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The Tlokwe City Council Dolomite Management Desk: a communication and relationship management perspective

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ABSTRACT

Two-way communication and strong relationships between government and affected communities are necessary to enhance the latter's resilience to disaster risks. The Tlokwe City Council (TCC) in the North-West province, South Africa, is facing a dolomite and sinkhole disaster risk that threatens the safety of several residential areas, including informal settlements. A dolomite disaster risk reduction (DRR) management system such as the TCC Dolomite Management Desk (DMD) can be used to facilitate two-way communication and strong relationships between government and the affected communities. Semi-structured interviews with two different groups of people were conducted and the responses evaluated to determine in what way DRR communication via the Tlokwe DMD served to establish strong relationships between the TCC and the affected community. It was found that the two groups of interviewees had contradictory views on the risk communication and quality of relationships as facilitated by the Tlokwe DMD. These views illuminated the predicament of communicating about the dolomite and sinkhole risk. The Tlokwe DMD is unique in South Africa and its ability to enable communication and strong government–community relationships needs to be developed further. Recommendations are made in this regard.

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1. Introduction

Communities in developing countries are increasingly more prone to natural disasters (Faulkner & Ball, 2007, p. 71; Hewitt, 2013; Spence, 2004), yet their disaster management practices may not be sufficient to deal with disasters (Olorunfemi & Adebimpe, 2008; Olowu, 2010). Olowu (2010, p. 304) reports that weak government infrastructures, the absence of appropriate legal and policy frameworks and inadequate resources contribute to make poor countries vulnerable to disasters. The lack of effective disaster risk governance is evidenced by corruption, appointment of high-level managers on political rather than professional criteria, incompetence and concomitant inappropriate actions, official neglect of disaster preparedness and an underestimation of the severity of emergencies (Olowu, 2010, p. 313).

For such reasons there has been a decline in public trust in government,¹ also evident in the sphere of managing disaster risk (Abraham, 2011; Peters, Covello, & McCallum, 1997, p. 43; Raju & Van Niekerk, 2013; Trettin & Musham, 2000; Wiggill, 2013; Wiggill, 2014).

Vulnerability² to risk can actually increase if a community does not follow appropriate advice and procedures as communicated by government. This communication should, however, emanate from a trusting relationship between government and the affected community. Without trust, the likelihood of an affected community to follow guidelines aimed at managing disaster risk is minimal, according to Abraham (2011, p. 3). Indeed, inadequate communication has been identified as a major obstacle in reducing disaster risk (Raju & Van Niekerk, 2013; Wiggill, 2013).

Lists of actions aimed at countering risks are viewed as part of ‘communication management’ in the disaster management literature. These lists focus mainly on technical actions and media engagement, thus promoting a one-way flow of information (Littlefield et al., 2012, p. 248; Radford & Wisner, 2012 (in Wisner, Gaillard, & Kelman, 2012, pp. 761–771; Olowu, 2010, p. 312)). Le Roux (2013) posits that strategic communication management as a discipline (that entails more than one-way communication) can enrich communication practices during times when communities face a disaster risk. Le Roux (2014) therefore suggests that communication management should form part of DRR, response, recovery and rehabilitation.³ This implies that communicating the risk should be viewed as a strategic management function, operating from a *two-way communication paradigm*, aiming to build *strong relationships* between all parties involved (Wiggill, 2013, p. 8).

In this paper, I argue that *trust* in government or, with reference to the focus of this article, city councils in which disaster risk prevails, can be increased by managing communication in order to build a strong *relationship* between the local authority and the affected community. The argument is presented by first discussing how a *two-way communication* and *relationship management* perspective can contribute towards communication theory as it applies to DRR. The case of the Tlokwe Dolomite Management Desk (DMD) is used to indicate how such communication can contribute towards building trust-relationships between a city council and an affected community.

2. Two-way communication and relationship management

Strategic communication is a management function that establishes and maintains mutually beneficial relationships between an organisation and its strategic stakeholders.⁴ Strong organisation–stakeholder relationships help the former to manage its interdependence with the environment and to achieve its goals (Cutlip, Center, & Broom, 2000; Grunig, Grunig, & Dozier, 2002; Jahansoozi, 2007; Ledingham & Bruning, 1998; Steyn, 2007). Communication and relationship management are particularly important when the environment is unstable and changing (Steyn, 2007), as is the case when communities are facing disasters.

