

Chapter 8

Ingredients for Social-Ecological Resilience, Poverty Traps, and Adaptive Social Protection in Semi-Arid Africa

Petra Tschakert and L. Jen Shaffer

Abstract Resilience is much more than bouncing back after a shock. It also involves the ability of individuals, communities, and entire regions to self-organize and increase their capacity for learning, experimentation, and adaptation. In the context of climate change, a resilience perspective emphasizes learning from the past (memory), monitoring the present, and the ability to anticipate and prepare for the worst. It includes learning to live with change and uncertainty by combining different types of knowledge, envisioning possible futures, and enhancing flexibility in decision-making and planning. Rather than learning by shock, a resilience lens offers a potentially empowering arena for nurturing innovation and the capacity to transform in order to navigate both slow and incremental environmental changes and rapid-onset crises.

This chapter explores the role and potential limits of iterative learning processes for climate change adaptation in rural African communities characterized by high and chronic poverty, coupled with low awareness for complex drivers of change. It stresses learning, memory, creativity, and the need to move forward in spite of imperfect knowledge and vast uncertainties. At the same time, the chapter identifies critical institutional, policy, and power barriers, and potential limits at multiple scales that inhibit just and timely adaptation among vulnerable and marginalized populations, especially those dependent on rainfed agriculture. We identify poverty traps as complex thresholds typified by shifts and losses of key household assets, increasing failure of livelihood response strategies to social and ecological stresses and shocks, ineffective social networks, and limited anticipatory capacity to

P. Tschakert (✉)

Department of Geography, Pennsylvania State University, 322 Walker Building,
University Park, PA 16802, USA

Earth and Environmental Systems Institute, Pennsylvania State University,
322 Walker Building, University Park, PA 16802, USA

e-mail: petra@psu.edu

L.J. Shaffer

Department of Anthropology, University of Maryland, College Park, MD, USA

embrace change, uncertainty, and surprises. We conclude by proposing adaptive social protection as a prospective yet potentially insufficient means for bypassing or escaping poverty traps in the semi-arid tropics of Africa, and facilitating transitions towards livelihood resilience.

Keywords Adaptive social protection • Anticipatory learning • Limits to adaptation • Poverty traps

8.1 Introduction

Resilience is much more than bouncing back after a shock. It also involves the ability of individuals, communities, entire regions, and social–ecological systems, to self-organize and increase their capacity for learning, experimentation, and adaptation. Enhanced creativity, innovation, and the willingness to share and nurture connectedness are considered additional essential ingredients. From a coupled systems perspective, a resilience lens stresses the dynamic interplay of disturbance and reorganization, cross-scalar interactions, and integrated system feedback (Folke 2006). Chapin et al. (2006), for instance, distinguish slow variables (e.g., soil resources, cultural ties to the land) and fast variables (e.g., fire events, population density) that characterize complex social–ecological systems, as well as the institutional responses to these different variables, embedded in social and ecological processes defined by exogenous controls. Understanding the interplay of endogenous and exogenous dynamics and responses is at the core of climate change adaptation and livelihood resilience under climate uncertainty.

In the context of an interdisciplinary project entitled Anticipatory Learning for Climate Change Adaptation and Resilience (ALCCAR), funded by the National Science Foundation,¹ we have been using a resilience perspective to emphasize learning from the past (memory), monitoring the present, and the ability to anticipate and prepare for the worst (Fig. 8.1). We explicitly include learning to live with change and uncertainty by combining different types of knowledge, envisioning possible futures, and enhancing flexibility in decision-making and planning (Tschakert and Dietrich 2010). Rather than learning by shock, we see a resilience lens offering a potentially empowering arena for nurturing innovation and the capacity to transform in order to navigate both slow and incremental environmental changes and rapid-onset crises.

In this chapter we draw upon the ALCCAR project first to illustrate characteristics of livelihood resilience to climate variability and change among subsistence farmers and fisherfolk in Ghana and Tanzania. Then we explore the existence of barriers and limits during the process of adaptation and identify possibly poverty traps likely to hinder certain groups or populations to adapt or transform successfully. Next, we examine two case studies—one from South Africa and the other

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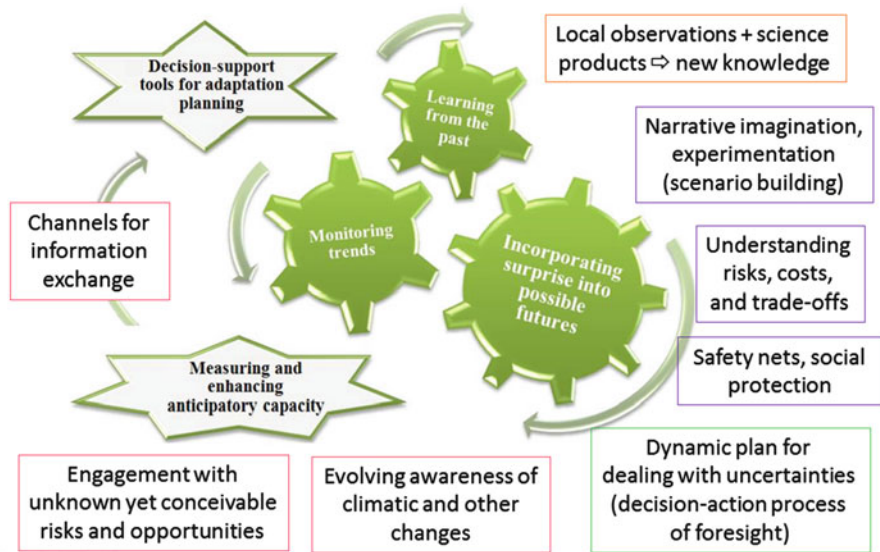


