



KZN Housing

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ISIFUNDAZWE SAKWAZULU-NATALI

REPORT ON VISIT TO STELLENBOSH SUSTAINABILITY INSTITUTE AND OTHER HOUSING DEVELOPMENTS IN CAPE TOWN



25-26 MAY 2009

PREPARED BY PRODUCT DEVELOPMENT

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1. PURPOSE

The purpose of this report is to share findings on the visit to various housing projects and developments in Cape Town which was undertaken from 25-26 May 2009.

2. BACKGROUND

- 2.1 The Product Development Directorate is tasked with research into various aspects associated with housing. These include alternative and innovative technologies, housing design and layout, initiatives to improve housing projects in terms of people's livelihoods, etc.
- 2.2 The purpose of the visit was to assimilate information relating to the manner in which housing projects are undertaken in other provinces and which initiatives which can be implemented in KZN.

3. VISIT TO HOUSING PROJECTS/DEVELOPMENTS

Officials from the Product Development component were hosted by the Sustainability Institute based in Stellenbosch. In December, 2008 the National Department of Housing (NDOH) and the Sustainability Institute (SI) signed a Memorandum of Agreement, in which the SI and NDOH agreed to collaborate on a 3 year capacity building programme which aims to operationalise South Africa's national housing policy "Breaking New Ground." In this regard the SI is engaging the Provincial Department of Human Settlements to gain insight into projects within Provinces as well as to share information with regard to their initiatives.

In addition to getting an insight into the development undertaken by the Institute the officials were also taken to other housing projects/developments in the Western Cape. The following gives a report back on the initiatives being undertaken in the Western Cape.

3.1 WITSAND IEEECO VILLAGE

The project is located in Atlantis in Cape Town and consisted of approximately 7000 shacks. The area is surrounded by various industries and farming areas hence individuals settled on the land in the hope of finding employment in these enterprises. The local municipality was approached to assist in providing individuals with housing opportunities. A community participation process was initiated to determine the needs of the communities. The settlement area was divided into four blocks and representatives from each block were responsible for workshop

arrangements for individuals from their respective blocks. This ensured optimal communication with the community. A total of 3000 beneficiaries were registered however only 2400 were eligible for the subsidy. The land can only accommodate 2000 sites however, the layout plan makes accommodation for higher density developments in addition to sites for educational and social amenities.

The project is following the Peoples Housing Process (PHP) route and in the first phase 80 houses were constructed by local people and the remainder by a contractor so as to speed up the process. To date 400 houses have been constructed and the approval for the remaining 1600 structures is in the pipeline. The beneficiaries who were given houses had to sign a demolition certificate allowing the demolition of their shack. This initiative in addition to the Invasion Control Dept from the City has prevented new shacks from mushrooming in the area. According to the chairperson of the community housing committee the PHP process has had a profound effect on the ability of locals to acquire new skills in that individuals (mainly women) have acquired the technical skills required for constructing buildings.



Houses being constructed by local people



The success of the project is attributed to the motivation of the local people in driving the project. There is an on-site office which is manned by the local committee. The committee assists in completing the housing subsidy

application forms for beneficiaries, control the usage of building tools and have a filing system of all the beneficiaries' details, agreements, etc.



Project Site Office and Project Information contained within

The project is also renowned for its implementation of the Integrated Energy Environment Empowerment Cost Optimised concept which is a multidisciplinary human settlement design, build and monitoring system. It is based on the implementation of passive solar design interventions e.g. north facing buildings, ceilings and thermal curtains and doorstops. This has allowed the most efficient direct access to sunlight for the life of the building thus reducing the demand for space heating. In addition the local

committee also trains/workshops the other beneficiaries on how these interventions can assist in reducing their dependence on electricity. The training team has been empowered to the extent that they were chosen to distribute geyser blankets, bulbs, etc to the city of Cape Town during the blackouts and are also invited to other Provinces to train communities in terms of ecological design, energy efficient products, community mobilization, etc.



Completed Product (north facing, overhangs)

3.2 KUYASA, KHAYELITSHA

The project is based on the utilization of sustainable energy interventions for low income housing. The project is being implemented by the City of Cape Town and is a Clean Development Mechanism (CDM) project which is contained within the Koyoto Protocol (protocol to the United Nations Framework Convention on Climate Change which intends to achieve a stabilization of greenhouse gas concentrations in the atmosphere). The CDM provides an opportunity to fund an investment in more sustainable energy services for low income housing. Improved end user efficiency and the use of solar energy for water heating will result in reduced pollutant emissions and measurable energy consumption savings. The CDM framework provides a revenue stream to the project owner which can assist in the financing of the energy interventions. Funding for the project was obtained from the Provincial Government of the Western Cape, the then National Department of Environment and Tourism (poverty alleviation funding) and the International Council for Local Environmental Initiatives. The project involves the delivery of 3 energy interventions viz. enhanced indoor comfort provided by insulated ceilings, solar water heating systems and energy efficient lighting to 2309 houses.



Houses with Solar Water Geysers

The energy interventions identified intends to address the highest priority energy needs and the interventions were developed on the basis of the most effective solutions for providing immediate improvements to the beneficiaries and in the levels of services provided.

Ceilings:



Insulated Ceiling

The system consisted of a Sisalation (as a radiant heat barrier), two air gaps and gypsum board (provide convective and conductive heat barriers) and wooden quarter rounds for cornicing (aesthetics and seal the ceiling space from the rooms). The system was chosen for its environmental sustainability, availability, affordability, familiarity of material among local artisans and suitability to alterations. The ceilings were installed by local artisans.

