

Chapter 1

Studying Hazard and Risk in Pastoral Societies

INTRODUCTION

This book centres around the comparison of hazards, risk perception and risk minimising strategies in two African pastoral societies, the Pokot of northern Kenya and the Himba of northern Namibia (see Map 1). Both societies were studied over several years of intensive field research between 1987 and 1999. The central questions guiding the comparative approach are: (1) How are *hazards* generated through environmental variation and degradation, through market failures, violent conflicts and marginalisation? (2) How do these hazards result in *damage* to single households or to individual actors and how does the damage vary within one society? (3) How are *hazards* perceived by the people affected? (4) How do actors of different wealth, status, age and gender try to minimise risks by delimiting the effect of damage during an on-going crisis and what kind of institutionalised measures do they design to insure themselves against hazards, preventing their occurrence or limiting their effects? (5) How is risk minimisation affected by cultural change and in how far is the quest for enhanced security itself a driving force of cultural evolution? Answering these questions in a comparative perspective should lead to generalising hypotheses on the dynamic interrelation of hazards, damage, risk-perception, risk-minimising strategies and buffering institutions in African pastoral societies.¹

A first case-orientated glance at the difficulties of risk management in a pastoral setting will forcefully indicate the need for a holistic, historically embedded and yet comparative and theoretically-informed treatment of hazards and risk management.



Map 1. Location of Field-sites

1.1. DISCARDED BOREHOLES AND PROTECTED PASTURES: THE WAY TO THE SUBJECT OF THE STUDY

In March 1992 I visited the Pokot (north-western Kenya, Baringo District) once again after having stayed there for two years between 1987 and 1989 and for a short while in 1991. It was hot and dusty to the extreme and there was almost no grazing left. The herds were living on bits of trodden down grass and fallen pods of acacia bushes, the fodder of extremely dry seasons which the Pokot contemptuously call *lal*. In the late 1980s I had been to north-western Kenya during better times; the rains in 1988 had been almost double the normal amount and 1987 and 1989 had experienced good rains too. Good rainfall and the absence of raiding, which had marred the decade before 1984, offered the opportunity of carrying out overdue generation-set rituals (Bollig, 1992a, 1994a).

In stark contrast to this, the situation in 1992 was appalling. The rains had been very bad and to make things worse, interethnic warfare had resumed once again. Pokot herders had given up wide areas bordering the Turkana to the north and were crowding into the southern parts of their grazing lands. Of course, it was not only Turkana raiders, who had brought the Pokot into such a precarious situation! Against the advice of their elders young Pokot men had set off on raids. They were looking for booty to build up their herds and for prestige to establish their fame as brave and daring warriors. Each raid sparked off reprisals from the enemy factions. On top of this, raids were usually followed up by operations of the anti-stock theft unit of the GSU, a paramilitary wing of the Kenyan army. Frequently these operations hit innocent households, neighbourhoods were punished summarily and herds were chosen

at random and driven off to compensate the victims. It seemed as if this radically egalitarian society had no institutional capacity to control powerful subgroups who were prepared to accept an increase in vulnerability to the entire community for their own benefits.

This lack of institutional control struck me as important in other instances as well. In March 1992, at the height of the drought, the water-pump at Chesemirion, a small village near Nginyang, had become overcrowded. Next to the people who usually settled there continuously, another twenty or thirty pastoral households had gathered around the pump. They had been forced to move to Chesemirion when the wells and pans in other areas had dried up. Soon an argument arose as to who would have to contribute to the running costs of the motor pump. Whereas the original inhabitants of Chesemirion usually sent somebody to the nearest petrol station once a week to buy diesel for the pump with money each household had contributed, it became virtually impossible to include the newcomers into this arrangement. At the same time it was impossible to exclude the newcomers from using the well. Eventually all households - newcomers and original settlers alike - left the place in the midst of a drought because they could not find a lasting arrangement for the maintenance of the pump.

This short account of the institutional problems of Pokot resource management should not lead to the assumption that all their institutions were generally weak. The Pokot had been extremely successful in sustaining households within a pastoral mode of subsistence despite several catastrophic droughts, violent conflicts and massive demographic growth. To put it in blunt terms, the Pokot were successful when they had to rely on internal solidarity, but when they had to rely on an institutional framework to guarantee a sustainable management of resources and peaceful conflict management they ran into serious problems.

In 1994 I started working with the pastoral Himba of north-western Namibia. At first sight they seemed rather similar to the Pokot. Both economies were livestock based and mobility was an important strategy to guarantee the survival of herds. The economic base of the Himba had been virtually destroyed during a drought in the early 1980's when they lost 90 per cent of their cattle. However, only a decade later the Himba had successfully restocked their herds. Restocking had been at least as efficient as with the Pokot but it ran on other premises. While the Pokot redistributed cattle internally on an egalitarian basis through institutions such as bridewealth and stockfriendships, the Himba redistributed livestock mainly through patron-client networks.

