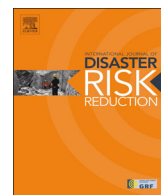


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Constructing a common holistic description of what is valuable and important to protect: A possible requisite for disaster risk management



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ABSTRACT

Effective disaster risk management is a requisite for sustainable development and it is paramount to include a wide range of stakeholders to manage risk in this context. Recent research indicates the significance of making ideas of what is valuable and important to protect explicit in any disaster risk management initiative that involves several stakeholders. The purpose of this article is thus to investigate if it is possible for a wide range of stakeholders to construct a common holistic description of what is valuable and important to protect. Dr Kenneth Kaunda District Municipality in South Africa is used as the context for this study and its findings indicate that such common holistic description is possible there. The findings also indicate that although each stakeholder has intricate knowledge about the context, it is not until they come together and share their individual knowledge as the richer picture emerges. A picture that may not in any way be a perfect full picture, but nonetheless their common picture to build mutual understanding, commitment and effective disaster risk management initiatives on.

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1. Introduction

Disasters pose a major threat to sustainable development [e.g. 1,2] and effective disaster risk management is necessary to substantially reduce disaster losses [3]. However, despite the fact that effective disaster risk management is paramount in our effort to reduce disaster losses it is not always easy to implement such processes. Especially not when there are multiple stakeholders affecting the management of risk. Partly, these difficulties can be caused by differing opinions of what is a risk and what characteristics the risks possess. In this context, it is important to remember that to be able to talk about risk at all involves some notion of potential future courses of events that would have an impact on something human beings value

[4]. Keeping in mind this central role of what human beings consider valuable, it is interesting to note that this is rarely explicitly discussed when analysing risk [5,6]. A reason for this may be that handbooks instead advocate starting by identifying potential hazards e.g. [7], which implies some implicit idea of what is to be considered valuable. For example, drought is a relevant hazard if you have the protection of human lives and livelihoods in mind, but not if you are focusing on a functioning road transport infrastructure.

Recent research point out the significance of making ideas of what is valuable and important to protect explicit in any disaster risk management initiative that involves several stakeholders. Without doing so may result in stakeholders having difficulties collaborating or even unintentionally impeding each other's efforts by pursuing different goals [5]. It is therefore interesting to study how one can facilitate a constructive dialog among various stakeholders that can possibly lead to a common holistic description of what is valuable and important to protect in

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a particular context. Such a description could include all aspects mentioned by the stakeholders, as well as how they are linked to each other, and could form a common foundation for disaster risk management initiatives. The question is, however, what such dialogue would result in and if such holistic description is even possible when involving a heterogeneous group of stakeholders.

The purpose of this article is to investigate if it is possible for a wide range of stakeholders to construct a common holistic description of what is valuable and important to protect in their context. We use South Africa as the context in which we perform the investigation. South Africa is suitable for the purpose of this study since it is a country prone to a range of disasters and its sophisticated National Disaster Management Act (Act 57 of 2002) and Framework focus on proactive disaster risk management. This policy framework has a strong emphasis on risk analysis, with one out of four Key Performance Areas dedicated to disaster risk assessment, and on participation of a wide range of stakeholders [8]. Therefore, the specific research question investigated in this paper is:

Is it possible for groups of stakeholders on district- and local municipal level in Dr Kenneth Kaunda district municipality, South Africa, to construct a common holistic description of what is valuable and important to protect in their context?

2. Theoretical framework

2.1. Defining risk

The purpose of creating a common understanding of what is valuable, and trying to identify dependencies among various factors, is to facilitate disaster risk management. Therefore, it is important to start by defining the concept of risk and use that as a point of departure for describing what “a common holistic description of what is valuable and important to protect” means.

Most approaches to risk share some kind of idea of uncertainty concerning what may happen in the future and how that can impact what human beings value [4]. Thus, if nobody cares about a specific element in the world, it matters little how different potential scenarios would impact it. Moreover, risk is always determined in relation to a preferred expected future [9–12]. Aven et al. [13] suggest three categories that can be used to describe a majority of the proposed risk definitions:

- “(a) risk as a concept based on events, consequences and uncertainties,
- (b) risk as a modelled, quantitative concept (reflecting the aleatory uncertainties), and
- (c) risk measurements (risk descriptions)”.

We believe that definitions from category (a) are the most useful in the present context since, in general, those types are broader than the more narrow, often technical, definitions of category (b) and (c). For example, many of the definitions belonging to category (b) and (c) assumes

that probabilities or frequencies are the only ways to describe uncertainty for example [14,15].

The focus in an assessment of risk where one uses definitions from category (a) is on anticipating events or scenarios that might cause harm to something that is considered valuable. Moreover, the focus is also on trying to analyse the uncertainties concerning the occurrence of the scenarios and the severity of their consequences. An example of a definition from this category that we use in the present paper is that “risk refers to uncertainty about and severity of the events and consequences (or outcomes) of an activity with respect to something that humans value” [16]. To analyse risk we must in other words be able to analyse (1) what human beings value, (2) what events that can have a negative impact on that, (3) how severe the consequences of the events will be, and (4) the relevant uncertainties associated with the situation. Although this paper focuses on what human beings value, these four parts are incremental in the sense of each being a requisite for the following, i.e. it is neither possible to establish which event to include without having something valuable in mind, nor to determine severity without first defining the event.

2.2. Constructing human–environment systems

Disasters that threaten sustainable development are neither results of linear courses of events, like dominos falling on each other [17], nor unfortunate external events detached from everyday societal processes [18]. Such events are instead non-linear phenomena that emerge within complex systems themselves [17,19]. Neither the actual disasters, nor the risk of them, are external to such system, but rooted in the same complex system that also supply human beings with opportunities [20]. In other words, rooted in our complex world that can be represented by a human–environment system [20–25].

To analyse risk in such a context will require us to, implicitly or explicitly, create models of the world (compare to the Conant–Ashby Theorem [26]). While these models can be both qualitative and quantitative, this study involves only the former as the complexity of what is under study makes it premature to aim for the latter see [27]. However, qualitative methods can elicit information on both structural and functional aspects for the human–environment system, which are central for analysing risk in this context.

The basic building blocks when constructing such human–environment system are elements and directional relations [28,29], creating a branching chain of causal relations through which any impact on the system could propagate to distant parts of it [e.g. 30]. The propagation of a change between each pair of elements may be immediate or delayed to various degrees. The chains of causal relations sometimes create loops, causal loops, feeding back the propagating changes to elements earlier in the chains [28,29,31,34,35]. Such causal loops are prevalent in our world [31] and are yet another source of complexity [32,33], as they often give rise to nonlinear dynamics. It is in other words not only the number of elements that determine complexity, often referred to as detail

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