Fig. 8.1 Conceptual framework of anticipatory learning for climate change resilience, designed for the ALCCAR project (after Tschakert and Dietrich 2010)

from Nigeria—to shed light on critical factors which may determine thresholds in livelihood trajectories and implications for avoiding or escaping poverty traps. Finally, we explore the role of adaptive social protection to prevent destitution and collapse, as well as the ethical subtext of dismissing responsibilities.

8.2 Anticipatory Learning and Livelihood Trajectories

The ALCCAR project demonstrates the value, and limitations, of iterative learning processes to enhance adaptive capacity among vulnerable and often marginalized livelihoods in semi-arid regions of Africa. Four years of collaborative work with rural communities in Ghana (Odumase, Xedzoedzokepe, Akeymfour, and Bowiri) and Tanzania (Mlingotini, Makurunge, Chekereni, and Rau) reveal high and chronic poverty coupled with incomplete awareness for complex drivers of change, albeit to different degrees. Through a series of individual and group learning activities, community members, agricultural extension agents, district-level policy makers, and researchers engaged in collective learning. They have drawn upon their memory and creativity, and explicitly acknowledged the need to move forward in spite of imperfect knowledge and vast uncertainties, particularly with respect to climatic and economic futures and the interaction of endogenous and exogenous dynamics that shape rural realities. These activities included constructing historical matrices of past climatic events, scoring of community performance regarding

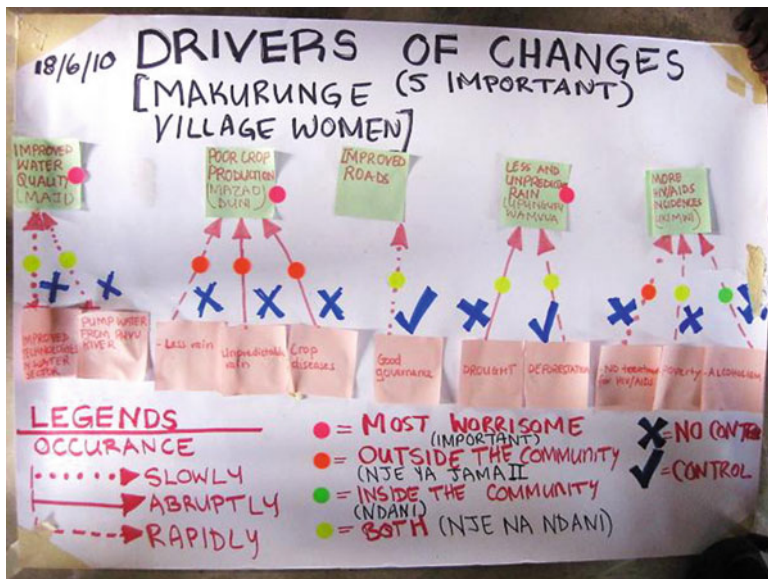


Fig. 8.2 Participatory mapping showing pace, origin, and control over five key drivers of change, as seen by a women's group in Tanzania (ALCCAR field work)

anticipatory capacity, walking journey landscape interviews, assessments of past and future drivers of change, environmental monitoring, and participatory scenario building.

Following Enfors et al. (2008), who employed future thinking for climate change resilience in Tanzania by building on prior understandings of waves of historic disturbances and shocks, ALCCAR tapped into community memory of past extreme climate events to validate individual and collective experiences, responses, and their varying degrees of success. At least ten droughts and more than a dozen flood events characterize the last 60 years, including extreme events such as the 1984/1985 drought in Tanzania and the 1995 excessive rains in Ghana both of which destroyed fields and crops, triggered human and animal diseases and crop pests, and caused migration, hunger, and death. While these examples showed a suite of response strategies to mitigate harm, their effectiveness varied depending on household assets and the severity of the crisis, which underscores differential adaptive capacity among potentially vulnerable groups.