1.2. RESEARCH ON RISK MANAGEMENT IN ANTHROPOLOGY AND THE SOCIAL SCIENCES: AN OVERVIEW

The consideration of hazards, risk perception and risk management are relatively new fields in the social and environmental sciences. For a long time

anthropological theory and research preferred to describe social and economic systems as being in a state of equilibrium. More recent advances in cultural ecology (Moran, 1979), evolutionary biology and ecology (Borgerhoff-Mulder, 1991; Boyd & Richerson, 1985), economic theory (Ensminger, 1992) and political economy (Sen, 1981, 1985; Watts, 1983, 1991) have given risk a prominent status in theory building. These new orientations point out that risk minimisation is central to our understanding of individual strategies and social institutions and not just a peripheral and transient moment in a group's history. There are at least three distinct anthropological approaches to the topic: a formalistic, an ethnographic and an interpretative approach.

1.2.1. Actor-Oriented Approaches to the Study of Risk

Anthropologists interested in forager societies have emphasised risk management strategies as a major force shaping hunting and gathering routines and structuring institutions of food sharing and territorial behaviour (Acheson, 1989; Wiessner, 1977, 1982; Winterhalder, 1990; Cashdan, 1983, 1985, 1990a, 1990b; Kaplan, Hill & Hurtado, 1990). These contributions have in common that they apply rational actor-based models to empirical data. They set off with some clearly defined hypotheses with relevance for a larger theoretical framework, quantify the variation of key-resources and then single out specific strategies of risk minimisation. Finally they test why the strategies empirically found are superior to other, alternative ways of handling unreliable food supplies. Kaplan, Hill & Hurtado (1990) have explained the specifics of Aché (Paraguay) hunting strategies and institutionalised sharing by referring to subsistence risks. Instead of relying on widely available food sources such as palms, the Aché go for the high variance game resource, thereby accepting a much higher unreliability in food supply. Institutionalised food sharing levels out the unpredictable supply of meat. However, by institutionalising the distribution of meat, Aché hunters come upon another problem. Good hunters continuously invest more into meat distribution than poor hunters do. They forsake their higher mean returns in favour of group welfare. According to Kaplan, Hill & Hurtado (1990) they are rewarded by more extramarital affairs and a higher number of offspring thus increasing their fitness in a socio-biological sense. Hames (1990) takes up the subject of sharing as a strategy of lowering the variance of food amongst the Amazonian Yanomami. He finds that the higher the variability of a resource the more intensive the sharing, the larger the spatial scope of sharing and the lower the importance of a kin bias in sharing is.

While the theoretical relevance of the issues discussed was clearly elaborated, the paradigm tended to be pinned down to the anthropology of forager populations. Furthermore, research concentrated on specific types of hazards: aperiodic shortages of food or randomly distributed shortfalls in food acquisition. Institutionalised food sharing (cf. Bell, 1995; Kent, 1993; Kaplan, Hill & Hurtado, 1990) and territorial behaviour (Cashdan, 1983; Smith, 1988)

could well be explained as institutions of risk minimising foragers. However, these studies did not result in models of risk minimisation with a more general applicability. They did not have lucid answers for understanding more complex issues involving actors in politically unstable, internally stratified and heterogeneous, internationally enmeshed and environmentally degraded environments. Three further points of critique must be addressed to these studies: (1) they offered their data in a historically decontextualised way; (2) emic perspectives on hazards were lacking, (3) actors were mainly presented as constrained only by natural conditions but not by existing norms and values and/or political conditions determining ownership rights, exchange in markets and competition with other groups (cf. for a comprehensive critique of these highly formalised studies see Baksh & Johnson, 1990).

1.2.2. Ethnographic Approaches

The literature on hazards and risk minimisation in Africa's dry belts has increased rapidly since the middle of the 1970s. Pastoralists were frequently seen as culprits and victims of the various dilemmas impacting on them. Their alleged conservatism and propensity to accumulate livestock beyond economic rationality made them obstacles to economic development. For almost two decades anthropological reports on pastoral societies have dealt with economic marginalisation and impoverishment (e.g. Hogg, 1986, 1989; White, 1997; Broch-Due & Anderson, 2000), environmental degradation (Spooner, 1989), the dissolution of communal lands (Galaty, 1994; Ensminger, 1992; Hitchcock, 1990; Stahl, 2000), and land loss (Arhem, 1984; McCabe, 1997), internal stratification (Hogg, 1986; Little, 1987, 1992) and social disintegration (Hogg, 1989).

A number of excellent descriptive studies on hazards and risk management in Africa's dryland areas have been written since the 1970s (Swift, 1977; Colson, 1979; Watts, 1983; White, 1984; Johnson & Anderson, 1988; Downs, Reyna & Kerner, 1991; Hogg, 1986, 1989; Hjort & Salih, 1989; Spittler, 1989a, 1989b; Fratkin, 1991; see Shipton, 1990 for an overview of recent literature). These ethnographically condensed accounts clearly indicated that risk management was a major key to understanding African rural communities. Since the early 1980s several major research projects have been focussed on hazards and risk management: The multidisciplinary South Turkana Ecosystem Project (STEP; Dyson-Hudson, 1983; Dyson-Hudson & McCabe 1985; Ellis & Swift, 1988; Little & Leslie, 1999) showed how migrational routes were carefully planned to limit negative environmental impact and to evade violent conflict (Dyson-Hudson & McCabe, 1985; McCabe, 1994; McCabe, Dyson-Hudson & Wienpahl, 1999), how human reproduction was finely tuned with environmental cycles (Little et al., 1988; Leslie & Dyson-Hudson, 1999) and how nutritional strategies balanced annual shortfalls (Galvin, 1987; Galvin et al., 1994; Galvin & Little, 1999). A major point made in Dyson-Hudson & Meekers (1999) is that the viability of the pastoral system is maintained by excluding the

poor from society: poor Turkana tend to migrate out of the Turkana District in large numbers. Broch-Due & Anderson (2000: 3ff) extensively document cases on the social exclusion of the pastoral poor and convincingly show that the maintenance of a pastoral ideal partially rests upon the exclusion of people who do not conform to the ideal.

