT FILE:

Client	: Green Earth Planners and Developers (P) Ltd
Location	: Chalikkavattom, Cochin, Kerala
Architects	: ESDC
Team	: Jeeth, Binu, Natasha, Sunil
Structural Engineer	: Associated Consultants
Area	: 21000sq ft
Cost	: 1.2 crores
Duration	: 16 months
Completed	: 1996

## NAMMA BHOOMI- a development alternative



Set amidst the picturesque locale of the South Canara region is the Regional Resource Centre for 'The Concerned for Working Children' (CWC) where they have been working with the local communities to identify and solve the problems of child labour. The Centre conducts courses, which train children in various skills like carpentry, weaving, basket making, leather craft, pottery and techniques of agriculture or construction, with a stress on environment and sustainable development. They also encourage the revival of traditional art and craft.

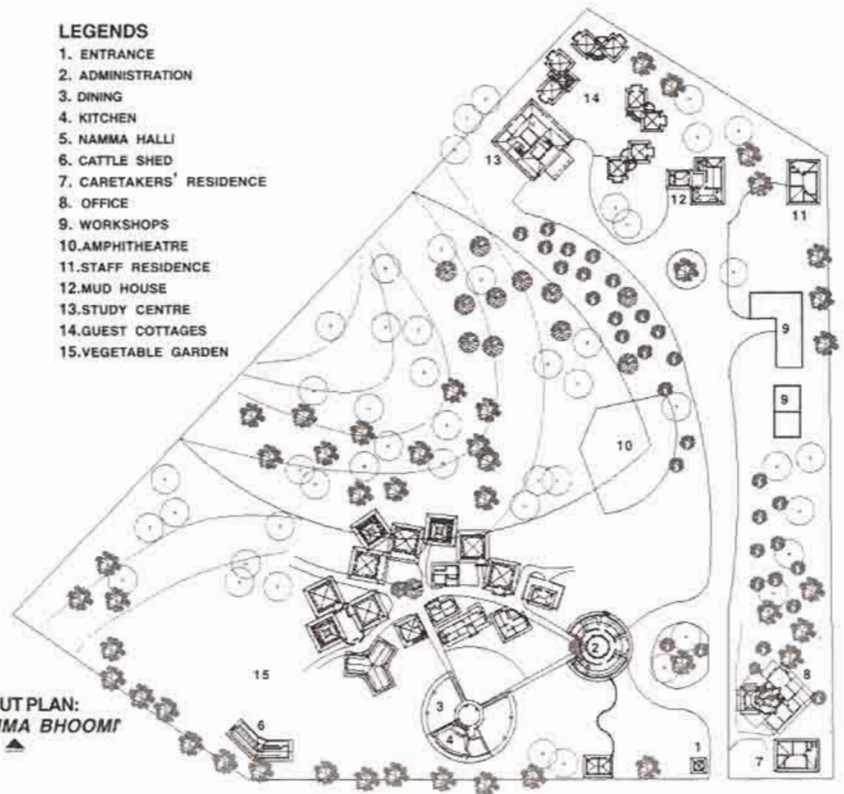
On a visit to conduct a workshop on 'Appropriate construction technology', a group from ESDC was introduced to the vibrant children from CWC. Says Jeet lype, "The children had already experimented with building mediums, hence they had a lot of practical questions for us. In a way we (ESDC) identified with them because we were also learning by building! That was our first trip to *Namma Bhoomi* and from there began a long relationship with this land and its people."

After detailed discussions with CWC, the requirements for the campus evolved as residential accommodation for the field activists and the children, dining areas, administration areas, a library, laboratory and a clinic. The brief called for a flexible design, wherein the spaces needed to be multi-purpose and could be easily phased.