Shifting from past experiences to anticipate future trajectories revealed deforestation, irregular rainfall, declines in soil fertility, and improved infrastructure and water supply as major changes expected in Ghana. In Tanzania, land scarcity and reduced and unpredictable rains worried most research partners. To understand better the social, ecological, economic, and political drivers that are likely to impact household and community resilience in these communities, we looked specifically at pace, origin, and control over dynamics which will likely drive these changes (Fig. 8.2). Results indicate that drivers expected to occur rapidly or

abruptly with their origin outside the community and those beyond people's control were likely to be the most difficult to manage, and hence may represent the most severe threats to community resilience. For Ghana these included cattle encroachment, excessive consumption of alcohol, and the "get-rich-quick syndrome" (exploitive resource use, e.g., for charcoal production). In Tanzania, rising poverty, crop diseases, and unpredictable rains emerged as posing most concerns for livelihood resilience.

Finally, lessons learned through the participatory scenario building exercises suggest that local resource managers and policy makers alike struggle to make sense of the complexities and uncertainties of climate change. We see clear limitations in people's capacity to grasp local climate futures (we used down-scaled global climate model projections) and global processes, despite various efforts to introduce, translate, and unpack external science information in various learning cycles. It remains to be tested whether such understandings or lack thereof constitute irrelevant obstacles in the adaptation process or require more and more concentrated efforts to be overcome. In Ghana, distinctly more so than in Tanzania, community members had a firm tendency to create over-idealistic futures with unabated development and strong community unity; it was felt that only exogenous threats could undermine their future.

Similar to Ravera et al. (2011), who use conceptual modeling and participatory scenario development in the context of agropastoralists in semi-arid Nicaragua, our results demonstrate that these tools are vital ingredients for iterative learning cycles and can empower local stakeholders by illustrating opportunities and threats associated with several plausible futures. Moreover, through purposeful envisioning, deliberation, and negotiations over likely trade-offs, they can overcome potential denial, helplessness, hopelessness, and paralyzing fatalism at the backdrop of concurrent challenges. Ravera et al. (2011) further proposed a heuristic analysis of vulnerability and resilience trajectories that visualizes the multiple facets of change in complex regional social-ecological systems (Fig. 8.3). While it appears highly relevant for adaptation planning and policy decision-making, the authors suggest that it requires further refinement for identifying critical thresholds and potential irreversibility.

In this respect, a study by Sallu et al. (2010) on livelihood trajectories and resilience in rural Botswana advances our understanding of the dynamics that households undergo, shifting in and out of vulnerability and quasi-resilient states, depending on their ability to diversify and accumulate livelihood assets. By tracking agro-ecosystem states, access to physical and financial assets, and response capacity over three decades, the authors draw attention to the large majority of dependent households who seem to have no choice other than to follow a degenerative trajectory leading to increased livelihood vulnerability (see Box 8.1). It is through analyses like this that we gain a better understanding of critical thresholds in individual and collective abilities to withstand multiple stressors, including climate change.

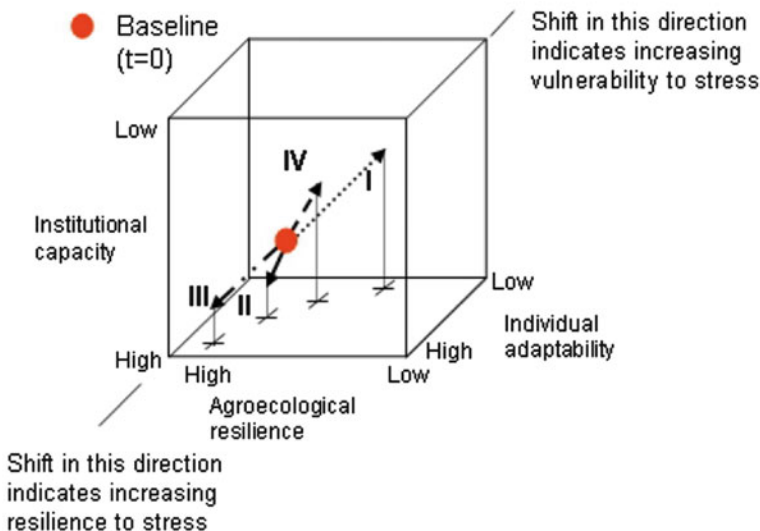


Fig. 8.3 Resilience/vulnerability trajectories (Ravera et al. 2011)

Box 8.1: Example of a Degenerative Livelihood Trajectory in Rural Botswana

T = time; V = vulnerability; R = resilience

T1, 1974: high capacity for agroecosystem to remain productive, high levels of access to natural assets, moderate accumulation of financial and physical assets (livestock), moderate capacity to respond (asset shock)

R1: Engagement in diverse livelihood activities

T2, 1980s: low capacity of agroecosystem to remain productive, retained access to some natural assets (hunting permit), limited access to other natural assets (drought), some physical and financial asset stores, moderate capacity to respond (RAD program support)

V1: Loss of livestock

T3, 1990s: moderate capacity of agroecosystem to remain productive, loss of financial and physical asset stores, loss of access to natural assets (permit changes), increasing reliance on government support

V2: Loss of livelihood activity

T4, 2000a: some capacity of agroecosystem to remain productive, no asset stocks, total reliance on government support