The strategic value of communication management is lodged in the use of programmes towards the development and maintenance of strong relationships with stakeholders (Grunig et al., 2002, pp. xi, 95, 548). In such programmes, stakeholders are viewed as equal partners in the relationship and are given the opportunity to engage with the organisation in a two-way communication situation (the principle of reciprocity applies). Such communication allows the organisation to *understand* stakeholders’ views and needs, and to demonstrate that understanding by acting accordingly.

The outcomes and indicators of a strong relationship are trust, mutual control, commitment and relationship satisfaction (Hon & Grunig, 1999). Trust refers to one party's level of confidence in and willingness to open itself to the other party. Trust has three underlying dimensions, namely integrity, dependability and competence. Mutual control, in turn, refers to all parties involved in the relationship and means that everyone is afforded the opportunity to participate in decision-making processes. In this way, all participants have some level of control over situations that affect them. Commitment, furthermore, entails that the parties involved feel that the relationship is worthwhile. Finally, the level of relationship satisfaction refers to the extent to which participants feel that they are benefitting from the relationship.

There are several cultivation strategies that can be applied to build strong relationships. These include, among others, providing stakeholders access to information and decision-making processes; openness and disclosure of important information; building networks with the same people or organisations with which stakeholders have networks; cooperating with a view to grow a mutually beneficial relationship; sharing tasks to solve problems together; keeping promises so that the organisation can demonstrate dependability and competence (these are both dimensions of trust); and being positive about the legitimacy of the relationship (Hon & Grunig, 1999).

Ledingham and Bruning (1998, p. 63) propound that stakeholders will only trust an organisation when its involvement and support of its community are known by the stakeholders. The latter's expectations are therefore managed when the organisation ensures that stakeholders know that it has delivered on its promises. Communication alone cannot sustain long-term relationships, and is therefore dependent on supportive organisational behaviour (Ledingham, 2003, p. 195).

3. DRR communication

According to Lundgren (1994, as quoted by Trettin & Musham, 2000, p. 410), risk communication refers to 'a purposeful exchange of information and opinion among individuals, groups, or organizations regarding ... hazards'. Lundgren and McMakin (2013, pp. 2–4) distinguish between care, consensus and crisis communication, where the latter is most applicable to this study. Such communication serves to 'inform and encourage groups to work together to reach a decision about how the risk will be managed (prevented or mitigated)' (Lundgren & McMakin, 2013, p. 4). Stakeholder participation is encouraged in consensus communication.

Hunka, Palmqvist, and Forbes (2015, p. 173) note that risk communication can be divided into three parts, namely, the content of the information, the communication process and the reasons for communication. Demeritt and Nobert (2014, p. 313) quote Leiss' (1996) definition of risk communication as 'the flow of information and risk evaluations back and forth between academic experts, regulatory practitioners, interest groups, and the general public'. Demeritt and Nobert (2014) conceptualise risk communication according to four models, namely the *risk message model* in which risk communication is viewed as a one-way process from a sender to a receiver; the *risk instrument model* in which risk communication is 'a conscious instrument for changing the attitudes and behaviour of message recipients' and 'a strategic exercise of power designed to further the interest of some groups by influencing the attitudes and behaviours of

others'; the *risk dialogue model*, which is based upon two-way communication, but which does not define who should be included or excluded in the dialogue; and the *risk government model*, where communication is viewed as 'an exercise of political power' and an 'instrument for bending others to the will of the risk communicator'. Some of the aims of risk communication are to influence stakeholders' perception of and trust in government positively; to manage information and opinions related to real and perceived hazards; to inform the public systematically with a view to enhance their understanding of the risk; to elicit desired outcomes such as increased awareness, attitude and behaviour changes; and to provide information in an understandable language and format suited to the specific target group (Fitzpatrick-Lewis, Yost, Ciliska, & Krishnaratne, 2010).

Numerous studies have found that building trust is a crucial factor in communication aimed at reducing the risk of disasters (Abraham, 2011; Fitzpatrick-Lewis et al., 2010; Hunka et al., 2015; Peters et al., 1997; Trettin & Musham, 2000). Whenever people perceive themselves as being at risk, they follow only messages emanating from sources they perceive as trustworthy and credible (Lundgren & McMakin, 2013, p. 20). Frewer (2004, p. 393) adds that if the community do not trust a specific source of information, especially when they perceive this source as promoting its own interests, the information will influence people's attitudes in the opposite direction. The ability to care or to show empathy is the most important factor that can increase the organisation's credibility and trustworthiness (Lundgren & McMakin, 2013, p. 20).