These contributions are strong on ethnography and provide substantial descriptions of risk management. However, they mainly deal with the economic and ecological side of the problem. We learn little about how people perceive hazards and how they relate them to their belief system. Ritual as a way to cope with unpredictability is not touched upon. Furthermore, no attempt is made to explore generalising hypotheses: the contributions quoted above are first of all excellent descriptions of social and ecological systems and risk management within these environments.

1.2.3. Interpretative Approaches

While Mary Douglas's approach to risk analysis (Douglas, 1985, 1994) has not had much influence on the two paradigms discussed above, it had considerable impact on the study of risk analysis beyond anthropology and is widely accepted as *the* anthropological contribution to the study of risk. Her major contributions 'Risk Acceptability according to the Social Sciences' (1985) and 'Risk and Blame' (1994) embrace the concept of risk perception as a general concept of social analysis. Douglas pinpoints the relevance of the concept in western thought aptly (Douglas, 1994:15): "The idea of risk could have been custom made. Its universalising terminology, its abstractness, its power of condensation, its scientificity, its connection with objective analysis, makes it perfect. Above all, its forensic uses fit the tool to the task of building a culture that supports a modern industrial society." Her approach to the topic is demanding: she develops a theory of risk perception which includes all sorts of risks ranging from nuclear waste pollution to witchcraft in various types of society (Douglas, 1994:22). Her main message is: risk perception is encoded in social institutions.

Although Douglas's approach brings risk perception, as a new sub-field, into the study of risk its analytical focus is vague. The typology Douglas proposes is simplistic and apparently has not influenced empirical studies very much (see Boholm, 1996 for a general critique). In general, studies on risk perception are few. Risk perception as a topic of research has been most frequently analysed by social scientists working in western societies (Beck, 1986; Bechmann, 1993; Douglas & Widlavsky, 1982).

1.3. THEORETICAL SCOPE OF THIS STUDY

The review of recent literature on hazards and risk minimisation suggests some guidelines for this study:

- (1) A wide variety of hazards which have effect on well being and wealth will be studied. Hazards not only affect food security but have malign effects on all three forms of capital, economic, social and symbolic.
- (2) Hazards and risk management will be contextualised historically. Archival research and the extensive study of oral traditions and biographic accounts allows for a diachronic view on the development of hazards and risk management.
- (3) Local perceptions of hazards will be portrayed and their embeddedness in social structures will be traced.
- (4) The provision of generalising hypotheses on hazards and risk management in sub-Saharan African pastoral societies is a major aim of this study. The two-community comparison is aimed at generating hypotheses on the change of hazards and risk management in pastoral societies.

1.4. KEY CONCEPTS: HAZARD, RISK, AND UNCERTAINTY

It is important to define key concepts clearly in order to compare phenomena across cultures and over time. Literature on risk has grown exponentially over the last two decades. Technical sciences deal with the issue just as much as the social sciences - and within the social sciences there are again several strands of basically unrelated research on risk. There is little doubt that a general conceptualisation of the term risk is lacking (Bechmann, 1993:240). Nowadays the concept *risk* is used in colloquial as well as in various scientific discourses and we are confronted with various meanings and definitions.

The etymology of the term *risk* is not clear. According to Luhmann (1993:327) the term emerged during the transition from medieval times to the modern era. According to him the word, adopted from Arabic, was used to designate hazards that were connected to an individual's decisions. While most natural hazards were beyond the scope of human influence, risks were potentially manageable or even the immediate result of decisions. In contrast to Luhmann's rather clear-cut history of the concept, representatives of the insurance studies point out the ambivalent character of the term. Helten (1994:1) relates the origins of the term to the Italian *risco* - "cliff" and draws a line to modern applications of the term from the dangers that cliffs presented to ancient seafarers. Bechmann (1993:240) traces the etymology of the term to the Italian *riscare*, "to dare" which connotes "a possibility to cope with a future that is perceived as unpredictable and hazardous". Some basic variations inherent in the concept are discernible in these etymologies: while the equation with a cliff refers to a hazardous object or a dangerous condition, the differentiation between danger and risk brings in cognition, and the line drawn to the verb "to dare" introduces human agency.

However the concept risk may have been defined at the beginning of the modern era, nowadays its conceptual borders are blurred. In colloquial speech

the term risk may be applied to (1) hazards such as lightning, fire, storms, earthquakes, (2) objects that may cause hazards such as nuclear power plants, fireworks, and subjects that represent certain categories of risk such as smokers, and (3) hazardous activities such as hang-gliding, expeditions to deserts and urban jungles. Jungermann & Slovic (1993) present six scientific definitions of risk of varying complexity.² It was especially the definition of risk as the product of the probability and the extent of specific damage that has dominated insurance studies and sociology for some time. The definition suggests that the phenomenon is easily quantifiable: one looks for the probable frequency of an occurrence and computes it with the expected extent of the damage. One obvious advantage of this definition was its capacity to make risks comparable: after doing the necessary computing, one could compare the risks of nuclear power to the risks of energy supply with coal.