V3: Sole reliance on government support

After Sallu et al. (2010)

8.3 Barriers, Limits, and Traps

Increasingly, adaptation to climate change is understood as inevitable yet not equally accessible, available, and feasible. Lessons from our ALCCAR project indicate limited access to reliable climate information among rural communities and governmental agents, particularly in Ghana, restricted options for livelihood diversification, and the intersection with other livelihood challenges (e.g., increasing crime, difficulties in acquiring new farmland, continuous bush fires) as major obstacles in coping with climate change. These immediate factors interact with policy, institutional, and power barriers, and potential limits at multiple scales which inhibit just and timely adaptation among vulnerable and marginalized populations, especially those dependent on rainfed agriculture. The Fourth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC) offered useful categories of limits (Box 8.2). Barriers are defined as “obstacles that can be overcome with concerted efforts, creative management, change of thinking, prioritization, and related shifts in resources, land uses, institutions, etc.” (Moser and Ekstrom 2010: p. 22027). Limits, on the other hand, are “obstacles that tend to be absolute in a real sense: they constitute thresholds beyond which existing activities, land uses, ecosystems, species, sustenance, or system states can no longer be maintained, not even in a modified fashion. Beyond such limits looms irreversible loss (and the adjustment to living with that loss) and/or radical system shifts, including innovation and novelty” (Moser 2009: p. 33). Adger et al. (2009) argue that many seeming limits are in fact malleable barriers which could be overcome with political will, adequate resources, and social support; this is particularly true for social limits. Jones and Boyd (2011) provide a useful categorization of social barriers, distinguishing between cognitive behavior, normative behavior, and institutional structure and governance. Peterson (2009) further examines ecological limits while O’Brien (2009) considers the role of values in subjectively defining limits to adaptation.

Box 8.2: Different Times of Limit to Adaptation

Physical and ecological limits (thresholds in the resilience of kelp forest ecosystems, coral reefs, rangelands and lakes affected both by climate change and other pollutants; rapid sea-level rise and transformation of islands; droughts in sub-Saharan Africa leading to land degradation, diminished livelihood opportunities, food insecurity, internal displacement of people, cross-border migrations, and civil strife; loss of key stone species; regime shifts in ecosystems)

Technological limits (technologically possible vs economically feasible and culturally desirable; not accessible to all—increased inequalities and side-effects for others)

(continued)

Box 8.2 (continued)

Financial barriers (local poverty; enormous international costs for climate-proofing; even barriers to climate-risk insurance)

Information and cognitive barriers (more knowledge doesn't mean action—attitude-behavior gap; differential risk perceptions and priorities for subjective, immediate, and known risks; divergence between perceived and real adaptive capacity; public confusions, appealing to fear and guilt)

Social and cultural barriers (different risk tolerances, different preferences about measures depending on worldviews, values, and beliefs; differential power and access to decision-making)

After Adger et al. (2007) (IPCC, WG II, Chap. 17)

Exploring the multiple angles of adaptation has offered a timely lens to scrutinizing what so far has been largely defined from a techno-economic perspective—infrastructural interventions, technological innovations, and cost-benefit analyses. To zoom in further on key processes, Thornton and Manasfi (2010) propose a systematic assessment of actions that people typically undertake during adaptation (mobility, exchange, rationing, pooling, diversification, intensification, innovation, and revitalization), and factors blocking these actions. Moser and Ekstrom (2010), in a somewhat different approach, propose a framework that identifies barriers at various stages of three distinct phases of the adaptation process—understanding, planning, and managing. These include thresholds of concern for detecting a problem, level of agreement to (re-)define the problem, authorization to implement options, ability to monitor outcomes, leadership to develop options, and thresholds of concern over possible negative consequences.

Drawing attention to a multitude of barriers and potential limits, especially those related to social, cultural, and institutional dimensions, introduces both a long overdue social framing of adaptation and a humanizing lens exposing pre-existing inequalities and injustices, chronic poverty, disempowerment, and structural violence, all of which hamper successful adaptation. Perhaps more importantly still, an explicit focus on barriers and limits allows connecting the adaptation community with both the development and the resilience community, both of whom have been examining poverty and poverty traps, even though from a slightly different angle. We argue that linking these conceptual worlds more explicitly provides useful insights into social, ecological, and potentially moral thresholds and their interconnections in complex and coupled systems. More specifically, we propose to identify critical thresholds in livelihood trajectories, expanding on Sallu et al. (2010), which indicate desirable pathways (“upwardly mobile”) and undesirable pathways (potential descent into poverty traps), and prospective interventions (e.g., adaptive social protection) to counteract what otherwise may appear as a deterministic course (Fig. 8.4). We describe the concept of poverty traps, then provide two examples from Africa on how such traps can be avoided, and finally assess how social protection could assist in this effort.