Peters et al. (1997, p. 43) posit, with regard to environmental risk communication, that trust can be inculcated if the communicating agency, such as the city council in the context of this study, is viewed as being knowledgeable and having expert insight about the disaster risk; as being open and honest about it; being concerned and caring about the affected community; and committed to help the community to manage the risk it faces. It is evident that these factors overlap with the outcomes of strong relationships, as discussed above. Furthermore, demonstrating concern and care for the affected community enhances relationship satisfaction and demonstrates commitment. Peters et al. (1997) found that an increase in public perceptions of government commitment results in increased perceptions of trust and credibility. Trettin and Musham (2000, p. 422) claim that trust in government and disaster risk communication can be enhanced if 'a basis on which to attribute responsibility, determine credibility, and develop some sense of control over complicated issues' is provided. This requirement implies that affected communities have a need for mutual control over their situation, indicating that if government plans DRR communication by focusing on strengthening the outcomes of strong relationships, they should be viewed as being more trustworthy.

In contrast, affected communities distrust the 'political' nature of especially environmental disaster risk management, 'by which they meant lack of honesty and slowness to take action on the part of the county, state, and federal government ...' (Trettin & Musham, 2000, p. 420). Abraham (2011, p. 3) argues that risk communicators should take political and economic issues into consideration in planning disaster risk communication, since these can affect the outcomes of the communication process adversely.

A number of communication needs of communities that are affected by disaster risks have been identified (Fitzpatrick-Lewis et al., 2010, p. 13; Frewer, 2004, p. 392; Trettin & Musham, 2000, pp. 420–422). These needs include that communities require clear, open information from a 'particular facility, not filtered down through government or the

media'; furthermore, they want access to information as well as opportunities for participation, implying two-way communication. They also feel that communication aimed at reducing disaster risk should have a citizen focus, doing away with top-down communication practices towards being more consultative, transparent and inclusive. Also, they want reliable rules and procedures regarding the management of the disaster risk; and they feel that these procedures should involve them in decision-making, thus underlining communities' need for two-way communication and mutual control.

It has been found that failure on the side of government to communicate about uncertainty *increases* public *distrust* in institutional activities designed to manage risk (Frewer, 2004, p. 394). It follows that providing the affected community with access to information and decision-making processes as well as communicating openly with them should contribute towards building a strong relationship between all parties.

The discussion above suggests that two-way communication as well as relationship management theories can be used towards building strong, trusting government–community relationships. Risk reduction strategies developed from a two-way communication and relationship management perspective is subsequently applied in the following case of the Tlokwe DMD.

4. Case study

The Tlokwe City Council⁵ (hereafter TCC) in the North-West province, South Africa, is facing a potential disaster in the form of dolomitic land that poses the risk of sinkholes forming. The term 'dolomitic land' describes areas underlain directly or at shallow depth by dolomite. Dolomite is classified as a type of carbonated bedrock, and due to its chemical composition, it dissolves more easily in water and acidic water than other rock types (Potgieter, 2012, p. 3). Usually the dissolving process takes millions of years, however, the natural process can be accelerated by human activities, since dolomite is highly vulnerable to the effects of water infiltration (Potgieter, 2012, p. 3). Rain water and water from deficient sanitation and drainage systems leak into the dolomite, which may cause underground cavities to form. With sustained water infiltration these cavities move to the surface. As these approach the surface, the roofs of the cavities cannot support them, so that they break down and form subsidences and sinkholes⁶ (Potgieter, 2012, p. 4).

A sinkhole can be formed suddenly and reveal itself as a hole in the ground. Sinkholes vary in size – from cracks and small holes, to holes several metres deep and wide. Sinkholes can be disastrous due to its sudden occurrence and may cause loss of life and/or damage to property. There has been 39 known sinkhole-related deaths in South Africa in the last 50 years (Potgieter, 2012, p. 4). When structures are built on such land, the chances of sinkholes forming increase. Currently, some residential areas in the Tlokwe Municipal boundaries such as Ikageng, Promosa and Mohadin are at high risk of sinkholes. These areas also include informal settlements that have been built on dolomitic land.

