TEACHING THROUGH PLAY:
New game educates rural communities on risk

Courtesy of Umvoto Africa

Earth sciences consultancy Umvoto Africa has developed a game, called Riskopoly, as a facilitation tool to discuss risk and preparation for climate change in rural communities. It can be adapted for use in any community dealing with natural hazards, and is particularly useful where literacy levels are low, as it is experiential. Article by Paula Hay and Rowena Hay.

The southern African region is considered one of the most vulnerable in Africa to climate variability. Temperature records in Southern Africa reveal that over the last decades the region has experienced a warming trend. In part this is due to the region's high social vulnerability and low adaptive capacity. In South Africa, the most common natural hazards are floods, storms, wildfires and drought. South Africa has an average rainfall of less than 500 mm per annum, which is comparatively lower than the world average of 860 mm. As this rainfall is unevenly distributed, 65% of the country receives less than 500 mm of rain annually. This is considered the minimum for successful dry-land farming.

At the national level in South Africa, a number of legislative and policy measures have been developed which stipulate that water is to be managed equitably, sustainably and efficiently. Further to this, the National Water Resource Strategy 2 (NWRS 2) also recognises the increased threats posed by climate variability and advocates the implementation of disaster risk reduction (DRR) and climate change adaptation (CCA) strategies. At the local level, there is also an urgent need for good governance and a participatory approach to managing water resources and undertaking DRR and CCA initiatives.

Earth sciences consultancy, Umvoto Africa, was commissioned by the Water Research Commission (WRC) to undertake a study on community CCA planning. The purpose of the study was to gain an in-depth understanding of the rural challenges of adapting to climate change, to understand the role of community-based organisations (CBOs) and community-level coping strategies, and how to cohere and optimise these with local and district municipal resources and initiatives and sustainable water services.

From 2012-2013, the Umvoto study team engaged with the rural Eastern Cape community of Tsengiwe in conducting a local level risk assessment and undertaking planning for CCA. This took place during three community workshops held within this two-year period.

Tsengiwe is located within the Sakhisizwe Local Municipality (LM), a water services provider within the Chris Hani District Municipality (CHDM) in the Eastern Cape. At the district municipal level, the CHDM Water Services Authority (WSA) is tasked with implementing water supply schemes. It has been declared a drought-affected region, and the need to tackle the issue of climate change through an adaption and DRR programme in the area has been recognised.

As elsewhere in the Eastern Cape, Tsengiwe suffers from limited long-term disaster planning and coordination between water services and disaster management at the local municipal level. In villages such as Tsengiwe, this lack of planning compounds the exposure risk of communities.

It was the view of Umvoto that grassroots or community involvement in climate change adaptation planning and implementation would be critical, coupled with the need for effective service delivery.

The study identified the need for the development of a common vision and purpose from village to DM level to improve assurance of water supply, particularly developing resilience at village and household level through efficient use of water and sustainable use of land. In order to achieve this it was necessary to map the community's water sources, reticulation, storage and the municipal service delivery process. Study outcomes included:

- Creating plans to undertake disaster risk assessment at a community level;
- Catalyse community-led CCA and other DRR measures;
- Strengthen partnerships between the community and LM, District Municipality (DM) and provincial and national stakeholders, and local mentors;
- Monitor study progress and evaluate the impacts of community CCA initiatives; and
- Produce video documentation of the study.

The study was informed by theories around Participatory Action Research (PAR). This involves a spiral of self-reflective cycles of planning a change, acting and observing the consequences of the change, and reflecting and re-planning. The adaptive process of PAR was applied throughout the study through specific techniques such as Participatory Rural Appraisal (PRA), Constructive Dialogue, and Participatory Mapping.

Undertaking a risk assessment at a community level involved gathering information from the community on the hazards and risks they face and how these have changed over time. The fundamental idea of action-reflection learning is to bring people together to learn from each other's experiences. There is emphasis on "studying one's own situation, clarifying what the organisation is trying to achieve and working to remove obstacles".

In Tsengiwe the first task was to

"The Riskopoly game highlighted the importance of doing risk management and the consequences of not doing so."

(courtesy of Umvoto Africa)

The Rolypoly playing cards.

determine which hazards would be the focus of the study. Through PRA techniques, the community ranked the hazards they faced. The research team then shared information on risk and hazards with the community. Together, they and the community defined the hazards that would be the focus of the study and looked at the potential benefits and pitfalls of different activities and how to deal with political sensitivities around various issues.

A disaster risk assessment undertaken by Africon in 2009 for Chris Hani District Municipality used local municipalities as the unit of assessment. This influenced the hazard types identified for the assessment as well as the vulnerability and coping capacity, and hence risk assessment. This scale of risk assessment informs the perception of risk at DM and LM level, and will also inform prioritisation and roll-out of risk reduction activities by local government.

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Buy-in to risk reduction activities requires that, so far as possible, risk perception and risk assessment are aligned and agreed upon (during and/ or after due process) between government levels (traditional and local) and the rural population. Community hazard rankings and specialist hazard assessment formed the springboard for discussions around actions that could be carried out by local municipality and community members. Discussions were also centred on those actions that were necessary but would need the support of external agents; be this through planning, direct government intervention, or funding.

