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Published in:
SfAA 2013 Programme

2013

[Link to publication](#)

Citation for published version (APA):

Becker, P. (2013). Forgetting Anticipation: the double gap between knowledge, policy and practice of risk assessment in Botswana and Tanzania. *SfAA 2013 Programme*.

Total number of authors:

1

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Forgetting Anticipation: the double gap between knowledge, policy and practice of risk assessment in Botswana and Tanzania

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Abstract:

A society's ability to anticipate disaster is a fundamental part of its resilience. The purpose of this paper is to investigate potential gaps between theory, policy and practice concerning functions for risk assessment in the governmental systems of southern African development countries, particularly Botswana and Tanzania. It applies comparative case studies with data collected in focus groups and interviews on national, regional and local level, and through documentary sources. The paper reveals significant gaps between theory and policy, and even more substantial gaps between policy and practice.

Introduction

A society's ability to anticipate disaster is a fundamental part of its resilience, as intentional proactive activities to reduce risk becomes unfeasible without it (Becker *et al.* 2011). Although there are many important ways to anticipate what may happen, e.g. indigenous knowledge of foreboding signs in the environment and weather forecasts, formalised anticipation over longer timescales is most often done in the form of risk assessments. Risk assessment has been highlighted in scientific literature as a requisite foundation for disaster risk management for decades (e.g. Starr 1969; Hewitt 1983; Blaikie *et al.* 1994). It is mentioned in paragraph 11C of the Yokohama Strategy (IDNDR 1994) and is a recurrent theme and one of five priorities for action in the Hyogo Framework for Action (ISDR 2005). Still, lack of systematic risk assessment in practice is emphasised as a key challenge for the substantial reduction of global disaster losses (UNISDR 2011). An important issue is if this challenge is due to insufficient policy, practice or a combination of both, as such indication is necessary to inform activities to address it.

The purpose of this paper is to investigate potential gaps between theory, policy and practice concerning functions for risk assessment in the governmental systems of southern African development countries. It intends to meet that purpose by answering the following research question:

What are the gaps between theory, policy and practice concerning risk assessment in the governmental systems of Botswana and Tanzania?

Theoretical framework

In order to investigate gaps between theory, policy and practice, we must first establish some fundamental theoretical principles concerning risk assessment and what constitutes capacity to assess risk in governmental systems for disaster risk management.

Risk is a contested concept with numerous definitions, creating the potential for misunderstandings (Fischhoff *et al.* 1984; Rosa 1998; Aven & Renn 2009). In everyday language, the term "risk" often stands for a destructive incident that may or may not happen (Sjöberg & Thedéen 2003:16). Science use the term more precisely. Although

the exact definition varies (Renn 2008:12-45; Aven & Renn 2009:1-2), most definitions have three aspects in common. They all distinguish between reality and possibility, as the concept of risk makes no sense at all if the future is predetermined or independent of human activity (Renn 1992:56; 2008:1; Zinn 2008:3-4). The future must, in other words, be uncertain (Renn 1998:51; Japp & Kusche 2008:80) and any future event must at least be perceived as being possible to influence (Zinn 2008:4). That is to say that there would be no risk in gambling if the game was 100 percent rigged. Secondly, all definitions of risk explicitly or implicitly entail that these uncertain futures must have the potential to impact what human beings value (Renn 1998:51; 2008:2), or at least be so perceived (Slovic *et al.* 1982; Slovic 1987). In other words, there would be no risk in gambling, even if the game was not rigged, if the stake is a grain of sand and it takes place in a desert. Finally, and closely related to the previous aspect, risk must be defined in relation to a preferred expected outcome (Kaplan & Garrick 1981; Luhmann 1995:307-310; Kaplan *et al.* 2001). This means that there would be no risk in gambling, even if the game was not rigged and the stakes were high, if the participant has no preference for winning or losing. Taking these three aspects of risk together means that risk is a representation of potential negative deviations, in relation to something human beings value, away from its preferred expected development over time. Hence, risk assessment is the practise of structuring unwanted scenarios, risk scenarios, and compare them against the preferred expected scenario.