### LEGENDS

1. ENTRANCE
2. ADMINISTRATION
3. DINING
4. KITCHEN
5. NAMMA HALLI
6. CATTLE SHED
7. CARETAKERS' RESIDENCE
8. OFFICE
9. WORKSHOPS
10. AMPHITHEATRE
11. STAFF RESIDENCE
12. MUD HOUSE
13. STUDY CENTRE
14. GUEST COTTAGES
15. VEGETABLE GARDEN

LAYOUT PLAN:  
'NAMMA BHOOMI'



interactions with the children and the members of CWC, the concept of designing the Centre like a village evolved. Within this framework, all requirements would be accommodated with room for further organic development. The children also gave insights into their lifestyle and what they were comfortable with, which further reinforced the 'village' theme. Another important aspect was that the Centre was to be a 'live' experiment, using 'appropriate construction technology', built by the children, who would learn as they built their village. The land that made up the site measured six acres and was almost barren with a slope towards the west-southwest.

As one enters *Namma Bhoomi*, the road leads you to the main core of the centre, the '*Namma Halli*' or 'our village' to the left, or one can move further on past the amphitheatre, the workshops,

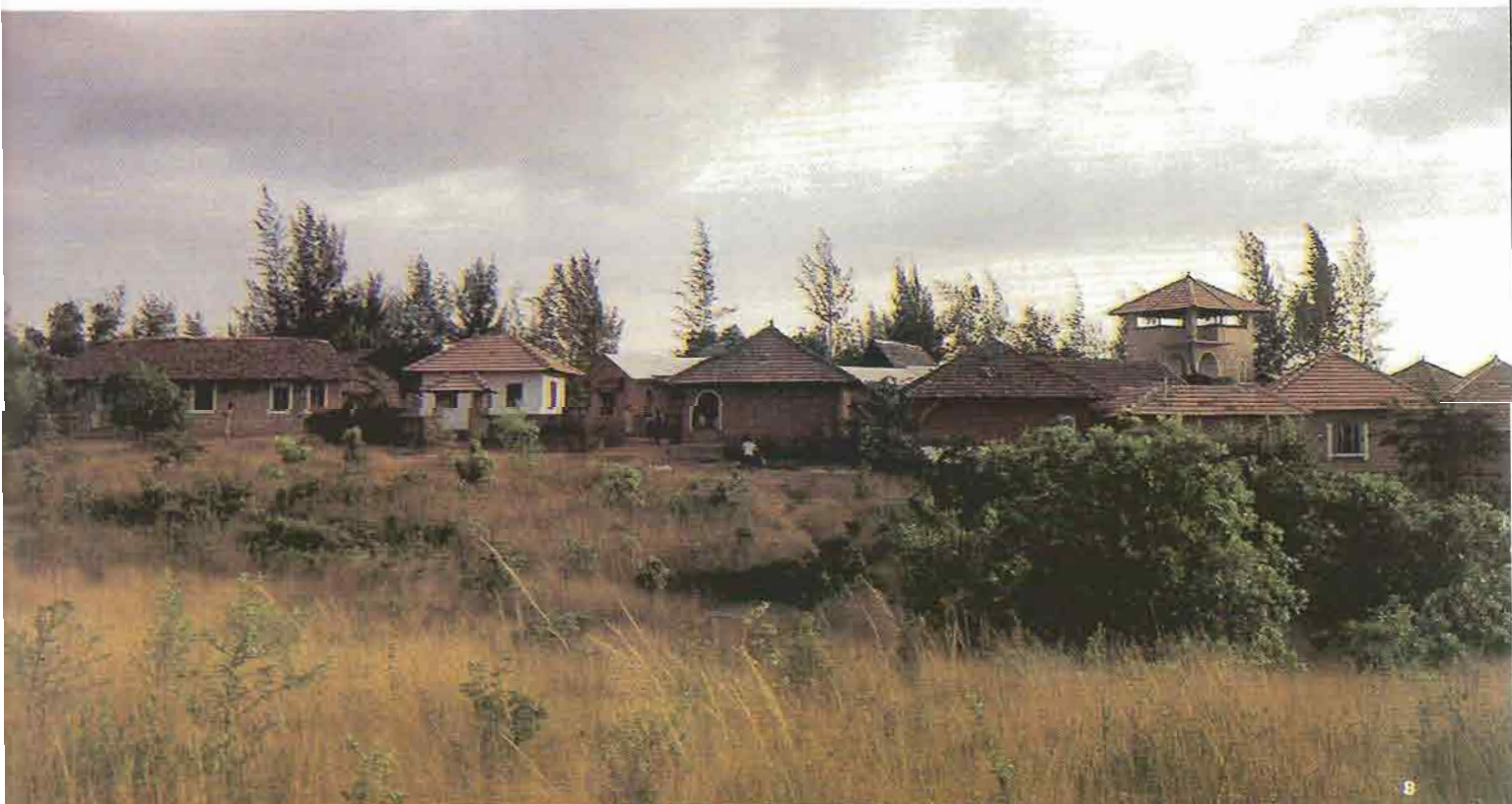
to the study centre and guest cottages at the far end of the campus. Two residences for the staff are also located on corners of the land. *Namma Halli* is designed around a meandering street, alongside which most of the facilities are planned. "The street runs east to west, with the structures arranged to form courtyards. Their angled manner of arrangement shades the street for most of the day," says Jeeth.

