

**T**he world population is growing at an alarming rate. Each year the demand for natural resources increases, but while humans are happily clearing away forests for development, the earth is slowly buckling under the pressure. For this reason, the South African government is taking long-term sustainability very serious and has called on the Sustainability Institute (SI), a project promoting sustainable lifestyles, to help them put together a sustainable development strategy.

With the depletion of our finite sources, sustainability has become one of the biggest challenges of our times. Throughout the world, governments, businesses, non-profit organisations, citizens and communities are struggling to come to terms with a global social and environmental crisis.

The Sustainability Institute (SI) – a living and learning centre representing an ecologically, socially and environmentally balanced way of living, which became a reality as a result of local vision and determination – has on a micro-scale proved that sustainability is not only a buzz word of our times.

Set just outside Stellenbosch, the Institute has become synonymous with the Lynedoch EcoVillage, a hamlet promoting sustainable lifestyles through efficient energy usage, the utilisation of natural resources and knowledge empowerment. The school is headed by the Academic Director Professor Mark Swilling and Eve Anneke who serves as the Programme Director and Chair of the Board.

The Lynedoch EcoVillage stands as a shining example of the first ecologically designed socially mixed community in South Africa. A Montessori-based pre-primary school accommodates 35 children from nearby farms while the primary school has 475 children. Phase 1 of the housing scheme caters for 42 sociologically designed houses for employees and community members, of which 14 are subsidised by the government. They are being built under the management of Asteck, a company of builders and engineers, who are working with the Lynedoch Development Company, a non-profit NGO in partnership with the Institute. Ten buildings are completed, and by next year another 20 will be built.

The village is an integrated sustainable development and connects social, economic and ecological objectives while also incorporating technologies such as energy, water, sanitation and building materials. The project is also committed to the long-term vision of social, economic and ecological sustainability as well as

*Photo: Playtime! The pre-primary school accommodates 35 children from families on nearby farms, while the primary school has 475 children.*

poverty alleviation and local economic enhancement.

Prof Swilling, who is also the Project Manager, says the project ties in with the three aspects he usually sets for himself in realising his academic goals: teaching, research and service to the community. "To build a clay house looks simple, but it actually requires a great deal of research," he says. Academics from the University's Engineering and Zoology Departments formed part of the research, with a wormiculture expert providing insight into the typology and functionality of worm types for the compost structures. Research into brick-making are being facilitated by a group of engineers. The adobe sundried bricks are in the process of being AGREEMENT certified (an accreditation done through the CSIR and SABS), in which specifications for the technology will be set.

"The self-sufficiency of the systems incorporated by this village means that potentially huge capital costs for bulk sanitation are completely circumnavigated. The economic sustainability of the Lynedoch Village sets a precedent for policy regarding the urban poor, who

*Residents of the EcoVillage separate all their refuse meticulously. Paper, cans, glass and plastic are all recycled. Organic waste is processed for use in the community gardens, which are irrigated by harvested rainwater.*

have remained a marginalized group in South Africa. They can now be incorporated into housing markets that contribute to community building, in financial markets that draw investment and build capital, and in food markets that promote better household nutrition at lower cost and provides higher returns to the farmer," says Prof Swilling.

According to him this hamlet serves as "testimony to the courage and vision of committed individuals and organisa-



# Sustain

Carolyn Frost

tions towards providing viable alternatives for urban development in South Africa".

The SI was founded in partnership with Stellenbosch University in 1999. It

offers Masters and Doctorate degree programmes, which equip students with the relevant knowledge to deal with global issues and challenges. This knowledge is obtained from a curriculum focusing on model building for sustainability, land reform, sustainable agriculture and research. Incorporated into the holistic academic processes, Stellenbosch University students offer free assistance to the school community as part of their practical training,



Prof Mark Swilling is the SI's programme director



Bring in the harvest! Masters students have to work in the orchards before they start class for the day.

# ustainability is possible

providing life skills courses and counselling.

Obtaining core funding from the Ford Foundation from 2002 to 2004, the Institute was able to get involved with the Lynedoch Development project while setting up a new Masters Programme in Sustainable Development through the School of Public Management and Planning at the University. Currently there are approximately 100 MPhil students at the Institute, mostly sourced from middle and senior career professionals. According to Prof Swilling these students come from the public and private sectors as well as from NGOs all over the world. They represent a range of disciplines including the social, natural and applied sciences. And, with a huge undersupply of professionals with the necessary skills to ensure long-term sustainability, the skills these students are learning are crucial. What is interesting to note though, is that the Constitution and laws of South Africa reflect sustainability concerns more than any other country in the world.

## How do they do it?

- Buildings are constructed using Hydra-foam unfired clay and adobe bricks. Materials to make the bricks are sourced on site, and lime plaster is applied to the surface, providing a natural insect repellent and sealant against moisture.
- All water heating is provided by solar water heaters, each fitted with a thermostat defaulting to electricity in cases of insufficient sunlight. This saves an estimated 60% of average household electricity costs. Installation of the solar water heaters costs R7 500 opposed to R3 000 for standard geysers, but the cost saving is established when taking into consideration that the solar system will be paid for in 3 years, leaving another 17 years of cost-free heating on an average 20 year bond.
- All cooking is done on Low Press gas hobs. The architecture of the houses takes into consideration space heating and cooling, which are achieved naturally through design. Proactive north-south orientation, roof overhangs providing sufficient summer shade, but not limiting winter sun, efficient insulation and geo-thermal systems all serve to save costs. Only low energy lighting is installed in the homes, and street lamps are powered by solar panels.
- Residents of the EcoVillage separate all their refuse meticulously, recycling all paper, cans, glass and plastic. Organic waste is processed for use in the community gardens, which are irrigated by harvested rainwater.
- Household effluent is channelled into a specially-designed Biolytic Filter, and a peat filter full of earthworms works on a micro-ecological level to break down the organic components.
- Alternatively, household water is directed to a Vertically Integrated Constructed Wetland, after which it returns to the household to be used for flushing toilets. Treated water is not stripped of primary nutrients, and is redirected to orchards for irrigation or as a natural organic garden fertiliser.

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