While such clearcut definitions of risk are necessary in insurance studies in order to allocate premiums differentially, they do not capture the core of the problem in the social sciences. Jungermann & Slovic (1993:171) point out that *risk* is not a directly perceivable phenomenon. They conclude (1993:201):

“In short, there is not an ‘objective risk’. Risk is a multidimensional construct. ‘Risk’ exists as an intuitive concept, which for most people means more than the ‘expected number of future damage’. Its mental presentations are shaped by knowledge on the subject matter, by characteristics of the cognitive and motivational system and finally by social reality with its inherent interests and values.”(transl. by author)

In contrast to the sociological approximations of the term, a great deal of anthropological ideas on the concept were tied to the observable. Wiessner (1977:5) defined risk as the “probability of loss or the possibility (or probability) of an unfortunate occurrence....An unfortunate occurrence can be considered to be anything which alone, or in combination with other occurrences, can be detrimental to the survival and reproduction of an individual and his family.” Halstead and O’Shea (1989:3) equate risk and variability: “In practice, variability may be conceptualised in two different ways: as the actual pattern of variation in food supply, or as the operation of those factors, ranging from climate to micro-organisms to human judgement, that influence the availability of a particular resource. Regardless of the focus, the crucial aspect of the analysis is the timing, frequency and severity of shortages.” Cashdan, the editor of one of the most frequently cited anthropological volumes on risk management (Cashdan, 1990b), defines risk in a similar way: According to her terminology risk is the “unpredictable variation in some ecological or economic variable (for example, variation in rainfall, hunting returns, prices etc.) and an outcome is viewed as riskier if it has a greater variance”.

To summarise the argument so far: some anthropologists see risk as the unpredictable variation in resources and hence an objective phenomenon which is accessible to quantitative analysis; in stark contrast to this, many

sociological accounts see risk as a cognitive phenomenon and rarely treat the objective hazards risks are related to, but confine themselves to studies of the social construction of perception. Understandably so: in Western societies the objective world of hazards is relegated to disciplines such as physics (nuclear power), chemistry (pollution) etc. Sociologists are not deemed to understand the inner workings of a nuclear power plant nor are they thought to be able to analyse how people cope with these problems practically. However, anthropologists researching small-scale societies do not deal only with the cognitive world of the people and the social embeddedness of perceptions. They gather data on their economics and their material world too. They are interested in the frequency of droughts, their consequences for livestock mortality, and the vulnerability of a population. On top of that they gather information on the cognitive frameworks people use to interpret misfortune and they collect data on strategies people adopt to cope with crises. Hence, anthropology is in need of a wider terminology than just sociology, insurance studies and economics. At the same time the holistic anthropological perspective promises interesting insights into the interrelations between hazards, vulnerability, perceptions and risk management.

A further, but strongly related problem arises with the terms *unpredictability* and *uncertainty*. Generally *uncertainty* is defined as a lack of information about the world whereas *unpredictability* is a feature of a hazard itself. Only if future damage is unpredictable, i.e. actors are uncertain about their occurrence, do we speak of risks. The lack of information may relate to the temporal framework (we do not know when we have to cope with specific damage), the spatial framework (we do not know what area will be affected) and the extent of damage (we do not know the relevance of damage). Hence, *unpredictability* is a salient feature of hazards and *uncertainty* is a defining criteria for risk, something with which risk is inextricably linked. It is a matter of perception and not of objective, quantitative measurements. Generally partial and total lack of information are differentiated (Helten, 1994:3; Cashdan, 1990b). If risks are socially and culturally embedded in perceptions of future damage, uncertainty is the perception of unpredictability. Uncertainty is connected to emotions, norms, values and knowledge. The prediction of the future in oracles is one of many means of minimising uncertainty.

In conclusion, it is necessary to tie loose ends together and to differentiate hazards, damage, risk and risk management:

- (1) *Hazards* are defined as “naturally occurring or human-induced process(es) or event(s) with the potential to create loss, i.e. a general resource of danger”. (Smith, 1996:5)
- (2) Environmental and socio-political processes may result in detrimental changes in an individual’s and household’s assets. While these changes do not result in easily noticeable losses they result in *vulnerability* increasing the chance that future hazards have a disastrous impact.

- (3) *Damage* results from hazards and is defined as any negative impact on assets and/or the well-being of individuals and groups. *Damage* is often unevenly spread within one population. The extent of *damage* is not only dependent on the severity of the hazard but also on the vulnerability of the household.
- (4) Hazards and the related damage are *unpredictable*. The culturally and socially embedded perception of this *unpredictability* is called *uncertainty*.
- (5) *Risk* relates to an unpredictable or hardly predictable event which has consequences that are perceived negatively. Risks are the culturally and socially embedded perceptions of future possible damage. Risks are neither directly observable nor are they directly measurable. They are multidimensional constructions and are linked (through perception) to the living conditions of a people. A formal definition of risk implies:³
 risk = df
- (a) it relates (i.e. a cognitive process of connecting phenomena) to a specific recognised event X
 - (b) X brings about Y which is negatively evaluated (e.g. drought brings about livestock losses)
 - (c) X lies in the future
 - (d) X is hardly predictable or unpredictable
- (5) *Risk minimisation* is always based on the culturally and socially embedded assessments and perceptions of past and future damage. The analysis of prior personal experiences or consensus based models is always a necessary first step for developing risk minimising strategies. Risk minimisation may be based on conscious decisions or may be embedded in custom and refers to (a) attempts at eliminating the occurrence of negatively evaluated events and (b) to strategies to decrease vulnerability and (c) to limiting the impact of damage once it has occurred.