There are many risk assessment methodologies, but considering the three aspects of uncertainty, value and preference above, they can all be seen as striving to answer the following three questions: (1) What can happen?; (2) How likely is that to happen?; and (3) If it happens, what are the consequences?. Fully acknowledging that there is uncertainty in answering all of them. The **first** theoretical principle used in this study is thus that these three questions must be possible to answer for a risk assessment to qualify as a risk assessment. This corresponds to what a risk assessment is.

The purpose of risk assessment is to assist us to make sense of our uncertain future. To guide us in what decisions and actions to make or not to make, in order to reach or maintain some preferred expected state. Regardless of what risk assessment methodology you use, the result must in other words be used as input to decision and planning processes. This is the **second** theoretical principle used in this study and corresponds to why risk assessment is done.

To fulfil its purpose, risk assessment must be performed in time to be able to feed into the specific decision or planning process on the agenda. That could be a one-off thing, such as input to a specific decision concerning the suggestion to build a chemical plant close to residential areas. There could also be a continuous need for input to the planning process, which entails a string of decisions on how a city or society should develop and requires regularly updated risk assessments. The **third** theoretical principle used in this study is therefore that risk assessments must be performed in time to feed into the particular decision or planning process on the agenda. This corresponds to when a risk assessment is done.

Similarly, a risk assessment is always focused on a particular context, both spatially and temporally. It could be focused on a single community and immediate timescale, or it could be focused on an entire country and intended to feed into long-term development planning. Regardless of which, the spatial and temporal scale must be explicitly defined, and will determine the level of detail possible with the resources available. Hence, the **fourth** theoretical principle used in this study is that risk assessments must be

performed in an explicitly defined spatial and temporal context. This corresponds to where a risk assessment is done.

Risk assessment requires the involvement of numerous actors (Renn 2008:8-9). The complexity of risk requires the integrated knowledge and effort of actors from various functional sectors and administrative levels of society. Unfortunately, efforts to manage risk and development losses have had a tendency in the past to reduce the problem into parts that fit functional sectors and organisational mandates (Fordham 2007). This is likely to represent a major weakness as it clouds the bigger picture of risk (Hale & Heijer 2006:139). There has also been prolonged debate on whether it should be up to the public to decide about matters concerning risk or if this should be the sole domain of experts (e.g. Cole & Withey 1981; Slovic *et al.* 1982; Slovic 1987; Keren 1992; Shanteau 1992; Rowe & Wright 2001; Sjöberg 2001). However, influential accounts present a persuasive alternative way forward, arguing for the need for as broad participation as possible, from experts, the public, decision makers, and other actors (Fischhoff *et al.* 1982; Renn 2001). According to this view, it is not only formal expertise that is vital, as the educated common sense of other actors can be rather effective in this process and render some degree of moral force and political influence to the results (Ravetz 1999:651). The **fifth** theoretical principle used in this study is therefore that risk assessments must be performed by a group of actors with the necessary insights, means and commitment, which corresponds to who should be involved in risk assessments.

Ultimately, the capacity for performing risk assessment as a structured process of a governmental system for disaster risk management is determined by a whole range of things (Becker *et al.* 2011). First of all, the system needs people with the knowledge and skills necessary for performing risk assessment, as well as tools, funding and other resources. This may be referred to as the level of human and material resources (*Ibid.*). Regardless of how many knowledgeable and well resources individuals available, the capacity of the system is also influenced by how they are organised. Both within and between all organisations involved, which may be referred to as the levels of organisation and system of organisations (*Ibid.*). Finally, the capacity of the system to perform risk assessment is also influenced by laws, regulations, policies and other statutory requirements, guiding the process, as well as informal institutions, norms, values, etc. This may be referred to as the level of legal and institutional framework (*Ibid.*). The **sixth** theoretical principle used in this study is thus that a governmental system's capacity for risk assessment is determined by its resources, organisation, system of organisations, and legal and institutional framework. This corresponds to how a risk assessment is performed in this context.