In order to manage the dolomite and sinkhole risk, the TCC and a consultancy organisation Africa Geo-Environmental Engineering and Science (Pty.) Ltd. (AGES) activated the DMD. The DMD was established with a view to centralise information to facilitate communication with residents and other parties concerning the dolomite and sinkhole disaster risk. The aim of the DMD is to facilitate interaction and engagement with *all* relevant stakeholders in order to form an efficient partnership that can enhance the affected

community's resilience to the dolomite and sinkhole disaster risk. Furthermore, the DMD simplifies engagement with residents to clear misunderstandings, advise on risk reduction strategies and monitor risk amelioration actions taken by AGES technicians and the TCC.

It is important to keep in mind that this article on the DMD presents a 'snapshot' of an *ongoing process* that is affected by several factors such as the TCC managing dolomite and sinkhole-related risks while no benchmark exists to guide the process. This happens in the context of AGES that is implementing the process and programmes on behalf of the TCC; various political developments; and the challenges facing the affected community. Another factor contributing to the complexity of the process is that South Africa as a developing country faces the challenges in terms of managing the dolomite and sinkhole risk. All these factors influence the context and operational effectiveness of the process and its programmes.

The DMD consists of several databases, such as one containing information from previous studies, reports and current research about dolomite and sinkholes; a GIS database containing detailed mapping information about the affected areas; an Incident Task Manager that keeps information on incidents reported by the community; and a monitoring system that manages all queries or incidents fed into the DMD. These databases are updated continuously as new information becomes available. Lastly, a Helpline is connected to the DMD and the affected community can report possible problems, queries or incidents here. The Helpline was established specifically as part of the dolomite and sinkhole disaster risk *communication strategy* because it serves as a tool with which to interact with the community. It is also a way for the community to obtain information about the dolomite and sinkhole risk.

The Helpline operates by means of an ordinary cellphone located at AGES's offices. This is the communication mode of choice since most people in the affected community use this technology, but not smart phones. It was decided not to use a toll-free number with a view to eliminate hoax calls as far as possible. However, residents need not call the cellphone number to lodge a query or to report an incident; instead they can send a text or a 'please call me' message, whereafter the Helpline manager will return the call. If preferred, explanations can be provided in the local indigenous language of Setswana for residents not comfortable in Afrikaans or English. A website and social media were not deemed suitable for Helpline purposes.

The DMD and Helpline operate as follows: When a resident calls in with a request or to report an incident (for instance, a hole forming on his/her stand, blocked pipes or storm-water drains and overflowing manholes), that person's name, contact details and address are logged. The manager can determine, by means of other information such as maps, whether there is indeed a dolomitic risk at the caller's address. If there is, an AGES technician(s) is sent out immediately to determine its nature. If there is no immediate danger, the technician investigates the reported problem within two weeks. If repairs need to be done, AGES informs the TCC, which then responds to the enquiry.

During the technician's interaction with residents, the situation is explained and advice is provided on how to limit the risk. The AGES technician's reports are logged into the DMD's monitoring system on a weekly and monthly basis. If necessary, the technician follows up the report to determine whether the TCC has reacted. Since incident reports can be pursued, an efficient relationship between the TCC and the community should prevail.

Another important aim of the DMD is to facilitate the building-plan process. Communication is vital in order to smooth the application procedure for residents who want to build new houses or extend existing buildings in areas affected by dolomite and sinkholes. The pre-building plan or building enquiry is sent from the Tlokwe Housing Department to the DMD. AGES conducts a geological assessment and provides site-specific recommendations. Thereafter, the Council for Geoscience comments on the assessment and recommendations. This information is fed into the DMD and advice is provided to the Tlokwe Housing Department, which in turn provides feedback to the stand-owner or developer. Building may continue once the stand has been certified as being situated in a low-risk dolomite and sinkhole area. In areas with higher risk, building may continue only under strict supervision.

5. Research methodology

An exploratory, qualitative research approach was followed, using the DMD as a case study. The research question was: *In what way does the DRR communication via the Tlokwe DMD serve to establish strong relationships between the TCC and the community affected by the dolomite and sinkhole risk?*

Semi-structured interviews were conducted with the CEO of AGES; the AGES Town and Regional Planner and GIS consultant for the DMD; the AGES Social Unit Manager, who drives the communication and social awareness programmes; and the director of the Tlokwe Housing Department, with a view to determine their *communicative intent* for the DMD. These participants were selected according to their knowledge of the DMD as well as their availability.