Anthropological research then deals with four phenomena: (a) the causation and effects of hazards (b) the factual distribution of damage in a population, its frequency and extent, (c) mental constructs of hazards on the basis of social and cultural embeddedness of individual actors, (d) the minimisation of risks, i.e. the attempt to minimise losses and to decrease vulnerability.

1.4.1. Hazards and Damage

The causation of hazards and damage to households and individuals in Africa's drylands are discussed controversially in various sciences: while environmental factors have been traditionally emphasised by geographers, demographers see rapid population increase out-pacing the growth of agricultural

production as the main cause for a crisis. Social and political scientists point out that there is no simple correlation between drought, demographic growth and hunger and frequently see the commoditisation of production and distribution, the concentration of the means of production with a rural elite, the growing dependency on outside markets (peasantisation) and the marginalisation in a globalised economy as primary causes for a growing vulnerability in Third World rural societies (Glantz, 1987:39 and Watts, 1991 for overviews; see Sen, 1981, 1985 for the most influential writings in this direction). However, a short overview of the literature shows that it is not an issue of either/or but rather one of a growing interdependency of a multitude of factors that increases the vulnerability of many populations living in Africa's dry belts (Shipton, 1990).

The following hazards will be discussed, as causes for disasters, in subsequent chapters: (1) demographic growth out-pacing resources, (2) degradation of resources as a consequence of over-exploitation (frequently termed desertification), (3) changes in access to and command over resources as a consequence of commoditisation, increasing stratification and more exclusive formulation of property rights (usually summarised after Sen 1981 under the term *entitlement decline*), (4) short-term climatic changes (usually droughts), (5) livestock epidemics, (6) violent conflicts interrupting production and exchange. These hazards lead to the loss of property and frequently result in famine.⁴ While it is possible to qualify and quantify damage resulting from droughts and epidemics it is harder to estimate damage caused by population growth, degradation and entitlement decline. While e.g. drought causes damage to individual property, the damage caused by rapid population growth outpassing local resources is more abstract and is borne by the community. Demographic growth, environmental degradation and entitlement decline develop their impact over a long time span, whereas drought, violent conflicts and epidemics have sudden, frequently disastrous consequences but are reversible in a relatively short time.

1.4.2. The Perception of Hazards

All cultures have specific ideas about the natural and social problems they are trying to cope with. Usually concepts exist to explain personal misfortune and environmental hazards. There are broad frames for the explanation of negatively evaluated events (e.g. witchcraft, pollution) as well as naturalistic explanations of hazards and growing vulnerability.

Mary Douglas (1994) was adamant in her basic hypothesis that the perception of hazards is socially embedded and that specifics of hazard perception in each culture can be traced back to social institutions. Douglas (1994:5) differentiates societies who prefer moralistic explanations of misfortune and those who attribute misfortune to internal or external enemies. Applying the grid/group analysis⁵ she looks at how different "ways of life" define risk perception. On the basis of these concepts Douglas develops a set

of “cosmological types”, all of which have developed their special relationship towards the environment, to other people and the self and, of course, to risk: for example, while egalitarian people see their natural surroundings as fragile and approach technological innovations cautiously, individualistic societies see abundance and chance in nature. Hierarchical societies tend to emphasise the necessity of rules mediating between society and nature: if these rules are violated the system breaks down, if they are accepted, nature and society will do well. Fatalistic societies see natural processes as unpredictable and ruled by constant change (see Boholm, 1996 for a critique of this approach).

As yet, Douglas has found few followers who could fill her model with empirical data. However, there have been several attempts to show the general trends of risk perception in specific cultures. Göbel (1997) points out that luck (*suerte*) is a key concept of pastoralists in north-west Argentina in describing risk and uncertainty. The term connects environmental and social uncertainty to actor specific management strategies. Economic success and failure are seen as instances of “having luck” or “not having luck”. It is thought that not all people possess the same degree of luck with the same things. While some people may be luckier than others in trade, others may have more luck with specific livestock. The Beja herders of north-eastern Sudan interpreted consecutive droughts as a sign of God’s wrath. They saw the immorality of urban dwellers as a major instance arousing God’s propensity to punish all the living (Hjort & Dahl, 1991:173). Scoones (1996: 151) shows that in a community of Zimbabwean farmers, different concepts of risk were in use at the same time: while one group connected a recent drought to disgruntled ancestors, others perceived unstable political conditions as the root cause of all other hazards. They saw drought and degradation as caused by a corrupt and incapable government. Another group pointed out that risks mainly arose from social conflicts. A fourth party (the church-goers) explained the drought as divine punishment for social misdemeanours. Scoone’s example forcefully shows that there is not a culture-specific mode of risk perception per se: various concepts to explain disaster may be in use and may be used by actors according to their personal experience and their personal goals.

