

GREENER GOVERNANCE IN POTCHEFSTROOM: TOWARD A SUSTAINABLE FUTURE AT THE LOCAL LEVEL¹

An Innovations in Technology and Governance Case Study

In the midst of widespread poverty and environmental degradation, Potchefstroom, a mid-sized city in South Africa, has made remarkable strides in pursuing a sustainable development agenda that has created employment opportunities, streamlined energy use, and decreased greenhouse gas emissions. With the implementation of greener governance initiatives across Potchefstroom, the city has reduced greenhouse gas emissions by 25%, planted 4,000 vegetable gardens amongst the city's poorest residents, beautified neighborhoods with the planting of 4,000 trees, trained dozens of volunteers with marketable job skills, and reduced the city's expenditures on electrical power. Whether these results can be sustained in the midst of continuing political change and persistent economic pressures remains a critical challenge.

On an early morning in August 2002, 400 delegates attending the World Summit on Sustainable Development in Johannesburg lined up to crowd into buses and vans to visit a small South African city named Potchefstroom. Only a short time ago, few people had heard of this modest city in the North West province of South Africa. But within the last year, Potchefstroom had caught the attention of local leaders from around the world for its success in implementing a suite of sustainable development initiatives that had helped it reduce greenhouse gas emissions, create local jobs, and empower its poor. Under the leadership of Executive Mayor Satish Roopa and Professor Johann Nel, Potchefstroom had achieved dramatic reductions in greenhouse gas emissions while creating jobs and generating sources of income and food for thousands of its residents.

For years, city leaders in Potchefstroom had struggled with fiscal deficits, persistently high unemployment, widespread poverty, and worsening environmental degradation. Faced with these daunting challenges, the city council made a bold decision to pursue a radical and innovative path to sustainable development.

In 2001, the City Council joined the Cities for Climate Protection (CCP) Program of the International Council for Local Environmental Initiatives (ICLEI). The CCP Program is a performance-oriented campaign that offers local governments a framework for developing a strategic agenda and projects to reduce its contribution to greenhouse gas emissions that result in global warming. As a member of the CCP Program, Potchefstroom receives funding from DEA&T and USAID, management support from

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ICLEI Africa, and technical support from the Centre for Environmental Management at Potchefstroom University. With the institutional support of these partners, city leaders initiated a number of projects to pursue sustainable development while committing itself to dramatic reductions in the city's locally generated greenhouse gas emissions.

While the CCP Program offered high-level assistance, the actual programs and ideas that drove Potchefstroom's efforts were locally generated. Greener governance in Potchefstroom, as the suite of initiatives has become to be known, represented an overarching transformation in the way local leaders regarded energy use and efficiency in their city. Improved efficiency in the way energy was used complemented efforts to develop sustainable ways of improving the environmental health of the region.

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Project Description

Potchefstroom is a mid-sized city, located in the North West province of South Africa. Its population of 260,000 people is governed by a 40-person City Council, elected along party lines (presently 26 ANC, 10 DA, 4 Independent), and managed by an Executive Mayor (Councilor Satish Roopa) and a dedicated staff of city officials. It has a 37% unemployment rate.

After an extensive review process, the International Council for Local Environment Initiatives selected Potchefstroom as one of eight South African member cities for their Climate Protection program. The other member cities include Johannesburg, Pretoria, Cape Town, East London, Port Elizabeth, Kimberley and Saldanha. The CCP program provides local governments with a milestone framework, helping them identify their greenhouse gas emissions, set reduction targets and develop and implement action plans to reach their targets. About 20% of the CCP program's costs are paid for by USAID, while the remaining program costs are paid for by internal city council funds.

According to Potchefstroom Executive Mayor Satish Roopa, "By joining the international CCP program, the city administration demonstrates that it actively reduces the ecological footprint of its activities as far as greenhouse gas emissions are concerned. By improving the environmental quality in the city, I believe, the preferred type of investors will recognize Potchefstroom's environmental competitive advantage when investment decisions are to be made."

With the partnership of Professor Johann Nel, Director of the Centre for Environmental Management at Potchefstroom University, the city has pursued a range of activities aligned with the goals of the CCP program. Professor Nel demonstrates a deep and comfortable knowledge of environmental and environmental governance issues. He interacts easily with City Council officials, having earned their trust and respect, and helps guide their vision for the future. He is the founding chair of a highly active inter-

departmental council committee on environmental matters. His work focuses on scientific studies of local environmental challenges and on identifying explicit practical actions that are needed to address critical issues.

Among the activities of the program are:

- A large upgrading of street lighting in all residential, industrial, and commercial areas across the city to more energy efficient lighting systems: To date, over seven thousand 200-watt incandescent streetlights have been upgraded to more efficient 125-watt mercury vapor and 70-watt high-pressure sodium light emitters. Mercury vapor lights average 23% energy savings per streetlight, while high-pressure sodium light emitters save 50% per streetlight.
- Recovery of methane gas from the sewage treatment plant for use in powering the municipal incinerator: Once fully implemented, about 1000 m³ of methane will be recovered per day that would have otherwise been emitted into the atmosphere. The use of recovered methane replaces the conventional use of diesel in operating the incinerator.
- A tree-planting program, started in 1996: The effort has resulted in the planting of over four thousand new trees throughout the city. The project is linked to both job creation and skills transfer activities. The program is now set to expand and aims to plant 15,000 additional trees. It is probable that applications before the North West provincial government, the Department of Environmental Affairs & Tourism, the Belgian government, and USAID will result in the expanded program being funded by sources outside the city budget.
- The Potch Eco-Grow project: Initiated in March 2000, this project has provided 4,170 of the poorest households with a free basic vegetable garden at their home. It is an extraordinary and highly effective project that began when Dolf Swanepoel, a city horticulturalist, read about ex-President Mandela growing plants in a 44-gallon drum while imprisoned on Robben Island. Swanepoel then started experimenting with growing vegetables in small areas, began talking with nutritionists at Potchefstroom University, and then also with other university experts who could advise him on developing a watering system for small gardens.