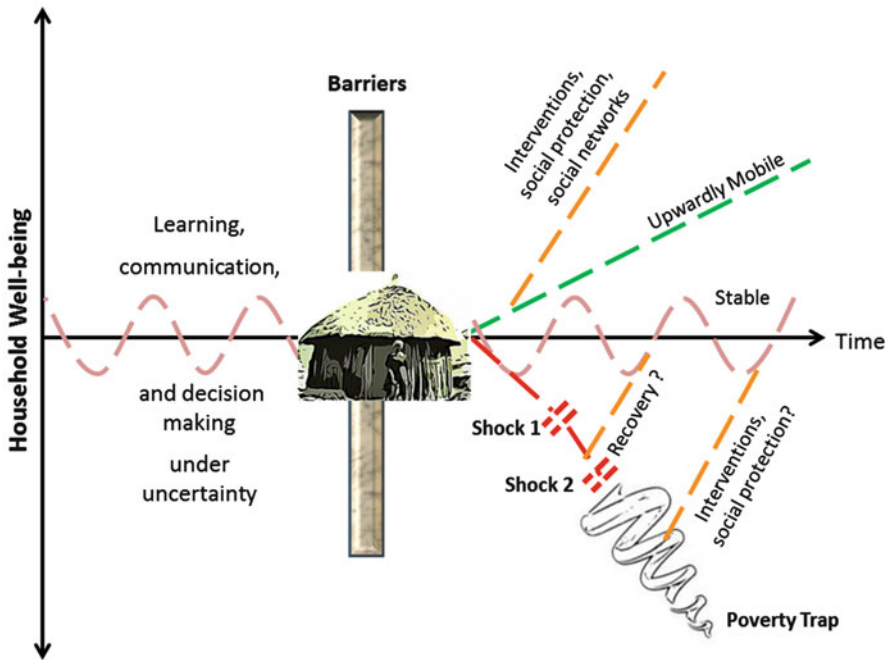
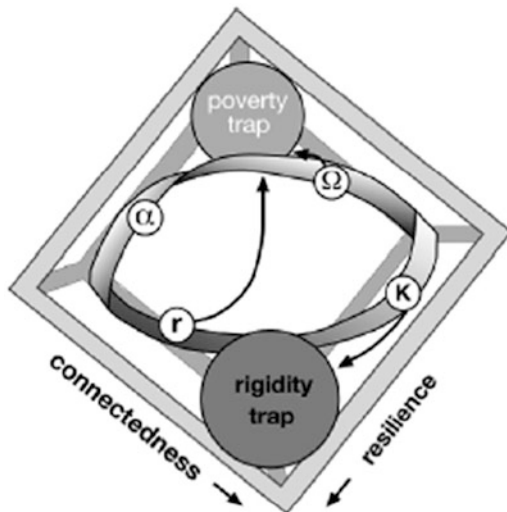


Fig. 8.4 Schematic illustration of possible livelihood trajectories, showing barriers and thresholds which could lead to upward mobility or a downward spiral into poverty traps through a series of shocks

From the perspective of development economics, poverty traps are typically understood as situations in which people are impoverished through a self-reinforcing mechanism and with few if any chances to break the vicious cycle; more specifically, they refer to situations in which individuals and households holding highly unproductive asset portfolios trap themselves in chronic poverty, despite rational attempts to manage risk (Barrett and McPeak 2006).

In the context of resilience thinking and dynamic social–ecological systems, often characterized through the concept of adaptive cycles (Gunderson and Holling 2002), a poverty trap represents a situation of persistent maladaptation, or one type of pathological state of the adaptive cycle (Allison and Hobbs 2004). It is characterized by low connectedness and potential and, despite abundant and promising ideas, leadership to channel these ideas is absent and the possibility for change is not realized (Fig. 8.5). Carpenter and Brock (2008) further describe poverty traps as constellations with high heterogeneity of entities, high capacity to explore, yet low capacity to focus and high capacity to dissipate stress. So, seen from a resilience perspective, poverty traps are not confined to states of economic deprivation; they can apply to dysfunctional institutional settings, social–ecological systems in situations of chronic or recurrent disaster, or systems which undergo huge fluctuations but scatter stress before adaptive action can occur. In other words, poverty traps are

Fig. 8.5 Poverty traps as one type of pathological state of the adaptive cycle (Allison and Hobbs 2004)



unrealized potential (Carpenter and Brock 2008), a condition inhibiting any type of transformation, a form of being stuck (trapped) despite initial possibilities.

We build on these two notions of poverty traps to examine first household transitions into such traps and then consider possible pathways out, through the use of two case studies from Africa. The purpose is to identify critical elements and processes shaping such trajectories. In turn, they could provide additional evidence for critical thresholds in the context of livelihood and social-ecological system resilience under climatic uncertainty and change. We will end by exploring the role of support structures such as social networks and social protection for avoiding and/or escaping poverty traps.