The six theoretical principles to bring forward into the analysis of this study are in other words related to the what, why, when, where, who and how of risk assessments in governmental systems for disaster risk management.

Methodology

Research methodology

Comparative case study research stands out as a particularly suitable methodology for the study. Case study research fits its contemporary outline (Yin 1994:4-9) and the limited resources available (Blaxter *et al.* 2001:71). Although case studies are often criticised for their lack of rigor in allowing biases to influence conclusions, this is not a

weakness of case studies as such, since biases must be addressed regardless of methodology (Yin 1994:9-10). Another common criticism is that case studies provide little basis for generalisations (Yin 1994:10; Flyvbjerg 2001:66), which holds for statistical generalisations, but not for analytical generalisations for which case studies have proven well-suited (Flyvbjerg 2001:73-77). The chosen cases are in other words not sampling units, representative to a bigger population, but more like the cases chosen for making experiments. Using several cases, in this sense, is like doing multiple experiments and if “two or more cases are shown to support the same theory, replication may be claimed” and analytical generalisations made possible (Yin 1994:31). The purpose of the individual case studies is therefore not to represent the complete population of possible cases, but to represent the selected cases themselves (Stake 1998:104). Knowledge developed in one case can in other words not be generalised “through abstraction and loss of history and context”, but may be transferred to other situations through “conscious reflection on similarities and differences between contextual features and historical factors”(Greenwood & Levin 2007:70).

Data collection methods

Data were collected through focus groups and interviews with key informants in Botswana and Tanzania, as well as through content analysis of documentary sources. This mix of methods was chosen to attempt to cancel out the weaknesses of each method with the strength of the others. Focus groups were considered a suitable way to collect data from multiple respondents and may create a ‘synergy’ between the participants that makes the focus groups more productive (Belzile & Öberg 2012:4). However, the group setting may bias the responses from each individual participant (*Ibid.*:4). Therefore unstructured qualitative interviews were also conducted to attain in-depth information to increase our understanding of the phenomenon under study (Trost 2005). Considering the research question, also content analysis of documentary sources was appropriate. Documentary sources were suitable with their generally fast access to data (Kiecolt & Nathan 1985:11-12; Hakim 1987:24), and their stable, unobtrusive and broad coverage (Yin 1994:80-82). However, blocked access (*Ibid.*:80-82), as well as inherent constraints, errors and biases (Kiecolt & Nathan 1985:56-71; Hakim 1987:24; Yin 1994:80-82), may reduce their usefulness.

The data collection was guided by a framework for capacity assessment of systems for disaster risk management that has been introduced elsewhere, and focus on nine requisite functions for a resilient society (Becker *et al.* 2011). Risk assessment is one of them and is considered to generate vital direct input to range of the others. For instance, hazard monitoring, prevention and mitigation, and preparedness. To assess a system’s capacity for risk assessment, qualitative data were collected to be able to answer 22 guiding questions concerning the legal and institutional framework, system of organisations, organisation, and resources. These questions were not necessarily asked straight out, but were guiding a systematic dialogue in the focus groups and interviews (Table 1). Considering that these questions had to be answered for all nine functions in order to map the links to risk assessment, it was important to refrain from building a framework with too many detailed questions to answer. All the focus groups were recorded on tape and in written notes, while the interviews were captured in notes. The focus groups on village level were done in Setswana or Swahili, with the help of an interpreter.