In recent years anthropologists have worked on specific fields of risk perception rather than on general conceptual approaches to risk. There is a growing body of literature on indigenous knowledge which closely relates to the perception of environmental risks (see e.g. Brokensha, Warren & Werner, 1989; Warren & Rajasekaran, 1995). Indigenous perceptions of sustainable resource management and of environmental degradation give a good idea of emic accounts of environmental vulnerability. Sollod (1990) conducted a survey on Tuareg perceptions of rainfall variability. Tuareg herders perceived drought as a prolonged process of consecutive years with below normal rainfall. Single years with severely diminished rainfall were not identified as droughts by herders. While actual rainfall data did not imply trends or cycles, Tuareg herders conceptualised droughts as regularly reoccurring phenomena (Sollod, 1990:287f). Ethnoveterinary accounts (McCorkle, 1986; Catley & Mohammed, 1995) report indigenous ideas of how diseases are caused.

Somali herders clearly distinguish between transmittable and non transmittable diseases and have a clear idea on disease aetiology via ticks and flies (Catley & Mohammed, 1995:12).

1.4.3. Risk Minimisation

Halstead & O'Shea (1989:3) define risk minimisation or buffering mechanisms as "practices [that] are designed to lessen the impact of variability by dampening its effects". They group risk minimising strategies into four major practices "mobility, diversification, physical storage and exchange". Colson's typology of risk minimisation (1979:21) points out five strategies as common devices to counter future damage: (1) diversification, (2) storage of food, (3) storage and transmission of information on famine foods, (4) conversion of surplus food into durable valuables which can be stored and reconverted into food during crises and (5) the cultivation of social relationships to allow the tapping of food resources of other regions. Browman (1987:171) in an account on risk management of Andean pastoralists, identifies similar types of risk management: (1) reduction of productive risks (terracing, special pasturing), (2) diversification of productive strategies even within single crops, (3) movement and/or fragmentation of land holdings, (4) social networks and (5) storage technology (in many ways similar typologies are offered by Watts [1988] and Fleuret [1986]). These typologies of risk minimising strategies are fairly close to empirical data and offer little abstraction. Wiessner (1977:6), in a theoretically motivated way, differentiates three ways of reducing risk: (1) prevention (the reduction of hazards), (2) transfer of risks to another party, (3) self-assumption and self-insurance. She sees prevention as attempts at minimising losses and at reducing vulnerability. Transferring risks implies the shifting of probabilities of loss from one party to a politically subordinate party (which has to accept the shift because of power relations) or to a specialised party (which makes profits on taking on risks from others). Self-assumption and self-insurance may include (1) the absorption of losses by previously accumulated food and goods (e.g. grain stores), (2) the sale of assets in order to exchange the gains for food so as to compensate for losses and (3) the distribution of losses over a "large number of independent exposure units so that losses can be more predictable and can be absorbed by the gains of other units" (Wiessner, 1977:8).

Forbes (1989:89) emphasises the different levels of risk minimisation and points out some fundamental differences between first defence mechanisms (or: lower-level hazard response mechanisms) on the one hand and emergency and catastrophe mechanisms on the other hand which he subsumes under the concept higher-level hazard response mechanisms. While lower-level hazard response mechanisms (such as the diversification of economic strategies) are energetically intensive, have a low visibility and are socially acceptable, higher-level hazard response mechanisms (e.g. begging, eating unusual food) have a high visibility, require only low energetic inputs and are frequently socially unacceptable. Strategies applied during an ongoing crisis are frequently

extensions of lower level response mechanisms: while mobility is important in pastoral societies in any year, it becomes indispensable in drought years; the sharing of food is important in many social situations, even in normal times, and during a crisis food sharing may increase the reliability of supplies to all members of a group. However, there are differences too: resource protection is essential in thwarting the dangers of a fragile environment, during a drought however, people will not pay much attention to resource protection but rather rely on an efficient harvest of what is left. In a more complex way Shipton (1990:363f) differentiates temporal sequences of responses (1) precautionary strategies: diversifying, rotating crops, planting drought-resistant crops, accumulating herds, storing debts, maintaining friendships in distant groups, (2) earliest or most reversible measures: intensifying production or trade, substituting foods, splitting households into smaller units, (3) immediate or semi-reversible responses: borrowing money, pledging land, stealing, expelling clients, (4) last or least reversible responses: expelling elders or dependent kin, selling relatives, permanent out-migration.

Risk minimising strategies have been lauded as the backbone of indigenous economies. Costs of risk minimising strategies were often forgotten altogether. Land fragmentation involves exorbitant (time) costs as a farmer has to move between twenty or more plots (Forbes, 1989). The benefits of fragmentation are that through the distribution of holdings the danger of being hit by a single hazard (e.g. crop pest) is reduced. Poly-cropping has obvious benefits which have been frequently commented upon. However, they also entail costs, as no single crop in a field with many different crops will result in optimal yields. The costs of food sharing systems in forager societies are borne out by successful hunters. Kaplan, Hill & Hurtado (1990) for the Paraguayan Aché, Hames (1990) for the Brazilian Yanomamö and Kent (1993) for a group of San foragers from Botswana show that hunting fortunes do not level out over time. Good hunters contribute consistently more to the common pot than poor hunters do. For them food sharing as such involves costs rather than benefits. In the same vein livestock loaned by wealthy herders to poorer comrades are first of all animals which are no longer of immediate use to the owner. Institutions ensuring the protection of resources bear costs too: free-riders have to be punished and energy has to be spent on screening people who have transgressed the rules. Sometimes such institutions of communal management become so overburdened by transaction costs that they are altered into other less cost-intensive institutions. Only a cost/benefit analysis of specific risk minimising strategies will make changes in management strategies understandable.