8.4 Avoiding Poverty Traps in Rural Africa

Our general argument is that, below a certain threshold of assets, households fall into poverty traps because they cannot accumulate enough to maintain their well-being and practice livelihood activities successfully. This threshold of assets varies spatially and temporally, but essentially supports household response strategies to stresses and shocks, and the adaptive capacity to embrace change, uncertainty, and surprise. The kind of human, social, natural, physical, and financial capital available to households is just as important as the amount available and the capability with which households can flexibly juggle their various assets to generate a stream of benefits (Bebbington 1999; Barrett et al. 2005). In the following case study summaries, we assess the importance of assets and strategies in avoiding poverty traps and propose ways to safeguard household transitions into such traps.

8.4.1 *Post-Apartheid South Africa*

Many South Africans thought economic disparities between whites and blacks would end with Apartheid. However, widespread poverty, minimal access to basic services, and huge inequalities in resource distribution greeted the ANC's 1994 rise to power (Adato et al. 2004; Casale and Desmond 2007). Household inequality and poverty continued to worsen over the following decade, not improve. From 1993 to 2005, unemployment rose as wages fell, the number of households receiving social grants for child and elder support rose, remittances dropped, and although access to public service assets like electricity, sanitation, water, and formal housing improved, the quality was low (Bhorat and Kanbur 2006; Casale and Desmond 2007). Rural and black South African households suffered most. The legacy of an Apartheid economy "in which social exclusion and poverty continue to interact in a mutually self-sustaining fashion" remained (Adato et al. 2004: p. 2).

Households often cope with stresses and shocks by drawing on bonding capital and social networks generally composed of kin and close friends to access remittances, labor assistance, and tools, save and borrow cash, bury family, maintain food security, and receive emotional support (Putnam 2000). Social networks with widespread connections outside kin and close friends, having more bridging capital, offer information about available jobs, employer contacts, and job seeking advice, as well as accommodation and transportation during interviews. Various poverty analyses found support for the legacy hypothesis. Households trapped in structural poverty lack the effective social network connections associated with bridging capital that provide the information and connections needed to find good employment and financial opportunities (Adato et al. 2004). These marginalized households often had no access to wages or remittances, or could only find casual labor (Carter and May 1999). Downwardly mobile households lost financial assets via catastrophe, failed investments, renege remittances, or death of a wage earner, and could not recover because they had nothing on which to build and lacked the necessary social connections to obtain more. However, those households with access to public service assets and government financial support like old age pensions or child support could stabilize and potentially move out of poverty traps (Bhorat and Kanbur 2006; Carter and May 1999). Stable, non-poor households leveraged greater social bridging capital and financial capital by working at multiple formal, informal, and casual employment opportunities. The upwardly mobile households studied invested in education for future payoffs and frequently started businesses with funds gained when their former employers closed shop (Adato et al. 2004; Carter and May 1999).

Multiple, interacting stressors and shocks limited both the short- and long-term ability of households to stabilize themselves and move out of poverty by reinforcing the social and economic dimensions of poverty traps. The HIV/AIDS crisis removed active skilled and semi-skilled adults from the labor pool, leaving impoverished households of orphaned children and elders. As families sought to meet short-term survival needs, the epidemic further undermined long-term resilience affecting property transfer, children's access to education, and family

networks (Drimie and Casale 2008). Simultaneously, feedback from rising criminal activity contributed to further income inequality as investor uncertainty limited job creation and economic growth (Bhorat and Kanbur 2006). Climate change and governance issues also increased household vulnerabilities while undermining adaptive capacity (Drimie and Casale 2008). The barriers and obstacles surrounding post-Apartheid poverty traps were very strong, but not insurmountable for households with connections to effective social networks, access to formal employment, and small amounts of financial capital.

8.4.2 Kofyar Households in Post-independence Nigeria

In 1953, Kofyar farmers began migrating south from their homeland settlements on the Jos Plateau to settle 40 km away on a relatively vacant, forested frontier. Kofyar households flourished on this frontier despite the domestic food insecurity, spiraling imports, inflation, rapid population growth, and little or no government support for the lower economic classes that many of their fellow Nigerians suffered from throughout the 1960s and 1970s (Netting et al. 1989). By the mid-1980s, home farms on the Jos Plateau became depopulated outposts anchored by elders, schools, vacation homes, and traditional ceremonies, as Kofyar outmigration accelerated after Nigerian independence (Stone 1998). Revitalization of home farm settlements on the plateau in the mid-1990s stemmed from a desire to maintain ethnic identity and access government resources. In general, Kofyar household well-being has remained stable or prospered over time.