| Functions | Levels of factors determining capacity | | | |
|--|---|--|--|---|
| | A. Legal and institutional framework | B. System of organisations | C. Organisation | D. Resources |
| Anticipate 1. Risk assessment 2. Forecasting Recognise 3. Monitoring 4. Impact assessment Adapt 5. Prevention & mitigation 6. Preparedness 7. Response 8. Recovery Learn 9. Evaluation | A.1) Are there any legislation or policy requiring [function]? A.2) Is the utility for [function] stated in legislation or policy? A.3) What stakeholders are identified in legislation or policy as involved in [function]? A.4) Are the legislation or policy stating to whom and how the results of [function] should be disseminated? A.5) Are funds earmarked by legislation or policy for [function]? A.6) Are the legislation or policy implemented? A.7) Are there any values, attitudes, traditions, power situation, beliefs or behaviour influencing [function]? | B.1) What stakeholders and administrative levels are involved in [function]? B.2) Are the responsibilities of stakeholders and administrative levels clearly defined for [function]? B.3) Are interfaces for communication and coordination between stakeholders and administrative levels regarding [function] in place and functioning? B.4) Are interfaces for dissemination, communication, and integration of the output of [function] to stakeholders involved in other functions that depend on the output? B.5) Are interfaces for facilitating coordination between functions in place and functioning? | C.1) What parts of each organisation are involved in [function]? C.2) Are the responsibilities for [function] clearly defined for each involved organisational part? C.3) Are systems for effective collaboration in [function] between the involved organisational parts in place and functioning? C.4) Are there any internal policies for [function] in each involved organisation? C.5) Are these internal policies implemented? C.6) Are interfaces for dissemination, communication, and integration of the output of [function] to parts of the organisation involved in other functions that depend on the output in place and functioning? | D.1) What knowledge and skills on individual level does each involved organisation have for [function]? D.2) What equipment and other material resources does each involved organisation have for [function]? D.3) What funds do each involved organisation has for [function]? D.4) What knowledge, skills and material resources do members of the public have for [function]? |

Table 1. Examples of guiding questions for capacity assessment of systems for disaster risk management and climate change adaptation (*Ibid.*).

Selection of cases and sources

The cases for the study were selected based on a combination of purpose and convenience. Botswana is the southern African country with the highest Human Development Index (HDI) on the continent, regardless of the high HIV/AIDS prevalence lowering life expectancy, while Tanzania is the median country in terms of HDI in Southern Africa (UNDP 2010). Although it would have been ideal to also select a country at the bottom of the HDI, none of the two available cases in southern Africa, i.e. the Democratic Republic of the Congo and Zimbabwe, seemed feasible for such study at the time. Botswana and Tanzania were also a convenient selection due to the researchers' ongoing work in these two countries. The data were collected during 2010 for Botswana and 2011 for Tanzania.

The study included one national level focus group each in Botswana (21 participants) and Tanzania (20 participants), with participants representing the governmental ministries and departments, NGOs and international organisations formally involved in the systems for disaster risk management. It also included one district level (16 participants) and one village level focus group (8 participants) in Botswana, and two regional level (5 and 16 participants), two district level (10 and 12 participants) and two village level focus groups (6 and 15 participants) in Tanzania. The study included interviews with five key actors each in Botswana and Tanzania, representing national and district/regional government. The document sources included a mix of legislation, policies, position papers and descriptions of the current governmental systems for disaster risk management in Botswana and Tanzania, which were collected on site.

Data analysis

The collected data and analysis were structured around the four levels of capacity, i.e. legal and institutional framework, system of organisations, organisation, and resources. The collected data were analysed by identifying and collating elements relating to the six theoretical principles presented above, both as described in policy and as expressed as practice. The final analysis compared theory with policy, as well as policy with practice.

Results

The results of this study are presented by country, and divided into legal and institutional framework, system of organisations, organisation, and resources. In an attempt to do the great wealth of data justice in a condensed article like this, we focus on drawing out and presenting only the key results in relation to the six theoretical principles (the what, why, when, where, who and how) of risk assessments presented earlier.

Botswana

Legal and institutional framework

The overall legislation and policy for disaster risk management do not include risk assessment. In the National Disaster Risk Management Plan (2009) it is however clear that the National Disaster Management Office (NDMO) includes risk assessment as a vital function for disaster risk management in Botswana. The plan describes briefly what risk assessment is and that its purpose is to determine the level of existing risk as well as the scope of risk reduction. It also mentions its utility for prevention, mitigation, preparedness and development planning. It mainly presents the one national risk assessment that was carried out by a consultant some years ago, but states that risk assessments must be conducted more frequently. The plan allocates responsibilities for risk assessment to NDMO, although it mentions the importance of including all sectors and administrative levels in the process. The plan also includes the Hyogo Framework for Action as an annex.