Telephonic semi-structured interviews were conducted with five residents who had filed dolomite and sinkhole incidents, and five residents who logged building-plan enquiries with the DMD, in order to determine their perceptions of the communication from the TCC and AGES regarding the dolomite and sinkhole risk, as well as the quality of the relationship with the organisations resulting from the communication. Although the researcher intended to obtain participants for the study by means of purposive sampling from the DMD's Incident Task Manager database, AGES provided a list containing selected names of residents whose incidents were attended to and who have completed housing-plan applications. A random selection of participants was made from these lists.

6. Findings

6.1. Communicative intent of AGES and the Tlokwe department of housing for the DMD

All the interviewees agreed that the DMD was not initially established as a communication and relationship management tool, but as a DRR management system. Although community participation is important in decision-making processes regarding the management of the dolomite and sinkhole disaster risk, it was not a specific aim to use the DMD to engage with the affected community in order to build strong, trusting relationships. Rather, the purpose of the Helpline was to distribute to and gather information from the affected community regarding the dolomite and sinkhole disaster risk.

The interviewees from AGES viewed the communication process regarding the dolomite and sinkhole disaster risk as comprising three phases, namely communication aiming at: creating awareness about the drilling and prevalence of dolomite in the residential areas; risk management communication that provides guidelines on how the affected community should address the disaster risk; and mitigation communication in which the steps that have to be taken to reduce the effects of the dolomitic disaster. However, communication is viewed as an ongoing process because of new people moving into the affected areas. The first stage of the awareness campaign has been concluded and the DMD forms part of the risk management communication phase. During this phase, the community was alerted about the DMD by means of flyers, door-to-door awareness officers, and information sessions for ward councillors⁷ in which they were encouraged to refer queries to AGES by means of the DMD.

Although the director of the Tlokwe Housing Department was of the opinion that the awareness campaign was sufficient to inform the affected community about the dolomite and sinkhole disaster risk, the interviewees from AGES emphasised that communication should be an ongoing process. AGES would only view the communication campaign as successful if the community has sufficient information to manage the dolomite and sinkhole risk themselves. During the campaign, AGES communicated openly about the extent and possible consequences of the dolomite and sinkhole disaster risk. Nonetheless, all the interviewees agreed that it is actually unwise to communicate the full extent of the risk to the community because it might cause large-scale panic and possible unrest.

All the interviewees perceived the DMD as strengthening the relationship with the community, as their commitment to manage the disaster risk and to improve service delivery was evident. Furthermore, they agreed that the DMD enables the community to take more control of the situation by obtaining information on how to manage and reduce the dolomite and sinkhole disaster risk.

According to the interviewees, there are several obstacles in using the DMD to its full potential as a communication channel to enhance the community's trust in AGES and the TCC. Building plans pose a major problem because some of the applications had been made three years ago and the stand-owners or developers have not yet been informed about AGES's findings. This lack of feedback regarding building plans to residents makes them suspicious and distrustful of AGES and the TCC. Political intervention and problems such as the community's fear of relocation are the main reasons for the TCC's hesitance to provide timeous feedback. Furthermore, political changes mean a lack of continuity of personnel in the TCC. Added to this, there are no benchmarks for managing such a DMD, since it is the first of its kind in South Africa.

The director of the Tlokwe Housing Department indicated that he prefers a more interpersonal approach regarding building plans. Ward councillors received training on the dolomite and sinkhole disaster risk so that they are able to provide residents in their wards with correct information and can refer them to the appropriate persons to address their issues. The director felt that when a stand-owner plans to build on dangerous land, the councillor can explain the danger face-to-face, and usually the land owner would understand and agree to any decisions made. He also noted that since the dolomite and sinkhole issue has been politicised, a one-on-one approach is preferable to addressing a crowd, where there is a possibility of unrest.

The TCC and AGES argued that the communication facilitated by the DMD can improve the affected community's resilience towards the dolomite and sinkhole disaster risk. Such communication assists the community in better understanding the risks, and it empowers them to log a question, complaint or need for action at the DMD, thereby growing their capacity to cope with the dolomite and sinkhole disaster risk.

6.2. Perceptions of residents regarding the Tlokwe DMD

As mentioned previously, there are mainly two areas where the DMD serves as a point of departure for communication with the affected community. Firstly, there is the Helpline where residents can log queries, problems or incidents. Secondly, information regarding building-plan applications is logged in the Tlokwe DMD's database. In both instances, communication with the TCC and AGES is required to address the affected community's needs.

6.2.1. Incident reports

Five residents interviewed reported cracks in walls inside and outside their houses and fences, as well as small but deep holes in their yards. Some houses had severe cracks that led to ceilings shifting, misaligned walls, cracked verandas and a cement apron all around the house, lifting by as much as half a brick.