Several factors helped Kofyar farming households succeed amidst a growing nation's stresses and shocks. Acquiring new lands on the frontier cost little to nothing, and a ready domestic market for agricultural production existed. Good access to markets, time to migrate and cultivate with no outside pressures, and safe incentives to make money, like education, medical treatment, and desirable manufactured goods, also encouraged migration (Netting et al. 1989; Stone 1998). A distinct lack of national government interference ensured that households relied on their indigenous agro-system knowledge, cultural institutions, and highly-bonded social networks as they moved out onto the frontier (Netting et al. 1989). Households on the Jos Plateau traditionally employ intensive, non-gendered cultivation techniques, hand tools, deep agro-ecosystems knowledge, and organized labor to farm small plots. Emigrants transferred these strategies to the frontier's extensive agricultural areas to grow traditional cultigens, as well as cash crops of rice and yams that complemented home farm production in the uplands. Indigenous knowledge, gained while farming the Jos Plateau, drove innovations including two planting seasons per year, inter-cropping, and trying new varieties. Polygynous practices and multiple family formations, distinct from the nuclear families of the home farms, aided Kofyar household sizes to expand to fulfill labor needs (Netting et al. 1989). Traditional labor mobilization strategies of beer parties and reciprocal labor groups also helped households meet the year round demands of growing

Table 8.1 Comparison of key elements in two poverty trap constellations

	Post-Apartheid South Africa	Kofyar, post-independence Nigeria
Shocks and Stresses	<ul style="list-style-type: none"> • HIV/AIDS epidemic • Rising criminal activity • Governance issues • Climate change • Legacy of social exclusion and poverty 	<ul style="list-style-type: none"> • Domestic food insecurity • Spiraling imports • Inflation • Rapid population growth • Lack of government support
Assets	<ul style="list-style-type: none"> • Public services (electricity, water, sanitation, formal housing) • Old age pensions, child support, etc. • Payoffs from former employer • Social networks 	<ul style="list-style-type: none"> • Indigenous knowledge • Cultural labor institutions • Free or low cost land available • Ready national market for products • Time (migrate, develop fields, etc.) • Social networks
Strategies	<ul style="list-style-type: none"> • Portfolio of formal, informal, and casual employment • Start small businesses • Expand and strengthen social networks • Invest in children’s education • Depend upon remittances 	<ul style="list-style-type: none"> • Traditional labor mobilization • Expansion of household size • Acquire new fields slowly, as desired • Non-gendered cultivation work • Plant twice a year, try new varieties, intensive cropping, intercropping
Social networks	<i>Effective</i> networks include non-kin, urban, and employment related contacts	<i>Effective</i> networks include kin and close friends for labor mobilization
Transition	Mixed Depends on access to effective social networks and formal employment	Maintain and/or improve household well-being

multiple crops for personal and market use (Stone et al. 1990). Economic inequality remained low in Kofyar communities as upwardly mobile households could move onto plentiful, open land and grow more cash crops to increase their income and labor force (Stone et al. 1984).

8.4.3 Lessons Learned

Differences between the case studies offer a view into what helps households move out of poverty, remain stable, and even prosper in the midst of social and ecological stresses and shocks (Table 8.1). Effective social networks, with connections bridging outside the immediate family and close friends, helped households leverage the financial assets necessary for finding good, formal employment, as well as additional social connections in South Africa. Kofyar farmers used bonding capital in social networks of family and neighbors to organize the labor necessary for expanding market production and increasing household income. Institutional social protection and safety nets also play a role in bypassing or escaping poverty traps. Impoverished South African households with access to government financial safety

nets and public service assets avoided traps and, in some cases, stabilized enough to embark on a path of upward mobility. In the case of Kofyar, a complete lack of interference by the Nigerian government required people to pull together as a community and draw upon cultural knowledge and institutions to prosper.

It would seem that our lessons learned are at odds. However, the Kofyar case study describes the experience of a single cultural group living within a small region while the South African case study deals with household poverty among more culturally diverse peoples spread across a larger national landscape. Development of effective adaptive social protection measures must consider social, temporal, and spatial scales in order to prevent people falling into poverty traps and facilitate transitions towards livelihood resilience. We explore such measures in the final section.

8.5 Adaptive Social Protection

We have examined poverty traps as complex thresholds typified by shifts and losses of key household assets, ineffective social networks, and limited anticipatory capacity to embrace change, uncertainty, and surprises. An additional factor, although not as apparent in the case studies, is increasing failure of livelihood response strategies to social and ecological stresses and shocks. Drawing upon the Botswana case study conducted by Sallu et al. (2010), we argue that such “slowing down of response capacity” is similar to the slowing down described by Dakos et al. (2008: p. 14311) as a “universal property of systems approaching a tipping point,” including potentially those in social systems. This analogy, although not tested for household level response options per se, mirrors Tainter’s (1988) depiction of poverty traps in the context of collapsing complex societies as situations in which sources of novelty are gradually diminished, leading to self-eroding capacity for adaptive responses. We find this an intriguing area for future research. In this final section, we explore the role of adaptive social protection as a prospective means for bypassing or escaping poverty traps. We apply emerging insight to facilitate the conceptualization of transitions towards livelihood resilience in the semi-arid tropics of Africa.