There are examples of sectorial legislation that require risk assessment, e.g. regarding radioactive material, while other sectorial legislation implies, or can be interpreted as requiring risk assessment, e.g. for occupational health and safety. There seems to be a great need for raising awareness concerning the importance and utility of risk assessment for development planning, prevention/mitigation and preparedness purposes within the political leadership and the sectorial ministries and authorities.

System of organisations

All focus groups and interviews in Botswana clearly indicate that there are no comprehensive and continuous risk assessments done in the country. NDMO contracted a consultant who compiled "The Hazard Identification, Vulnerability and Risk Assessment for the Republic of Botswana" (2008), which is technically advanced and fulfils the minimum theoretical requirement from above. It is also clear in all focus groups and interviews that the result of this one-off national risk assessment is not used in any systematic way, and that there are no district or local level risk assessments.

Two of the participants of the national focus group point out that there are sector authorities involved in risk assessment, but that these risk assessments are most often

performed within the specific sector and not shared with other sectors. It is however also clear from the national focus group and around half the interviews that many sectors already collect data concerning the hazards for which they are responsible, as well as other relevant data, such as demographic data etc. This data is however not compiled and used in any systematic manner on the overall national or district level.

Organisation

It is clear from all focus groups and interviews that there is no explicit organisation for risk assessment on local and district level. Although it is indicated in the national focus group and in several interviews that the national authorities involved in their sectorial risk assessment have some organisation for this task, there is no organisation for more systematic and comprehensive risk assessment that can be used for development planning, prevention/mitigation and preparedness purposes more generally.

It is indicated in several interviews that NDMO is about to be organised in an “Operations Section” and a “Programme Section”, which could facilitate an increased focus on disaster risk reduction as there would be resources allocated for longer term projects that potentially would not be consumed by the immediate and reactive operations. There is also at NDMO an emerging function for GIS and information management, which is described as potentially well suited as a foundation for comprehensive trans-sectorial risk assessments.

Resources

It is clear in all focus groups and interviews that there are no human or material resources for systematic risk assessment on village level, in terms of funding, equipment or human resources. On district level, there are some material resources, very limited human resources and almost no methods and tools available for risk assessment. However, it is also clear in the local and district focus groups that there is adequate knowledge about both hazards and vulnerabilities in the communities on both these levels. However, this knowledge is currently not collated and utilised in any systematic manner.

It is clear in the national focus group and in all five interviews that knowledge concerning risk assessment is limited within the governmental system and concentrated to a few knowledgeable individuals at the NDMO. The NDMO, as well as the wider system, is very vulnerable to staff turnover. It is also clear that the national level also lacks the methods and tools for systematic and comprehensive trans-sectorial risk assessment, even if the equipment for the emerging function for GIS and information management would be a suitable foundation for such. In short, NDMO has currently not sufficient capacity for meeting the needs for comprehensive risk assessment in Botswana. There is also a need for raising awareness concerning the importance and utility of risk assessment within the political leadership and the sectorial ministries and authorities.

Tanzania

Legal and institutional framework

The overall legislation for disaster risk management in mainland Tanzania does not include risk assessment at all. This is a result of the legislation dating from 1990 and not being updated according to the development of the field of disaster risk management.

However, the National Disaster Management Policy (2004) clearly outlines that hazards, vulnerabilities and risks must be continuously assessed and mapped on national as well as regional and district level. There has been three national risk, vulnerability and capacity assessments for mainland Tanzania done in 2001, 2003 and 2008, mainly by external consultants. Neither legislation nor the policy clarify for what these assessments should be used, or to whom they should be disseminated to.

The National Disaster Management Policy (2004) specifies that it is the responsibility of the Disaster Management Commission (not yet established and the Disaster Management Department (DMD) is still part of the Prime Minister's Office) to continuously conduct risk assessments on national level, the Regional Disaster Management Committees on regional level, and the District Disaster Management Committees on district level. The policy is however not at all implemented and neither legislation nor policy earmarks any funds for conducting risk assessments.