All but one of the interviewees said that although the AGES 'people' visit them to monitor the cracks and holes, they were not informed on how to manage the dolomite and sinkhole disaster risk themselves. One interviewee was advised by an AGES technician on how to minimise the dolomite and sinkhole risk, but she did not have the money to implement these recommendations.

Another interviewee was uncertain about whether the hole on his stand was caused by the many trees he had planted, or by dolomite. He was also not sure whether it was AGES or the TCC that was monitoring the hole, and claimed that he did not receive sufficient information from the persons monitoring the hole. Another participant felt frustrated that the TCC did not follow up on calls she made regarding cracks and damp in her house. This resident understood that she was in danger because of dolomite and sinkholes, but was unaware of the exact nature and extent of the problem.

All the interviewees agreed that they had not received sufficient information to be able to manage the dolomite and sinkhole risk in such a way as to minimise the danger to themselves. Two participants stated that AGES's awareness campaign was effective because 'AGES explain [the dolomite and sinkhole risk] well'. However, one person felt unsafe and frustrated because of the lack of information from the TCC as well as from the ward councillors. She added that ward councillors would call a community meeting about the dolomite and sinkhole risk, but then they did not attend the meeting they had called themselves. Several interviewees were of the opinion that the TCC did not care about their well-being because it 'does not do anything, they do not answer questions'.

6.2.2. Building-plan applications

The residents interviewed submitted their building-plan applications to the TCC between one and six years prior to receiving an outcome. One of the interviewees had not yet

received feedback from the TCC at the time of the interviews, although AGES had reported back to the TCC.

Four of the interviewees were satisfied with the assistance and information they have received from AGES. One person perceived AGES as being patient, friendly, understanding and well-informed. A contrary view from another participant was that AGES did not make an effort to keep her up to date on the progress of her building-plan application. Calling the AGES office made her feel like 'a nuisance', and she would have appreciated a phone call or e-mail in this regard. Furthermore, although she knew that her building-plan application had been approved, the new building conditions had not been communicated to her. This interviewee added that she 'feels sorry for AGES because they do not have all the answers', indicating that she believed that the delay was actually caused by the TCC.

All the participants were of the opinion that the TCC did not communicate openly about the risk they faced, nor provided information or feedback regarding their building-plan applications. Two mentioned that the TCC did not want to reveal the original dolomite and sinkhole report, and that they obtained the information only after they repeatedly requested it. These residents had to call or visit the TCC continuously, or as one participant put it: 'lie on their necks', to obtain feedback. The lack of open and timely communication caused the residents to experience uncertainty and frustration about whether the 'whole truth' had been communicated to them.

Several interviewees noted that they did *not trust* the TCC to manage the dolomite and sinkhole risk because the situation had been politicised. Some participants alleged that the ward councillors did not want the truth about the dolomite and sinkhole risk to be revealed, because 'they want power'. One of these residents claimed to have requested AGES to inform a specific group of community members on how to manage the dolomite and sinkhole risk themselves, but the ward councillor refused. Two interviewees mentioned that they wanted compensation for their land because their parents and grandparents were forcibly relocated⁸ to the affected areas during the 1950s and 1960s. These people questioned whether the prevalence of dolomite was not already known during the time of resettlements.

All the participants acknowledged that they were aware that some community members continued building new houses or extending existing ones without obtaining permission from the TCC. They were of the opinion that the community was 'fed up' with the long delays and lack of communication. Furthermore, they did not trust the TCC to manage the dolomite and sinkhole risk and building-plan applications adequately.

7. Discussion

The DMD provides a way in which a complex situation can be managed, while responsibility for processes can be attributed to particular individuals or departments. Ascribing responsibility contributes to higher accountability, which demonstrates competence and dependability. Another benefit of establishing the DMD is that it shows the TCC's commitment to managing the dolomite and sinkhole disaster risk. Furthermore, enabling the affected community to log queries and incidents as well as to determine progress regarding building applications allows them to take mutual control over their situation. Collaborating with AGES personnel, who are geological specialists, reinforces the credibility of the information provided by the TCC via the DMD. The use of the management system should

therefore serve to strengthen the relationship between all parties involved in the dolomite and sinkhole disaster risk.

Although the DMD was not originally designed as a communication and relationship management tool, it has the potential to ease two-way communication between AGES, the TCC and the affected community. Such communication creates mutual understanding between the involved parties, understanding each other's needs and viewpoints leads to strong, trusting relationships. However, it became clear that the management team's *communicative intent* with the DMD was not realised because it was not matched by *operational effectiveness*.

