Science helps Eastern Cape village deal with future disasters

Paula Hay

Measuring social vulnerability and risk in relation to water and infrastructure in the Eastern Cape town of Cala has revealed specific vulnerabilities, causes and ways in which the town could address future community needs. Article by Erin Bosenberg and Paula Hay.

Situated in the Eastern Cape hinterland, the rural area of Cala is likely to experience severe drought every ten to twenty years. Most of the villages in the area are served by groundwater, and are susceptible to seasonal drought (when springs dry up). When this occurs the municipality pumps or trucks water to tanks scattered around the village, however, when this is not done regularly or when insufficient water is pumped, the effects of drought are felt more frequently and severely, as has occurred in the last five to ten years.

The situation has been found to be worst in the village of Tsengiwe, which receives its water from three springs (the latest two of which were brought on line in November last year). Water is stored in a large tank and transported through pipelines to a series of standpipes. Each of these taps is shared by up to 40 households. When the springs run dry the municipality fills the water tank manually by truck, however the two available trucks have found to be insufficient to feed the present water demand.

A specific methodology, tailored by hydrogeology and disaster risk reduction company Umvoto Africa, was applied for this case study and included literature research, interviews and fieldwork. The case study formed part of a larger project funded by the Water Research Commission to investigate the social vulnerability of people and their livelihoods as well as their response to water infrastructure.

The UN/ISDR's Hyogo Framework for Action (HFA) was also integrated as an important element identifying key indicators. The HFA is a practical global blueprint to make communities more resilient to hazard and disaster, thus preventing loss of life and infrastructure, economic loss and negative social impact. Results of the Cala case study were presented in a report providing identification of necessary steps to further reduce risk and increase community support and growth.

The Masiphile Project in Cala was found to be a key resource for the most vulnerable, with a specific focus on support for those infected with HIV/AIDS. The project is made up of a small group of women in the upper and lower outlying village of Tsengiwe. All women volunteer their time and, although not designated as a disaster risk organisation, are often involved with water distribution. "We are not involved in disasters," said a Masiphile member, "but we go to people with tanks during drought periods and ask them for water for those that don't have it."

Infrastructure and institutional support within the Sakshisizwe Local Municipality containing Cala and outlying villages is present, but communication between institutions is divided, operations and maintenance lacking, and infrastructure scattered. Umvoto's fieldwork was focused on the upper and lower village of Tsengiwe, which provides good representation of other nearby Cala villages. In Tsengiwe there is little economic activity aside from a few trading stores and some agricultural activity. There is one clinic, but

it is short staffed and many community members have little trust in its management, and so do not take advantage of services.

Institutionally there is little communication between the Sakhisizwe Local Municipality water services department, integrated development department and municipal disaster management personnel. This communication gap provides a perfect breeding ground for higher risk, resulting in unaddressed vulnerability. In particular, disaster management personnel, while holding one or two meetings each month at schools and for the community, are not involved in preventative measures related to drought. "We do an assessment of damage but no risk assessment before disaster. Just early warning," said disaster management staff member Nomgqibelo Niwzi.

Cala's community radio station, Vukani Community Radio, used to send out important weather warnings, but is no longer doing this. "We send reporters to major events such as disasters but we don't do early warnings," said station manager, Xola Mozewi. "The radio used to make weather announcements and the previous district communication officer would make announcements and send SMS [messages] to community leaders for announcements to be made."

During the data-collection phase of the project some problems were encountered. Some data had not been collated and so did not exist, some data were unavailable for research purposes (not given) and communication with responsible authorities was arduous and inaccessible. Despite these problems data were gathered from the following sources:

- Statistics South Africa
- District and Local Municipalities and non-governmental bodies
- Field work.

Based on a thorough investigation, available data and an assessment through all available means, the following key indicators were identified as strategies to decrease vulnerability and strengthen communication and community infrastructure:

- Decrease in sickness, deaths and property damage
- Increase in education material on hazard mitigation
- Communication strategies in place for early warning
- Decrease in response time to disasters
- Increase in number of projects with community members as partners
- Number of community members on steering committees
- Increase in community attendance of meetings
- Improved understanding of information by public.

The make-up of the Sakhisizwe community, in terms of age distribution and HIV/AIDS infection, is particularly relevant to the community's economic development and social stability. With 45,6% of the population below the age of 19, and 34,5% below the age of 15, there is a high demand for more educational facilities and resources.

Following this trend are high unemployment rates with very few supporting very many. Many elderly people support children with their old age pensions and child grants (approximately 20% of people rely on social grants as their primary source of income). Health-related data and infection rates were difficult to obtain but, based on provincial statistics, the HIV/ AIDS infection rate in the area is estimated around 50 to 80%. Without the added infrastructure and intensive institutional support the population of Cala and outlying suburbs cannot become a sustainable resource for development in the area.

Drought periods and a lack of access to adequate water, coupled with societal vulnerability, form a base by which the latter is sustained and could get worse if not addressed by community and government effort.

Coping capacity is a key element of risk reduction that needs to be improved upon. At the local municipality level a hazard monitoring database exists but is not well maintained; while the water services department and disaster management personnel claim to hold community meetings, disaster risk reduction is not mentioned in their Integrated Development Plan. Despite the Masiphile project's dedication and ability to bring down HIV/AIDS infection, their continual efforts should be complemented by others.

By virtue of necessity the Masiphile Project volunteers are already forming informal communicative ties between lesser and more privileged community members via informal water distribution. The Masiphile Project is a particularly significant resource in Cala and could become a community catalyst to obtain Key Outcomes: Reducing vulnerability and increasing coping capacity through social elements and improving communication. ❑

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Left: *Tsengiwe village Headman, Nsimphiwe MsenGana.*

Below: *Water trucks are used to bring water to residents in times of drought.*