System of organisations

It is clear when studying key documents, as well as in several interviews, that although there has been three risk, vulnerability and capacity assessments for mainland Tanzania, these have been done by external consultants. In recent years mainly by the Disaster Management Training Centre (DMTC) at Ardhi University (ARU), which is a Tanzanian university situated in Dar es Salaam. However, there are no comprehensive and continuous risk assessments done by the actors identified in the National Disaster Management Policy (2004). The national focus group and several interviews indicate that there are a lot of individual knowledge about specific hazards and vulnerabilities in communities, among professionals from various sectors and administrative levels, but this knowledge is only in a very few cases collected and used in any systematic way to assess risk.

The policy roughly specifies the responsibility for risk assessment, but not what each actor involved in the different committees should do. It is clear from all focus groups, that the committees on national, regional and district level represent institutional arrangements that could facilitate the necessary communication and coordination for risk assessments on these levels. However, these committees meet very rarely on a regular basis, but most often only in actual disaster situations. The focus groups also indicate that there are not sufficient arrangements for making sure that the result from any risk assessments are disseminated and utilised for other functions vital for disaster risk management in mainland Tanzania, e.g. preparedness planning, prevention and mitigation, etc, or for development planning.

Organisation

All focus groups and interviews indicate that there is no explicit organisation for comprehensive and continuous risk assessment at neither national, nor regional and district level. The Disaster Management Training Centre (DMTC) at Ardhi University (ARU) is sufficiently organised internally to perform risk assessments, but it is not feasible to have only one actor for the massive task of risk assessments for national, regional and district level in the entire country.

Resources

All focus groups and interviews indicate that there is lack of funding for risk assessment at all levels of the system for disaster risk management in mainland Tanzania. However,

the national level has some resources that has been allocated for this before and could form a basis for more continuous work on risk assessments. The focus groups and interviews also indicate that the human resources for risk assessment are even more inadequate in the governmental structures and seem to be limited to a few knowledgeable individuals at DMD on national level. The understanding of and competences for risk assessment on regional and district level are more or less absent, as this is also the case for most of the political leadership and in the sectorial ministries and authorities on national level. Interviews with key actors indicate that without awareness among decision-makers of the importance of risk assessment, not only for disaster risk management but also for development planning, it is very difficult to facilitate sustainable development in the country.

Discussion

The governmental systems for disaster risk management in Botswana and Tanzania share a lot more than their common British colonial past and similar structures. Neither of the two countries' legislations mentions risk assessment at all. The current national plan of Botswana and policy of Tanzania indicate the importance of risk assessment without describing in detail what it is. However, the on-off national risk assessment for Botswana and the later risk assessment for mainland Tanzania are both examples of risk assessments that could be considered, at least to some extent, to fulfil the first theoretical principle used in this study. However, these were both conducted by consultants and knowledge about what a risk assessment is, is limited to very few individuals at national level within the systems for disaster risk management in the two countries.

Similarly, although the purpose and utility of risk assessment is not mentioned in legislation, the national plan of Botswana describes that risk assessment should inform prevention and mitigation, preparedness and development planning. This is however not done in any systematic way, and there is in general lack of understanding among most actors on all administrative levels of why risk assessments are conducted in the first place. In Tanzania, neither legislation nor policy is stating the purpose and utility of risk assessment, and risk assessment is generally not used as input to any decision or planning processes. The lack of understanding is similar in Botswana. There is in other words a double gap between theory, policy and practice in Tanzania, in relation to the second theoretical principle of why risk assessment is conducted, while the gap in Botswana is just between policy and what is done in practice.

Concerning the third theoretical principle, stating when risk assessments should be done, it is interesting to note that even if the national plan of Botswana is not describing when to do a risk assessment, it states that it should be done more often than now. Although some sectorial ministries and departments conduct their own sectorial risk assessments, there has only been one comprehensive national risk assessment and no district or local level risk assessments conducted so far. However, this one-off national risk assessment was as stated earlier not in any way connected to any decision or planning processes and was conducted by consultants. The national policy of Tanzania states that risk assessment should be done continuously, on national, regional and district level, but there has so far only been three ad hoc national risk assessments conducted ad hoc by consultants and none of them have been systematically connected to any decision or planning processes. It seems like individuals influencing policy and plans recognise that risk assessments, and even to regularly update them, is important,

but that the overall system is not ready for integrating risk assessment in neither disaster risk management nor development policy and practice. The rhetoric is almost there, but no action. There is in other words a double gap between theory, policy and practice in both cases.

