



## **THE STRUGGLE FOR INTEGRATED SUSTAINABLE SETTLEMENTS**

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In South Africa, examples of sustainable human settlements, though promoted by government policies, are few and far between. This is primarily due to the continued predominance of old approaches to township planning, infrastructure and housing design, and a lack of cross-sector integration and collaboration. Planners seldom design neighbourhoods with a view to their long-term environmental, social and economic sustainability, and apartheid spatial constructs and financial constraints mostly overrule integrated approaches to holistically designed settlements.

This situation is exacerbated by the fragmentary approach to professional education, where engineers, architects, planners, social scientists and environmentalists are trained in isolation from one another. Few are trained to see settlements holistically as integrated, resource-efficient social and economic systems embedded in natural ecosystems. In most cases settlements are designed and constructed to squeeze as much infrastructure and as many low-cost, stand-alone units as possible out of a limited capital budget. This excludes designs and solutions such as renewable energy options, water and energy efficiency and waste recycling, which can result in significant cost-savings for households and municipalities over time, and can reduce negative environmental impacts and externalized costs.

The transition to more sustainable practices will not be easy, particularly in the low-cost housing sector, though the technologies and models are proven and available. Built environment professionals, government officials and community members all have a vital role to play in making the shift toward building more sustainable settlements and neighbourhoods. Apart from the above constraints, housing delivery agents face other challenges as well. Defining sustainability in settlement and neighbourhood planning can be a confusing and arduous task in itself. In South Africa, sustainable design principles and guidelines are a relatively recent development and there are few local examples that demonstrate their successful implementation and benefits.

Any settlement development or upgrading plan should include not only short-term physical and economic objectives, but long-term social, environmental and economic development goals that are agreed by all stakeholders in the particular context. According to Loots and Irurah (2005),

“... the absence of tools and mechanisms which systematically link sustainability criteria, targets and assessment outcomes with decision-making processes significantly inhibits the transformation from conventional to sustainability practice in the built environment.”



Though there are many challenges in rolling out integrated, ecological developments, things are beginning to change. In September, 2004, the National Department of Housing launched its new housing policy, Breaking New Ground (BNG), which aims to dramatically change the status quo.

BNG introduces a radical shift from the ‘quantity over quality’ mindset entrenched in subsidised housing delivery and points to participative, multi-dimensional approaches which enable people to become participants in creating sustainable human settlements, rather than being mere recipients of an RDP house (NDOH. 2004). Multiple funding mechanisms have also been introduced which enable the purchase of land, the roll out of infrastructure, varied housing finance options, housing typologies, and social facilities for vulnerable communities.

Other national and local responses to the need for the more sustainable design and construction of settlements include:

- Department of Environmental Affairs and Tourism guidelines promoting sustainability in municipal integrated development planning
- the establishment of the South African Green Building Council and packed audiences at national green building conferences
- the keen interest in Australian eco-labelling systems for building materials, which are being explored for adaptation in the South African context
- the increasing availability of green products, goods and services, and their promotion in mainstream media
- increasing numbers of professionals and ordinary citizens interested in sustainable alternatives



## THE NEED FOR SUSTAINABLE DEVELOPMENT

There is growing global awareness of the need for sustainable development to address the looming environmental problems of global warming and climate change driven by human activities, emissions and resource depletion. The outcomes of United Nations environment and development conferences include international agreements to implement sustainable development, signed by an overwhelming majority of nations. Sustainable development needs, principles and practices gained global exposure through the Rio Earth Summit in 1992 and were enshrined in the Agenda 21 and Local Agenda 21 Programmes.

Progress in implementing Agenda 21 and LA21 was reviewed and action programmes were drafted at the World Summit on Sustainable Development (WSSD) in Johannesburg in 2002. However, the implementation of legislation, policies and regulations that require sustainable planning and practices, and that hold municipalities, the private sector and consumers accountable for unsustainable practices has been a slow process in South Africa.



## DEFINING SUSTAINABLE DEVELOPMENT

The most widely accepted definition of sustainable development is “development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs” (WCED. 1987).

The UN Commission on Human Settlements states that “Sustainable human settlement development ensures economic development, employment opportunities and social progress, in harmony with the environment.” It incorporates the key principles of the Rio Declaration on Environment and Development (Agenda 21) and of the UN Conference on Environment and Development, i.e.:

- a precautionary approach
- pollution prevention
- respect for the carrying capacity of ecosystems
- preservation of opportunities for future generations.