Volunteers install the garden using municipally grown seedlings. With crop rotation, the garden provides sufficient vegetables to satisfy the total annual vegetable consumption needs of a household and enables it to generate income through the sale of vegetables. The garden is built around a unique system of seven interconnected plastic rings (slightly larger than a bicycle tire), through which water seeps and is delivered to the roots of plants. The unique piping of the water rings is connected to the outside stand tap for a limited period daily. The piping is made out of used car tires and plastic bags and was developed and is manufactured at Potchefstroom University. The garden system has attracted wide interest, has spread to some neighboring North West towns, and is being studied by nutritionists in the national Department of Health. Each installed garden also

contains a young Kei Apple tree, whose eventual fruits have exceptionally high Vitamin C content. The trees will also contribute to the reduction of CO₂ levels in the Potchefstroom area.

A team of women volunteers has been trained to cultivate the vegetable seedlings used in the project at the city garden. These volunteers also assemble the piping for the irrigation of the Eco-Grow gardens. Each garden, which covers a relatively small area, usually to the side of the house on the small plot, is extraordinarily productive. Within each of the seven rings, a lush variety of vegetables appears. There are currently 54 Eco-Grow gardens that have been installed by teams of unemployed volunteers. In addition to receiving valuable skills training, each volunteer receives a free lunch, and each group of ten volunteers gets R10 (~\$US 1.30) per installed garden. After installation, the garden begins producing vegetables in less than six weeks. Progress is monitored by the volunteers. The owner receives instruction on maintaining its watering system, rotating crops, developing compost, and how best to cook its produce.

The project was initiated in March 2000 on a R250,000 (~\$US 33,000) budget allocation from the city council. Its budget this year is R550,000 (~\$US 73,000).

- An on-going audit of the energy efficiency of all existing municipal: This has identified two waterworks as being major energy consumers and now is leading to the formulation of actions necessary to control their use of energy. In addition, the city council has introduced into its building contracts a compulsory clause that contractors must hire unemployed people from Potchefstroom and train them where necessary. Further, council building contracts limit the use of machines on its building sites, both to encourage the hiring of local labor, and to express sensitivity to environmental concerns.
- An encouragement of entrepreneurial development in waste disposal: This effort has resulted in the self-employment of some 17 people in small-scale businesses founded upon waste disposal and processing. One woman has developed a significant and profitable business that has enabled her to purchase two light delivery vans and provide casual employment to others.

These initiatives have resulted in significant reductions in greenhouse gas emissions while also providing important electricity cost savings for the City Council.

Measuring the Impacts of Greener Governance in Potchefstroom

Nel highlights the importance of the CCP program's initiatives in Potchefstroom, arguing that they have led to significant progress in the city's pursuit of sustainable development. He notes the harsh legacy of environmental degradation in cities, including some in South Africa, where environmental issues were left unattended. Nel also emphasizes the vital necessity of having the backing and commitment of government leaders at multiple levels if such programs are to succeed. In Potchefstroom, for example, city leaders were forced

to overcome the challenge of state government officials who were resistant to change and reform. There is general agreement that the enthusiastic support of the Executive Mayor, the City Council, and local officials has been critical to the success of Potchefstroom's greener governance initiatives.

According to Professor Nel, the strengths of the greener governance initiatives in Potchefstroom include:

- The innovative and creative combination of hi-tech and lo-tech approaches to addressing environmental and sustainable development concerns
- The logical and stepwise progression by which extremely complicated issues were tackled

The weaknesses he identifies include:

- A general shortage of capacity and skills in the city, which obstructs the pace of progress
- An unpredictable political environment where local leaders, including the Executive Mayor, are elected every two years. New and potentially unsympathetic elected officials could very quickly dismantle much of the progress made by the current administration.

Potchefstroom's greener governance initiatives constitute a well functioning greening program which, when benchmarked against 2001 base levels, has already led to a 25% reduction in greenhouse gas emissions. The program activities also have changed the way in which developmental issues are being defined in Potchefstroom by introducing a green perspective into the planning and work of the City Council.

Potchefstroom's activities have gained it widespread international recognition. In addition to the recognition the city received at the World Summit on Sustainable Development, the United Nations Environmental Program has asked Nel and his Centre to use the experience gained in Potchefstroom and apply it to ongoing activities in North Africa and Central and Eastern Europe.

As Satish Roopa steps down as Executive Mayor in October 2003, the city is working to codify by-laws and regulations related to its greener governance programs. Whether Potchefstroom's impressive results can be sustained in the midst of political change and persistent economic pressures will remain to be seen.