There are also gaps concerning the fourth theoretical principle, stating where risk assessments should be conducted. Although the national plan of Botswana hints at including all administrative levels in risk assessment, the national policy of Tanzania states explicitly that risk assessment should be conducted on national, regional and district level. Since the plan of Botswana indicates that risk assessment is to inform disaster risk management and development planning, it may also imply both immediate and long-term timescales. However, comprehensive risk assessments have so far only been conducted on national level, indicating a gap between policy and practice in both countries.

The current national plan of Botswana and policy of Tanzania both allocate to some extent responsibilities for risk assessment, but both countries have relied on consultants for the actual implementation. In Botswana, the NDMO is charged with the responsibility, though both the plan and interviews hint at the necessity of involving all relevant sectors and all administrative levels. In Tanzania, on the other hand, the policy is explicitly charging a Disaster Management Commission to be responsible for risk assessment on national level, the Regional Disaster Management Committees on regional level, and the District Disaster Management Committees on district level. However, this commission has still not been established, nine years after the adoption of the policy, and the regional and district level committees have no knowledge or resources for risk assessment and are more or less only activated in disaster situations. The policy is there, but it has not been implemented even on the national level. There is in other words a gap between policy and practice in both Botswana and Tanzania, in relation to the fifth theoretical principle of who should be involved in risk assessment.

Finally, as indicated in the other five principles above, the governmental systems for disaster risk management in both Botswana and Tanzania have substantial challenges in relation to risk assessment. Both legislation concerning disaster risk management are old, disaster response oriented and outdated, with policies and plans that neither fit the legislation nor get implemented to any substantial degree. There are systems in place for facilitating action and coordination between organisations at least formally involved in disaster risk management on all levels, but these committees rarely meet except to manage a particular disaster situation. With the notable exception of the more technical committees supporting the executive committees on national level. A considerable amount of relevant data are already collected by several of the actors represented in these committees, but there is no system in any of the two countries for utilising the data for risk assessment, or even more so for utilising risk assessment for disaster risk management and development planning. Both countries lack actors within their governmental systems for disaster risk management that are organised to manage the task of risk assessment on national, regional and district level, with the potential exception of NDMO in Botswana after the planned reorganisation. There is a chronic lack of both human and material resources for conducting risk assessment in both Botswana and Tanzania, and the resources that are available among the actors involved in the governmental systems for disaster risk management are not currently utilised. Before these challenges are systematically addressed, it is unlikely that risk assessment will

play its intended role in disaster risk management and development planning in Botswana and Tanzania.

Conclusion

The study reveals significant gaps between theory and policy, and even more substantial gaps between policy and practice. Although policy is not explicitly describing what risk assessment is, the very few risk assessments that has been conducted can largely be seen as meeting theory. The gap is far wider concerning why risk assessments are done, with a double gap between theory, policy and practice in Tanzania, while the gap in Botswana is mainly between policy and what is done in practice. There are double gaps in both countries between theory, policy and practice in relation to when and how risk assessments are conducted, as well as gaps between policy and practice in relation to where risk assessments are done and who is involved.

Needless to say, the main obstacle for substantially reducing global disaster losses is not so much our theoretical understanding of disaster risk management in general and risk assessment in particular, or the content of global frameworks or policy documents. It is the gap between this theoretical understanding and the disaster risk management policies of disaster-prone countries, and even more so the gap between these policies and what is actually done in practice. Without systematic capacity development on all four levels of legal and institutional framework, system of organisation, organisation and human and material resources, with or without international support, it is unlikely that developing countries in southern Africa will ever become resilient to disasters.

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