1.5. ON CONDUCTING FIELDWORK IN TWO SOCIETIES

Intensive field research was conducted with the Kenyan Pokot and with the Namibian Himba. After a two month period of archival work in Nairobi in

1986, a first two-year long period of field work was conducted between October 1987 and September 1989 amongst the Pokot. Further field stays in 1991, 1992, 1993 and 1996 lasted between four and ten weeks. In Namibia, field work was conducted for a period of 25 months between February 1994 and March 1996. Four further field stays in late 1996, 1997/98, 1999 and 2001 lasted for four to eight weeks each. A two week visit to the Pokot in March/April 2004 and a three month field stay in late 2004 in Namibia resulted in data which has not been fully analysed within the context of this book. However, both fieldwork periods contributed greatly to the long-term perspective of this study. In total a period of 31 months was spent both in Kenya with the Pokot and in Namibia with the Himba.

In both settings I stayed with a wealthy and well-established household. Amongst the Pokot I chose to live with the household of a temporary research assistant, whereas amongst the Himba I decided to establish my camp next to a household I had become acquainted with during an exploratory tour of the area in 1994. In both instances the decision to live with a well-to-do household proved favourable. The dignity and authority of both household heads sheltered me from over-curious neighbours and at the same time supplied me with numerous guests and potential informants. Both men were - although not leading political figures - highly esteemed elders in their respective communities.

The higher spatial mobility of the Pokot also forced me to change my place of living more frequently. During the 31 months of fieldwork amongst the Pokot I lived in at least nine different places. Amongst the Himba, households usually shift between one settlement site in the rainy season and one in the dry season while livestock camps are more mobile. During the 31 months of field work amongst the Himba I only stayed in five places. The higher mobility of the Pokot brought about changes in the neighbourhood we lived in. Right at the beginning of my research in Kenya, I found these shifts rather discouraging. I had just started to feel at home in one neighbourhood, when the shift to a new site forced me to become accustomed to a new set of people. However, after some time this resulted in the situation that I got to know many people beyond the immediate neighbourhood. Amongst the Himba I was socialised within one wider neighbourhood, which consisted of about 40 households. I only left this neighbourhood occasionally for surveys in other communities. During my latter stays in the region in 1997 and 1998 I had the opportunity of starting work with Himba communities across the Kunene river in southern Angola.

Learning the local language was a major task in both instances. Pokot proved more difficult than Otjiherero (the Himba language) in this respect. The linguistic base of Pokot language has not been well described up until now. There were two grammars written by missionaries (Crazzolaro, n.d., Hereros et al., 1989) based on language material from West Pokot which constitutes another dialect of the Pokot language. During the first months of my stay amongst the Pokot, I only worked with translators. Only after about

three quarters of a year did I became versatile enough to conduct simple dialogues alone. During the latter months of my field work, I worked with an assistant only when transcribing and translating tapes. In Namibia I took more care to invest a lot of time into language training right at the beginning of my field stay. There were several grammars (Ohly, 1990; Booysen, 1982; Überall, 1963) and even a trilingual dictionary (Viljoen & Kamupingene, 1983). After about three months I was able to conduct simple survey interviews by myself and after about a year I had developed enough language capacity to conduct all the interviews by myself.

1.6. COMPARATIVE RESEARCH

Epistemological progress in anthropology depends on the comparison of social phenomena. Comparisons at different levels are needed in order to gain insight into the structural relations between culture and society, the evolution of societies and the relation between individual strategies and social institutions (Schweizer 1998). Only comparative research designs lead to valid explanations beyond the single case. Furthermore comparative research leads to a broader understanding of options and limitations within a specific type of society. The present book presents a two community comparison. Johnson has attempted to delineate the benefits of such an approach to which the present study fully subscribes:

“... two community comparisons are useful, in that they do produce convincing explanatory analyses....Two community comparisons, to the extent that they involve systems of variables, can be quite plausible, just because the kind of accident that could produce a spurious correlation between two variables is highly unlikely to produce a theoretically predictable correlation between sets of any interrelated variables.” (Johnson, 1991:14).

Salzman (1971:104) stated that pastoral studies have been strong on ethnography but weak on generalisation. He aptly warned “what we must not do is to regress to the position that better field work and more and more ethnographic detail will somehow be miraculously transformed into general knowledge, for if theory without data is baseless, data without theory is trivial”. However, next to numerous good monographic studies, there have been few comparative studies on pastoralists. These few studies are of a different scope: (1) while some are interested in regional processes, others attempt to find general characteristics of pastoral societies; (2) while some clearly define the variables to be compared, others just aim at a general account of pastoralism with an implicit comparative perspective; (3) while some are based on field work others are based on literature.