Both AGES and the TCC concur that open and honest communication about the dolomite and sinkhole disaster risk and concomitantly creating strong relationships, with trust as its most important outcome, is vital. Despite these intentions, the residents interviewed reported that they did not receive honest, clear and timely communication from especially the TCC regarding the physical manifestations of dolomite or their building-plan applications. The lack of communication leads to *uncertainty* and to mistrusting the TCC as having their best interests at heart. Residents' perceptions that the dolomite and sinkhole disaster risk is politicised increased their distrust in the TCC. Moreover, it seems as if some ward councillors (who are political appointments) prevent community members from receiving information and opportunities to engage in dialogue with AGES and the TCC. Therefore, many residents ignored the information on the dolomite and sinkhole risk and continued building without formal permission, despite warnings not to do so.

Given these illegal building practices, many interviewed residents questioned the TCC's ability to enforce rules and procedures regarding building regulations. This lack of action weakens the relationship between all parties, since the TCC's communication and organisational behaviour did not display the necessary trustworthiness. This is on par with an international trend: safer building codes are not enforced after the occurrence of a disaster, especially in developing countries, and this leads to affected communities being even more vulnerable to disasters (Kates, Colten, & Leatherman, 2006, p. 14657; Passerini, 2000, p. 70).

Communities faced by disasters want to engage in two-way communication to obtain information about the risk, and especially want their own information, needs and views to be considered in decisions that affect their lives. All the interviewed community members said that in addition to them not receiving sufficient information about the dolomite and sinkhole risk, neither AGES nor TCC initiated dialogue – so that these community members had to 'harass' these bodies to obtain information and feedback. Slowness to take action diminishes trust in both these organisations because it is perceived as a lack of commitment. This absence of commitment signals to the affected community that their well-being is evidently of little importance. As a result, the already frail relationship between the parties deteriorates even further.

It was apparent from the interviews with the residents that they were not fully aware of the respective roles of AGES and the TCC with regard to managing the dolomite and sinkhole risk. The community did not understand that AGES cannot take action such as repairing leaking water pipes, because they were not liable for such work. For instance, AGES can only make recommendations regarding building plans, but they are not empowered to approve them. The TCC, which is the legal entity, is the only party able to take action. This gives rise to a situation in which the community's trust in AGES can be undermined by poor service delivery from the City Council, resulting not only in a weakened

AGES–community relationship, but also in damage to the former’s reputation. According to Lundgren and McMakin (2013, p. 41), a community that is uncertain about an organisation’s roles reacts with anger and general unwillingness to work together to manage the risk. To counter this state of affairs, AGES and the TCC should communicate their respective roles, responsibilities and limitations clearly, as well as how they are supporting the affected community in order to restore a strong, trusting relationship.

8. Conclusion

If communication with the affected community is facilitated by using the DMD effectively, this should result in strong, long-lasting and mutually beneficial relationships between all parties involved. However, from the perspective of two-way communication and management of the relationship, communication as facilitated by the DMD can be improved significantly. Therefore, it is recommended that communication and relationship management should be viewed as a strategic function – a trained communication practitioner should develop a communication strategy for disaster risk situations. All communicative actions should be evaluated in light of how they contribute towards achieving the objectives of strong relationships, namely trust, mutual control and satisfaction, and commitment. Access to and disclosure of information and decision-making processes, open cooperation and sharing tasks, and keeping promises are strategies that cultivate cooperation and are therefore important in order to establish a strong, trusting relationship with the community. Opportunities for two-way communication should be created and used whenever possible, because it allows the affected community to voice its concerns and to contribute towards decision-making. It is necessary to *listen* to the community’s views and needs and to *show* that they have been heard.

Each organisation’s role in the disaster risk management process should therefore be identified and communicated clearly to those affected. It is necessary to realise that communication alone does not build strong relationships – the community must be able to see and experience the City Council as being competent, knowledgeable and in control of the situation. Providing timely feedback, even if it is to inform residents that no answer is available yet, is vital in building trust and providing the community with a sense of control over their situation. All authorities involved in managing a disaster risk should communicate clearly to those affected by their actions to limit the risk, in order demonstrate their commitment and competency. Furthermore, all government agencies and their affiliates, such as AGES, should define and communicate their roles, responsibilities and limitations clearly to the citizens at risk with a view to avoid any misunderstanding that may lead to a deterioration of the relationship. Lastly, politics should not be allowed to interfere with keeping the community informed about disaster risks that can endanger their lives.