Production, consumption and transport should be managed in ways that protect and conserve stocks of resources while drawing upon them. Science and technology have a crucial role in shaping sustainable human settlements and the ecosystems they depend upon. The sustainability of human settlements entails:

- balanced and appropriate geographical distribution in keeping with national conditions
- promotion of economic and social development, human health and education
- conservation of biological diversity and the sustainable use of its components
- maintenance of cultural diversity as well as air, water, forest, vegetation and soil qualities at standards sufficient to sustain human life and well-being for future generations.

## Sustainable Development Policies in South Africa

South Africa's national policy framework (DEAT. 2008) defines Sustainable Development as the: "...integration of social, economic and environmental factors into planning, implementation and decision-making so as to ensure that development serves the present and future generations." The framework goes on to say that "Sustainable Development that is appropriate and specific to the South African context will entail shared and accelerated growth, targeted interventions and community mobilization to eradicate poverty and ensure the ecologically sustainable use of our natural resources and eco-system services" (DEAT. 2008).

The South African vision is also guided by fundamental principles of democratic governance, social equity and human dignity, fairness and justice (DEAT. 2008). The framework includes the following principles:

- socio-economic systems are embedded in ecosystems
- basic human needs must be met
- long-term sustainability must not be overridden by short-term gain
- natural resources must be used sustainably.

The framework also lists the process principles of innovation, integration, participation and consultation, coupled with phased-in implementation (DEAT. 2008). This framework is rooted in premises of equity and maintaining the integrity of all forms of capital, so that economies, societies and the environment are protected. Key forms of capital are natural (environmental), social, physical (assets), financial and human capital.

DEAT has developed appropriate policies for environmental protection, pollution reduction and sustainable waste management, but implementation at local level has been slow. The Department of Water Affairs and Forestry (DWAF) has also developed excellent legislation and policies for the management and protection of

water resources, and to ensure water services and drinking water quality for all, but again the challenge is local implementation and compliance.

## SUSTAINABLE SETTLEMENTS AND NEIGHBOURHOODS

Shelter is one of the most important basic human needs, and throughout history people have built shelters and settlements using local and natural materials. In our globalised world modern technology, transport and access to abundant cheap energy have allowed us to access resources from great distances. However, these methods of manufacturing and supplying goods and services have compromised local social, ecological and economic systems, and have reduced the planet's ability to sustain the provision of limited natural resources.

Despite technological advances, the human need for shelter has not changed considerably. The modern challenge is to adapt technological solutions to reduce negative environmental impacts, while providing comfort, access to jobs and necessary services.

Sustainable design elements are found in vernacular architecture worldwide. According to the Vernacular Architecture Society of South Africa (VASSA), vernacular architecture is “Building in indigenous styles, constructed from locally available materials, following traditional building practices and patterns, and not architect-designed.”<sup>1</sup>

Simple, tried and tested, age-old principles which today would be termed “sustainable” have been around for centuries. There is a vast difference between old and modern settlements and house designs, but there is little evidence that modern SA settlement planning and building designs are healthier, more comfortable, less expensive, safer or more durable. Our challenge is to rediscover lost principles and select solutions which are appropriate to our climate, culture, ecosystems and social context, and combine these solutions with appropriate modern technological solutions.



<sup>1</sup> <http://www.vassa.org.za/intro.htm>

## THE PURPOSE OF THIS MANUAL

In December 2008 the Sustainability Institute and the National Department of Housing signed a Memorandum of Agreement for a joint three year programme to give effect to government's commitment to implementing its Breaking New Ground policy and sustainable settlement development.

Outcomes of Phase 1 and 2 of this programme include comprehensive skills development via training within provincial and local government, developing and sharing knowledge and experience through planning guides, handbooks, workbooks and other publications, and developing and sharing knowledge in areas of expertise such as:

- how to plan and develop integrated and sustainable communities
- sustainable technologies, construction methods and materials
- how to develop incentives for sustainable technologies
- how to promote sustainable local economic development
- how to measure sustainability

This manual serves as an output for Phase 1 of the above mentioned programme, and provides an overview of processes and interventions in the design and development of sustainable human settlements.