Solar Water Heating:

A 100 litre close coupled systems with integrated electrical backup heating elements was installed. Although the system is more expensive than others it allows for better overnight storage of hot water. These systems were also installed by local plumbers.

Energy Efficient Lighting:

The houses were equipped with two compact fluorescent light fittings – 1 on the inside and 1 outside the front door.

The people pay a percentage levy fee on a monthly basis for the use of the products. People are willing to pay for it because they have realized that will save a lot more money than if they had to purchase paraffin, etc. The benefits include thermal comfort, reduced health risks, job creation and skills training. The project provides an opportunity to enable low income housing developments to become sustainable in terms of energy efficiency, energy conservation and use of renewable energy sources.

3.3 FAIRVALLEY ECOVILLAGE, PAARL

Fairvalley is an initiative that was set up in 1997 by the Fairview Winemaking Company to facilitate the process of securing land ownership for members of the Fairview community and long serving members of staff. A piece of land adjacent to the Fairview property was purchased and 8 houses were built for core members of the association. The Fairvalley wine brand was also set up, with the funds generated from these sales going towards developing the land further. The initiative aims to develop housing aimed at the middle income groups either

on a rental basis or for sale. A certain percentage of these proceeds will go to the association and will be used for community projects e.g. community hall.

The project aims to utilize a certain percentage of sustainable alternatives in the development. The project team has realized that a high cost will be incurred if the entire project is to be based on sustainable technologies. E.g. grey water will be treated to the extent that it can be utilized in the gardens and for the flushing of toilets and not for drinking purposes. An urban design framework has been compiled which takes account of the area's character.

3.4 LYNEDOCH ECOVILLAGE, STELLENBOSCH

The village is the first ecologically designed and intentional socially mixed community in South Africa. The existing buildings on site were refurbished into a primary school for 400 children from farm worker families, a large multi-purpose hall, pre-school and the offices and classrooms of the Sustainability Institute. The housing development consisted of 42 erven 15 of which was allocated to subsidized housing structures and the remainder on commercially priced sites. The houses are constructed from adobe bricks (clay and straw sun-dried bricks). The lower income groups entered into an installment sale agreement and



Low Cost House

together with their housing subsidies and a housing loan from the Lynedoch Development Company (loan from DBSA) were able to build their homes. The village has incorporated ecologically designed infrastructure i.t.o water, roads, sanitation and electricity. The type of infrastructure includes:

- Water and stormwater

There is dual water supply i.e potable water direct from the main municipal water line and recycled water is supplied for toilet flushing and irrigation. Other interventions include water-saving taps, stormwater runoff is conveyed to a dam located on the site and an on site borehole.



Adobe Brick



Dual Water Supply System

- Household Effluent

The effluent is treated on site and the recycled water is re-used. As such the village does not rely on any bulk sanitation. In addition three homes are linked



Water Treatment Plant

to a biogas digester which captures the methane gas from household waste and the gas is transmitted back into the houses for use as cooking gas.



- Energy

Each structure is connected to the national electricity grid however, solar water heaters were installed, cooking is undertaken using low pressure gas hobs, space heating and cooling is achieved naturally through effective design (orientation, overhangs), low energy lighting in homes and streetlights powered by solar panels.



Solar Powered Streetlight

- Refuse



Separation of Waste

Households are required to separate their refuse into organic and solid waste (trained by the Institute). The waste is taken to a depot on site for further separation and is then sold to recyclers. The organic waste is processed and used as compost in the community gardens.



Vegetable Garden

The positive aspect of the development is that the assets acquired by the buyers of subsidized sites are worth a lot unlike the situation low income projects. The subsidized individuals are bound by severe restrictions on the sale of their property (must first be offered to the Lynedoch homeowners association and it

can't be sold at a lower market price). In addition, a savings and credit cooperative has been established within the community. It is a non-profit community bank that provides non-secured loans to the people based on their savings record.

4. LESSONS LEARNT/OBSERVATIONS

- 4.1 There is a need for greater participation by the beneficiary community in the housing process e.g. in Witsands the local committee is responsible for the daily operations of the project and as such have empowered themselves immensely.
- 4.2 People need to be workshopped on the interventions proposed so as to learn about it whether it is design related or to the physical product.
- 4.3 People must be made aware of the savings that they would incur if they choose to use the products and must also be willing to pay for the service or product.
- 4.4 The use of sustainable alternative technologies is gaining momentum in private as well as low income projects in other provinces. There is a need for developments in KZN to also start utilizing these sustainable and efficient technologies rather than relying solely on conventional technologies.
- 4.5 The models on which the Lynedoch and Fairvalley developments are based can be utilized to inform rural/peri-urban and farm worker housing projects in the province. This will also contribute to an increase in sustainability and economic development.

5. RECOMMENDATIONS

- 5.1 The utilization of alternative technologies in housing projects should be considered i.e. design interventions as well as physical products. Communities need to be made aware of the need and benefits of the interventions.
- 5.2 Linkages with initiatives such as the CDM project should be investigated. (See Annexure – Sustainable Energy Service Interventions for Low-Income Housing in Kuyusa, Khayelitsha)

- 5.3 Alternatives to current building structures e.g. inclusion of ceilings, solar water heaters and lighting should be introduced. However, as the subsidy does not cover the costs of installing these items beneficiaries should be made aware of the benefits of investing in it. However, linkages with NGOs/companies need to be made so as to make these items easily available.