The administration building planned at the entrance of *Namma Halli* is built with laterite walls and a country tile roof. A circular building, with a central landscaped courtyard houses the administrative office of the campus, along with an exhibition area and a sales area or '*Namma Angadi*' which is an outlet for the products made by the children and villagers, promoting local craft and tradition. A bank and a post office for the children is also planned. A

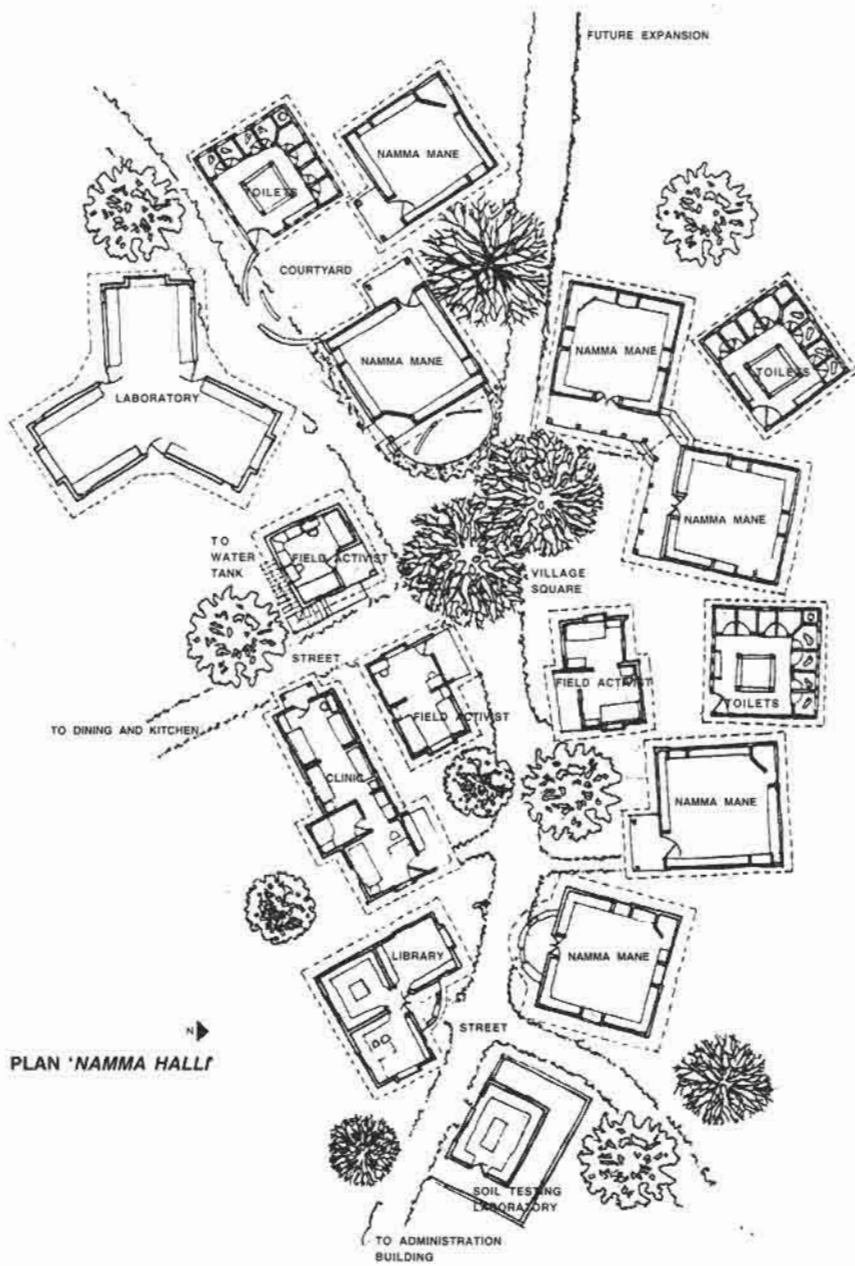
**6.** The meandering street around which *Namma Halli* is designed.

