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22 October 2009

Making it happen: Sustainability in the practice of German South African science cooperation – energy, environment and remote sensing

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Short note on Alexandra and sustainability

Alexandra is an anomaly and a microcosm. It is small suburb embedded in historically White northern suburbs of Johannesburg, unusual in that it was one of the very few urban areas of South Africa in which indigenous Black citizens held freehold land rights in the old South Africa. Despite the concerted efforts of the Apartheid regime to remove such ‘Black spots’ from the white cities, Alex resisted and prevailed in staying put. Residents of Alex played a central role in several of the pivotal protests against apartheid, including the women’s revolt against the pass laws, and the bus boycotts.

Located in the centre of the urban area and adjacent to major industrial and commercial centers, Alex has great attractions for job seekers. Originally designed for 70,000 inhabitants, Alex now has a population estimated at ~700,000. It is one of the most densely populated areas of Africa.

Neglected by Apartheid, with a population swelled by rural urban migration and natural growth, the infrastructure of Alex was and remains severely stressed. Roads, water, power and sewers have collapsed through overload and poor maintenance. Add-on housing resulted in several dwellings per residential stand, with buildings literally spilling onto the streets. Informal settlements intruded on almost every vacant space, including the banks of the Jukskei River. Seasonal floods and bank erosion result in frequent wash-aways and drownings, yet new waves of desperate migrants rebuild on the same unsafe locations. However, many of these houses could well qualify for green awards – *they are made entirely from re-cycled materials!*

One of the manifestations of poverty in Alex is energy poverty, defined as spending more than 10% of household disposable income on energy services. Most homes in the formal sections were electrified in the 1990’s. However, illegal connections to the power grid are extensive, especially in the informal sectors. In some areas, all power cables and infrastructure have been removed, as the illegal connections overload the transformers,

making maintenance of services impossible. Coal burning for cooking and space heating is still common in winter (as electricity is relatively expensive for these functions), while paraffin is used extensively for indoor cooking and lighting. Coal combustion results in poor air quality, with smoke (particulate) concentrations well above health standards (poverty consequence of poor energy infrastructure). In informal settlements, at the bottom of the economic pyramid, households often cannot even afford coal, and are dependent on wood. This wood is scavenged from urban tree prunings from the wealthier suburbs of Johannesburg, and from industrial packaging, forming the basis of a thriving wood-based energy sub-economy.

Use of paraffin stoves in crowded shacks poses a severe hazard of accidental fires. Large pots of food, balanced on top of small footprint paraffin stoves on rickety tables, result in frequent accidents. Paraffin stoves that do not automatically extinguish on tipping, ignite bedding and clothing. Due to the crowded housing, there are constricted escape routes and no possibility for access by emergency services. Accidental fires may often cause multiple dwellings to burn to the ground, with frequent deaths. This too is a poverty manifestation, resulting from limited access to **safe forms of domestic energy** and lack of education in basic safety procedures.

As part of the Mbeki Presidential Initiative following the WSSD in 2002, the Alex Renewal Project was initiated to upgrade the infrastructure and living conditions of Alex. As part of the tour of Alex, we will have the opportunity to view some of the poorest areas of Alex, and to see the benefits of the Alex Renewal project in transforming this iconic township of South Africa towards a sustainable future. External manifestations include paved roads, street lighting, new schools and clinics, and new suburbs of subsidised and affordable houses,

Notes compiled by Harold Annegarn
22 October 2009