It is apparent that viewing DRR communication theory from the perspective of two-way communication and relationship management can contribute towards the effectiveness of such communication in addressing the needs of the community. Furthermore, current communication of ways to reduce disaster risk focuses on technical aspects and is mostly one-way in nature. Such practice does not address the issue of affected communities distrusting authorities that should care about their well-being. Two-way communication and relationship building strategies, with a focus on strengthening trust, mutual control and commitment, will contribute towards securing strong government–community relationships,

which is indispensable in enhancing the resilience of affected communities to cope with disasters. A dolomite DRR management system such as the TCC DMD can be used to facilitate such two-way communication and develop strong relationships if it is planned strategically and supported by good service delivery.

Notes

1. In this article, the terms 'government' or 'authorities' refer to departments and agencies at all levels of government, especially those associated with but not limited to local city councils.
2. In this respect, 'vulnerability' refers to a group's lack of (or inadequate) capacity, whereas resilience refers to their capacity to cope, resist and recover from a disaster or adverse condition (Bankoff, 2004, p. 32; Hewitt, 1997, p. 27). Capacity thus indicates people's potential to deal with disaster risks (Hewitt, 1997, p. 141). Successful strategies aimed at reducing the magnitude of a disaster risk increase people's resilience (Bankoff, 2004, p. 32). Vulnerability is therefore determined by people's capacity to cope with disasters, and this capacity is therefore a measure of resilience.
3. According to Twigg (2007, p. 6), DRR is generally understood to mean the broad development and application of policies, strategies and practices aimed at minimising vulnerabilities and disaster risks throughout society. DRR involves identifying, assessing and reducing the risk of disasters. Its function is specifically to reduce socio-economic vulnerability to disasters and also to deal with the environmental and other hazards that trigger these disasters.
4. The term 'stakeholders' refers to people or organisations that are affected by the decisions and actions of an organisation and whose decisions and actions affect it in turn (Grunig & Repper, 1992, p. 125; Steyn & Puth, 2000, p. 5).
5. The Tlokwe City Council was previously known as the Tlokwe Local Municipality.
6. No record currently exists (November 2015) for the distribution of sinkholes and subsidences in the Tlokwe Local Municipality, according to the national ground movement databank managed by the Council for Geoscience, but the occurrence of ground movement events are known in these areas. Richardson (2013) and Oosthuizen (2013) compiled databanks and statistical analysis of the distribution of sinkholes and subsidences across the Gauteng Province of South Africa. Richardson (2013) states the rate of sinkhole formation across the Merafong Local Municipal area (which exhibits similar geological conditions as that of the Tlokwe Local Municipalities) to be 0.055 sinkholes per km² per annum, as determined using statistical data of 1195 events over 27 years across a total of 493 km² of dolomite land. This translates to between 0.4 and 4.17 events per km² per annum in non-dewatered groundwater compartments, and between 0.4 and 7.3 per km² per annum in dewatered groundwater compartments. The statistical analysis of sinkholes and subsidences revealed that 34% of sinkholes have diameters falling in the 'large' category (i.e. 5–15 m diameter) and 32% falling in the 'very large' category (i.e. >15 m diameter). The remainder of the sinkholes has diameters of less than 5 m. Half of the sinkholes in the Merafong Local Municipality have depths of between 1 and 5 m, with 24% being between 5 and 15 m deep, and 5% having measured depths in excess of 15-m deep.
7. Ward councillors are members of the ruling political party and are elected to represent a particular area and its residents on the TCC. For many ward councillors, this is their only occupation, and therefore their loyalty to the ANC might compromise the best interests of the residents they represent as political motives could interfere with their approach.
8. The affected areas are the residential locations where black, coloured and Indian residents were living during the apartheid era. Many of the current residents have been forcefully removed from other areas to live in Ikageng, Promosa and Mohadin. Geological tests were conducted in 1969 to establish the presence of dolomite; while it was affirmed that dolomite was present, it was stable at the time. According to Dr Stephan Pretorius, the CEO of AGES, the situation has changed because 'the safety of dolomite depends on its inherent nature – whether it is solid or whether it has dissolved. Factors like boreholes, ponds and aging infrastructure increase the risk of water leaking into the stable dolomite, resulting in weaknesses and instability' (Botha, 2012).

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