**7.** Laterite walls and tiled roofs form the design vocabulary of *Namma Halli*.

**8.** A view of the *Namma Bhoomi* landscape in all its glory.



8



PLAN 'NAMMA HALLI'

*neem* and *pipal* tree has been planted where the building opens out to the street and a *katta* around it, is the venue for many a discussion.

The dining and kitchen area is also a semi-open circular structure, built in stone and thatch, which opens out on one side, with a central space serving as a stage to the open 'theatre' outside during performances or workshops. The kitchen is planned towards the rear of the building and is connected to a service road. The dining area can seat 120 children on the floor, and is oriented towards the street. Built-in seats all around in the dining area, also serve as a low wall, protecting it from the outside. Stone pillars support the bamboo trusses of the thatched roof. From the administration building, one enters the main street, which slopes downward, past dormitories or 'Namma Mane', the clinic, the library, field activists' houses, their projecting verandahs and interesting nooks and corners. The street pauses in a 'village square', which is shaded by trees and overlooked by verandahs. The 'village tower' which houses the water tank above abuts this space. This is the only 'high-rise' building here!

'Namma Mane' or the dormitories have been designed like houses for





fifteen children, where each child has a built-in niche to organise his / her belongings, and as a space for expression. These dormitories serve as classrooms in the day and as sleeping spaces in the night. The courtyards in front of the dormitories are used as spillover spaces and for the various activities that the children are involved in.

There are six dormitories in all, built in soil cement blocks, and Mangalore tiled roofs. The walls are 9" thick with 4 1/2" butts at intervals to form the niches for individual children. *Cuddapah* shelves are used for this purpose. Light filters in through skylights and *jaali* windows, which are settled in niches that also form seats.

Ten guest cottages were built as part of the second phase and accommodate resource persons or guests. With a plan to have a low mud wall enclosing the area for privacy, a part of the ground floor is on stilts to serve as gathering space. The rooms are in groups of two with a common toilet. Balconies on the first floor and the verandahs below overlook the landscaped courtyard.

The structures are built in soil cement blocks, which the children made on the site, laterite, stone blocks, slabs, brick and mud. The roofs are mostly Mangalore tiles but a few buildings required concrete



roofs, and here, filler slabs have been used. Country wood and treated casuarina poles have been used for the tile roof frame. Antique carved wood has been recycled and used as pillars and windows.

ESDC strive to create buildings in which the rain, the sun, the wind, all play an important role – the form and the orientation being manipulated to complete an interesting story. The culmination of these interactions are spaces which are unique in their expressions and honest in the materials used. From the traditional motifs to the quality of air and light in them, theirs is an architecture to be experienced. ■

#### FACT FILE:

Client	: The Concerned for Working Children, Bangalore
Location	: Basrur, Coondapura Taluka, Kamataka
Architects	: ESDC
Team	: Jeeth, Natasha, Vinod
Area	: 20000sq ft
Duration	: 3 Years
Completed	: 1998

9. The circular administration building that also houses the exhibition and sales areas.

10. 'Namma Mane' or the dormitories, built in cement blocks, where the children study in the day and sleep at night.

11. The courtyard of the administration building lets in light and accentuates the form.