The community level risk assessment was challenging, due to the community's fusion of hazard and risk. For example, drought was perceived as one of the worst risks by the community. However, they considered risk on the basis of the hazard they experience as the worst, as opposed to that which occurs most often or most severely.

However, land degradation, ineffective governance by local and regional leaders, and limited service delivery also contribute to exacerbate drought and the problems experienced by the community. In this instance mitigation measures related to actual temperature and rainfall changes might not be effective if the causes of the increased impact of drought were not addressed.

The question of scale was also important to address, in order to prioritise climate change planning and strategising. The CHDM highlights snow and strong winds as priority hazards for Ward 4 of the Sakhisizwe LM in which Tsengiwe is situated. It is likely that these are both significant hazards at the ward level, but the community of Tsengiwe does not consider snow and strong winds to be as pressing because of the more urgent need on a local level to address issues of drought and water and food insecurity.

RISKOPOLY GAME

In line with the PAR approach, a game was designed by the Umvoto study team in order to provide an experiential basis from which to discuss risk. The game, called Riskopoly, was used as a facilitation tool with the Tsengiwe community to highlight the need to prepare simultaneously for several different unpredictable hydro-meteorological hazards. In the context of PAR, games are valuable tools for applying insights as they will have a different outcome each time they are played.

Riskopoly provided a real-life and experiential basis from which to discuss risk and unpack issues of scale and of defining hazard and risk. The process highlighted the role of games in increasing community understanding of slow onset disasters and how to prepare for multiple hazards simultaneously in order to reduce compound risk.

The game requires players to strategise investments and spending. It developed the community's insights into the difference between a risk and a hazard and the value of risk reduction. Players in Tsengiwe were divided into four teams of four to six players. Each team elected a team leader to do the buying and selling of products.

Players clearly understood the rules and after the second round, when the implications of not having a particular item that provided hazard protection were felt, the excitement grew. It was apparent, for example, that a water storage tank is an essential item and three out of four groups purchased one in the second round. The other items became relevant as the game progressed and different hazards occurred.

Players were also able to earn money by having a water tank: by the end of the game it was understood to be an important investment, as the returns extended beyond drought scenarios. With the loss of certain protective measures, which some teams had invested in (as game penalties) the competitive spirit grew. It also became harder after each round to regain losses, particularly without the correct products to protect against hazards such as drought, flood or frost. Adaptation in the event of a hazard was also important and informed the inclusion of a buying and selling round which enabled players to re-evaluate their decisions.

The Riskopoly game highlighted the importance of doing risk management and the consequences of not doing so. The process of playing the game and feedback from the participants highlighted the necessity of cooperative team work.

The feedback from the game indicated that players had gained insight into key elements of risk reduction. Feedback included:

- Have back up – hazardous events will occur;
- Prioritise what you want to buy and invest in;
- Work together; and
- Spend wisely and select important items.

It was interesting that teams in the Tsengiwe pilot game did not partner up with each other. This option illustrates the importance of cooperation and the potential benefits of pooling resources. However, the competitive spirit of the game served to heighten excitement. Throughout the workshop the game and insights gained by players and the study team continued to serve as a touchstone for real life examples. Playing together as a community can also serve to restore a sense of solidarity and joy and perhaps the most important conclusion, voiced by game players, was that cooperation and working together was essential in mitigating risk.

Games serve to expand the range of possibilities with which people can act by creating an alternative world of imagination, based on real life but freeing players up to consider new possibilities that may have been dormant within everyday awareness.

It is argued that it is precisely because humans have the capacity to imagine their world in multiple ways that they feel hopeless when they are blocked from doing so. One of the roles of the catalyst or change agent is to restore people's sense of their own resources and capacity to respond to the world in which they find themselves.

Change agents should first strive to understand the world in which people live and then see possibilities of responding to that reality. It was in light of this understanding and a drive to move away from linear patterns of thinking that the research team used Riskopoly to stimulate imagination and insight, as well as introduce the energy of fun and possibility. Games facilitate entry into an alternative world of imagination. The imaginary world of play, however, always happens within the world in which people live their daily lives. As games happen within the world of the players they have the capacity to affect them in reality. Rather than just mirroring reality, games imply that something new can arise, wherein lies their power. Games can thus help players discover something new within a known context.

The game can be adapted to different circumstances and hazards but, given its success, is recommended for adoption as a participatory tool. In combination with other participatory tools, the game facilitated the interaction between scientific and local knowledge and brought about new insights for both the Umvoto team and Tsengiwe community.

Coupled with the game, the Umvoto team facilitated communication between Tsengiwe and the Sakhisizwe municipality, the DWA, DRDAR, Department of Environmental Affairs and other officials in order to gain their support with and input into the climate change adaptation processes initiated within and by the Tsengiwe community. The team further facilitated links between Tsengiwe and nearby school greening projects, Mbewula and Three Crowns.

These measures all served to catalyse an evaluation of risk reduction measures that could be undertaken at the community level, culminating in community CCA Plans, each led by a committee and a committee leader. The community progressed from expectations of receiving and moved towards aspirations and documented ideas on what they can do. References available on request. ❑

Courtesy of Umvoto Africa

Members of the Tsengiwe community playing the game.