

The Naledi3d Factory

Improving Municipal Service Delivery through Interactive 3D training



June 2010

SAFIPA (South African Finnish Partnership on ICT) has awarded a second grant to the Naledi3d Factory in June 2010 for to address aspects of municipal service delivery in South Africa.

It is well known that Local government in South Africa is facing significant service delivery challenges. While this is underpinned by many root causes, service delivery protests in many communities highlight the communities' frustration – and their response. The SA Government has placed a priority on addressing the situation, but new, innovative approaches are required to help ensure an effective turn-around.

Overview

This project is certainly innovative, and can potentially have that significant impact. We will be looking at the issue from two angles, one which addresses decision-making at the strategic level and the second, at potable water wastage at the grassroots level:

1. **Municipal management decision-making:** building on our recent exploratory work on *SimCity* with SAFIPA, to develop a first version of a *localised* version of *SimCity* that can be used in training interventions with senior municipal administrative and political decision-makers and thus, improving management, planning and decision-making skills.

The project includes the replacement of the typical American buildings found in *SimCity* with those found in typical SA rural towns, adjusting some of the game variables and piloting the outcomes within a local municipal environment.



2. **Resource management:** poor maintenance has led to a deteriorating infrastructure and a major waste of scarce resources. In this project, we will look at the issue of **potable water losses** in domestic households and will create a set of *i3dlo's* that show how to replace faulty washers and seals in domestic taps and cisterns - by *showing* how to replace faulty washers.

The resulting *i3dlo's* will be piloted by the projects project partner, Daniel Lentle, who will work with selected water authorities / municipalities - and with their local community intervention initiatives.

The development of a localised SimCity

In September 2009, SAFIPA approved funding to explore the potential of the use of "SimCity" as a town management training tool. Over 200 *SimCity* "lots" were replaced and some inappropriate buildings removed. The feasibility of changing other variables and artefacts was also explored. This project proved that *SimCity* could indeed be localised to approximate a typical SA town, thus giving *SimCity* a local CONTEXT.



SA - small Church

SimCity simulates a town with residential, industrial, and commercial zones. The town can grow, or decline, depending on decisions taken. Based on mathematical models, it is supported by a budget, taxation and menu system that allow the Mayor to pay for new infrastructure such as roads or hospitals, while balancing community and budget pressures, avoid problems and maintain growth.

SimCity can be used as an innovative hands-on simulation tool that can help in the training of local town councillors, Municipal Managers and others by simulating the development of a town, with a mix of residential, retail, light industry etc.

This can subsequently be used to help decision-makers better understand spatial development in a municipal context and the consequences of decisions when allocating scarce resources in a financially constrained system.

The major drawback of *SimCity* is that buildings are based on US architecture.

The objective of this project therefore is to develop a local visual context for *SimCity* and the completion of a first working version is the main outcome. The second objective will be to draft Facilitation Documentation for trainers; whilst the third objective will be to engage with training providers that offer management training services to municipal decision-makers, (train the trainer) as identified with municipal stakeholders



SA - small High School



SA - low cost housing



SA - Spaza shops



SAPS police station

Potable water wastage

Most of South Africa is semi-arid and receives little more than half the world average annual rainfall. According to WWF-SA South Africa is using 98% of its available water resources, while the options for expanding on engineered water security solutions are declining.

Reducing water wastage is crucial to any conservation strategy and from a municipal perspective, reducing wastage that has already been treated and supplied, more so. Awareness campaigns do exist, but incorporating innovative, interactive 3D graphics to actually show users how to reduce water wastage from leaking taps and cisterns (by replacing a R3 washer!) will add substantial new value.

Considerable amounts of potable water are also lost through inappropriate consumer behaviour and poor maintenance. In Munsieville, Klerksdorp, a water audit revealed a loss of over *16 million litres* of water a month, mostly due to leaking taps and cisterns. An ongoing education programme and repair work is reducing these losses, demonstrating clearly that educating consumers is vital to conservation efforts. Without this knowledge, consumers aren't in a position to take action, by understanding how simple the replacement of a tap washer is, the chances of people doing so is much higher.

This project will result in the development of *i3dlo's* that show how to replace washers in domestic taps and cisterns; and also work with Mr D Lentle (water training consultant) who will plot the learning material in municipal and water authority training interventions.

http://www.naledi3d.com/new_i3dlo/home.html

Six focused simulations will look at how to replace washers in leaking (dripping) garden brass taps, interior chrome bib tap, interior 15mm sink tap and 22mm bath tap and shower stop-taps; and repairing faulty seals and valves in cisterns.

Each *i3dlo* will show (1) how the tap works; (2) tools needed (3) examples of bad washers and (4) the steps involved in disassembling / reassembling the tap unit to replace the washer.



Mock up of how a brass bib-tap may look