Standard social protection (SP) describes all public and private initiatives which provide income or consumption transfers to the poor, protect the vulnerable against livelihood risks, and enhance the social status and rights of the marginalized (Devereux and Sabates-Wheeler 2004). The key goal is to extend the benefits of economic growth to poor, vulnerable, and marginalized groups, or at least reduce their economic and social vulnerability. SP measures are typically presented in four different categories: provision, prevention, and protection of assets, as well as transformation of social relations and rights (Table 8.2).

The concept of adaptive social protection (ASP) goes further; it provides a framework for more effective integration of standard SP, climate change adaptation, and disaster risk reduction into *one* coherent approach (Davies et al. 2009a, b).

Table 8.2 Types of traditional social protection programs (SP) and instruments, as well as potential and simultaneous benefits for climate change adaptation and disaster risk reduction (after Davies et al. 2009b)

SP category	SP instruments	Adaptation and DRR benefits
Protective (coping strategies)	<ul style="list-style-type: none"> • Social service provision • Social transfers (food/cash), including safety nets • Social pension schemes • Public works programs 	➤ Protection of those most vulnerable to climate risks, with low levels of adaptive capacity
Preventive (coping strategies)	<ul style="list-style-type: none"> • Social transfers • Livelihood diversification • Weather-indexed crop insurance • Social insurance 	➤ Prevention of damaging cropping strategies as a result of risks to weather-dependent livelihoods
Promotive (building adaptive capacity)	<ul style="list-style-type: none"> • Social transfers • Access to credit • Asset transfers or protection • Starter packs (drought/flood-resistant) • Access to common property resources. • Public works programs 	<ul style="list-style-type: none"> ➤ Promotion of resilience through livelihood diversification and security to withstand climate-related shocks ➤ Promotion of opportunities arising from climate change
Transformative (building adaptive capacity)	<ul style="list-style-type: none"> • Promotion of minority rights • Anti-discrimination campaigns • Social funds • Proactively challenging discriminatory behaviour 	➤ Transformation of social relations to combat discrimination underlying social and political vulnerability

Although SP is perceived as a vital ingredient for the delivery of pro-poor climate change adaptation and disaster risk reduction among vulnerable groups, mainly in developing countries (Heltberg et al. 2009; Stern 2007), SP programs have traditionally focused on the chronic poor, with potential side benefits for climate-related stresses. Under ASP, such programs would become more flexible and dynamic to capture better both transient and chronic poor affected by increased climate variability, longer-term climate risks, extreme climatic events, and other disasters. This is particularly relevant as neo-liberal policies have progressively eroded social safety nets and other state-led support structures. However, concrete examples of successful implementation of truly integrated ASP programs are so far rather sparse. However, lessons can be learned from programs such as Ethiopia's nation-wide Productive Safety Net Programme which helps chronically impoverished individuals. It has shown protection of existing household assets, a decline in "distress selling" of assets, and positive effects on household food consumption (Slater et al. 2006; Devereux et al. 2006; Ellis et al. 2009), all of which also strengthen adaptive capacity under climatic calamities.

We argue that classic safety net programs and more recent adaptive social protection programs can fulfill a double purpose (see also Fig. 8.4): one is to assist households as a point of entrance to an "upwardly mobile" trajectory that takes advantage of an emerging window of opportunity at a critical threshold; the other, perhaps even more important, is to assist vulnerable households and marginalized groups to find their way

out of persistent poverty traps after a series of experienced shocks and back onto a fairly stable trajectory. While market-based adaptation options tend to exclude those who are constantly poor, ASP programs offer tailor-made schemes and interventions to both the chronic and shifting poverty contexts (IDS 2009).

8.6 Conclusion

What lessons have we learned from our ALCCAR project in Ghana and Tanzania, the research by Sallu et al. (2010) in Botswana, and the two case studies on poverty traps in South Africa and Nigeria? We distill the following key messages. (1) There are multiple exogenous and endogenous dynamics and responses which shape the vulnerability and resilience of small-scale farming and fishing communities in semi-arid regions of Africa; some may seem trivial, such as excessive alcohol consumption and limited access to reliable climate information; yet, they weaken adaptive capacity in the face of multiple threats and contribute to the persistence of poverty traps and, hence, should receive enhanced attention. (2) We need a more sophisticated understanding of differential thresholds in diverse livelihood trajectories, by households, stakeholder groups, and entire agro-ecological regions, those that lead to upward mobility and others that shift individuals and communities into poverty traps. (3) Social networks and adaptive social protection programs are vital to facilitate upward mobility and allow the less fortunate to escape poverty traps. (4) In spite of conceptual advances with respect to adaptive social protection, political will and adequate resources are lacking to implement far-reaching programs to assist vulnerable groups in most if not all of semi-arid Africa, and beyond. (5) Global market mechanisms and social support structures at local scales alone will not be sufficient to facilitate transitions towards livelihood resilience. What is urgently needed is a holistic understanding of multi-faceted vulnerability and deprivation, as well as unrealized adaptive potential and, subsequently, an ethical commitment and the responsibility to protect all those who already face the limits to (autonomous) adaptation.

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