In an early attempt Gulliver (1955) compared the pastoral Turkana and the agro-pastoral Jie. Both are neighbouring communities, the Turkana living

in the hot and arid plains of north-western Kenya and the Jie on the escarpment just over the border in north-eastern Uganda. Gulliver sees both groups as representatives of two different types of pastoralism: while the Turkana are specialised and highly mobile livestock breeders, the Jie have a mixed economy in which they combine livestock husbandry and rain-fed millet cultivation. How do these differences in economy reflect upon kinship relations and property rights? Gulliver (1955:244) finds that similarities between both societies are due to the close historical relationship of both cultures. In fact, both populations have developed from one earlier population living in northeastern Uganda. Differences are basically due to the different environment. Harsh conditions and a high degree of unpredictability has led to the situation in which the Turkana rely more on a network of widely distributed stock friends, while the Jie rely rather on the solidarity of a localised kinship group. An ambitious effort to compare pastoral and agro-pastoral societies was undertaken by Schneider (1979). He assumes that “where pastoralism occurs, egalitarianism results from the fluidity of this form of wealth and the inability of any person to monopolise its production. Where the rate of production of livestock is lower than 1:1, exchanges between people become characterised to one degree or another by submissiveness due to the monopolisation of material resources, mainly land, by a few chiefs and aristocrats.” (Schneider, 1979:10). A carefully designed comparison of four pastoral and agro-pastoral communities in eastern Africa was assembled by Edgerton (1971): four independent field studies were conducted in East African communities that had a pastoral as well as an agro-pastoral section (Pokot, Kamba, Gogo, Sebei). This research frame was designed to trace causes for certain cultural and psychological traits and link them either to the economic specialisation or to the cultural background. Goldschmidt (1971) summarised some of the results of the study in which he gathered ethnographic material on the Sebei. According to the study pastoralists tend (1) to display emotions more openly and are generally freer in their expressions of affection, whether positive or negative, (2) to be more given to direct action in interpersonal relationships and less to deviousness (3) to be more independently-minded in their behaviour, (4) to display more social cohesiveness despite their greater independence of action, (5) to have stronger and more sharply defined social values such as independence, self-control and bravery (Goldschmidt, 1971:132f). Recently scholars have conducted two community comparisons of pastoral societies in several instances. Typically the comparison is based on extensive fieldwork in two societies. Casimir (1991) analyses nutritional strategies amongst the Nurzay Pashtuns of Afghanistan and the Bakkarwal of Jammu and Cashmere. Galvin, Coppock & Leslie (1994) compare diet patterns amongst the Ethiopian Borana and the Kenyan Turkana. Roth (1994) juxtaposes marriage strategies amongst the Kenyan Rendille and the Sudanese Toposa and finds that while the Toposa use polygyny for forming clan alliances, marriage amongst the Rendille is rather an instrument for economic planning. Some years earlier, with a less refined approach, Legesse (1993) compared demographic trends and environmental

management amongst the northern Kenyan Gabbra, Borana and Rendille: he found that the Rendille mismanaged their environment grossly, while the Gabbra successfully maintained the viability of the pastures they exploited. Beyond that a large number of recently edited volumes focus on specific problems of pastoralism and attempt some sort of comparison (e.g. Fukui & Turton, 1989 and Fukui & Markakis, 1994 on conflict management; Almagor & Baxter, 1978; Baxter & Hogg, 1990 and Anderson & Broch-Due, 2000 on poverty in pastoral settings; Hodgson, 2000 on gender to give only a few examples). These volumes are usually the result of thematically orientated conferences. However, these contributions do not undertake any strict comparisons with the aim of providing or testing hypotheses. Rather they present cases in order to portray cross-cultural variation of a specific problem or variable. The present study takes another route: two societies are compared under a similar research design and with the focus on a specific, theoretically interesting sub-field.

After giving a rough and comparative outline of Pokot and Himba societies in section 2, the major hazards to the pastoral system and resulting damage to pastoral households are described in a comparative way in section 3. Section 4 presents emic views on hazards in both societies. Sections 5 and 6 compare risk minimising strategies. Whereas section 5 deals with immediate reactions to an ongoing crisis, section 6 deals with precautionary strategies. The final section 7 condenses the results of the comparison and works towards a theory of risk management and social change in African pastoral societies.

ENDNOTES

1. Schweizer (1998) identifies the discovery and testing of hypotheses that are true for many cultures and societies as the basic aim of cross-cultural research. In an introduction to comparative methods in anthropology, he sees the construction of hypotheses as the main goal of comparisons with a limited number of cases, while cross-cultural comparisons with larger samples aim at the testing of hypotheses.
2. They list the following definitions: (a) risk as the probability of damage, (b) risk as the extent of damage, (c) risk as a function (usually the product) of probability and extent of damage, (d) risk as the variance of probability distribution of all possible outcomes of a decision, (e) risk as the semi-variance of the distribution of all negative outcomes with a definite point of reference, (f) risk as a weighed linear combination of the variance and the expected value of a distribution of all possible consequences (Jungermann & Slovic, 1993). (translation by the author)
3. Next to inspiring discussions on the intricacies of defining the concept *risk*, my colleague Hartmut Lang supplied the formal definition of the concept.
4. Shipton (1990:358) defined famine as "severe shortage or inaccessibility of appropriate food (including water), along with related threats to survival, affecting major parts of a population."
5. The term *group* is defined fairly conventionally as a number of people with some sort of common identity and with a definition of its borders (Douglas, 1978:8), while the concept grid is defined as "the cross-hatch of rules to which individuals are subject in the course of their interaction". (Douglas, 1978:8).