ACHIEVING DRYLAND WOMEN'S EMPOWERMENT:

ENVIRONMENTAL RESILIENCE AND SOCIAL TRANSFORMATION IMPERATIVES

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ACRONYMS AND ABBREVIATIONS

ASSAR	Adaptation at Scale in Semi-Arid Regions
CAHW	Community based Animal Health Worker
CCAFS	Climate Change, Agriculture and Food Security
CGIAR	formerly the Consultative Group on International Agricultural Research
CSA	Climate Smart Agriculture
CSIRO	Commonwealth Scientific and Industrial Research Organisation
CSO	Civil Society Organization
DHCP	IFAD-led Dom Hélder Câmara Project, Brazil
DFID	UK's Department for International Development
FAO	Food and Agriculture Organization of the United Nations
FGM	Female Genital Mutilation
FoTF	Farms of the Future
GALS	Gender Action Learning System
GPC-Nairobi	Global Policy Centre for Resilient Ecosystems and Desertification
HARITA	The Horn of Africa Risk Transfer for Adaptation
HIV/AIDs	Human immunodeficiency virus and acquired immune deficiency syndrome
IBLI	Index-Based Livestock Insurance
IDRC	International Development Research Centre
IFAD	International Fund for Agricultural Development
IFPRI	International Food Policy Research Institute
IFW	Insurance-for-work
IIED	International Institute for Environment and Development, UK
INP	Indigenous Natural Product
IPCC	Intergovernmental Panel on Climate Change
IRDNC	Integrated Rural Development and Nature Conservation
IUCN	International Union for Conservation of Nature
KIT	Royal Tropical Institute, Netherlands
MCA-N	Millennium Challenge Account
ODL	Open and Distance Learning
OFDA	United States' Office of Foreign Disaster Assistance
PPOs	Producer and Processor Organisations
PSNP	Productive Safety Net Programmes
NGO	Non-governmental organization
NRI	Natural Resources Institute, University of Greenwich, UK
RAPTA	The Resilience, Adaptation and Transformation Assessment and Learning Framework
SDG	Sustainable Development Goal
UN	United Nations
UNCCD	UN Convention to Combat Desertification
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
WB	World Bank
WISP	World Initiative on Sustainable Pastoralism

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EXECUTIVE SUMMARY

Dryland peoples face significant challenges from environmental, demographic and socio-economic trends, and the added threat of climate change. These challenges are exacerbated by the generic and multi-faceted marginalization of drylands areas resulting from persistent myths and misconceptions and a history of highly inappropriate policies, under-investment, poverty, social exclusion and environmental degradation. In this context, women face particular kinds of discrimination and experience worse outcomes on core development indicators than national averages. Resilience is a key concept, adopted by research communities and by many international agencies and donors, that encourages thinking on how drylands and the people who live there can, in the short term, be more able to recover from shocks, and in the long term be transformed for the better. There are major opportunities to strengthen the resilience of dryland environments, but also, critically to achieve more change in the social sphere to transform gender relations and empower women.

The growing recognition of the value of dryland livelihood systems, particularly those that are pastoralist and highly adapted to the structural variability of rangeland ecologies, and of pastoralist knowledge, underpins the chance to strengthen the environmental resilience of the drylands.

Future dryland policies and programmes should be appropriately designed and implemented based upon this new understanding of dryland dynamics, which involves the co-evolution of social and environmental systems. Greater understanding of social change drivers, both in the wider context and within development interventions are needed, with respect to gender relations.

To support women's empowerment and dryland development requires gender justice, i.e. measures to ensure the recognition of women's rights, equal representation for women and redistribution of resources for more equitable development. Firstly, to ensure full recognition of women's rights means achieving widespread acceptance that women are equal members of dryland communities and that as citizens they should have equal rights to participate in decision making from the community to national levels. They should receive high-quality basic government services, and have equitable access to appropriate resources, networks and markets. The value of women's indigenous and local knowledge should also be fully acknowledged by policy-makers. Action is required where customary norms are less positive for women, especially specific practices which undermine women's health, wellbeing and dignity, but also where women are not recognized as value chain actors, or able to influence household decision making, or access education and health services. To enable women to realize their human rights requires conscientization of both women and men. The value of adaptive pastoral livelihood systems, particularly the element of mobility, should also be recognized. All policies and programmes should be cognizant of women frequently having more limited influence in decision making, higher work burdens, and less secure rights to resources, and should seek to change this for the benefit of women themselves, their households and their communities.

Work is needed to improve women's representation in all kinds of decision making within customary and statutory systems, in negotiations with dryland actors including community based organizations, private sector companies, conservation agencies, religious bodies and researchers. In particular, change has to be facilitated within household decision making so that women's rights to participation are recognized by their male relatives and so that any government services or development interventions (e.g. climate adaptation programmes) play out in more equitable ways. Capacity strengthening is needed to increase the presence of women in delivering key services to dryland women, such as community animal health work, and in programming and policy design so that they are more gender-equitable. To be more effective, service delivery should not only be extended in terms of coverage of

dryland peoples, but should fully embrace a new strategy which values pastoralist lifestyles and forms of learning, and overcomes the barriers which come with pastoralists' mobility and the remoteness of many drylands.

Social protection, climate change adaptation and mitigation, market development and livelihood development schemes should utilize the lessons of resilience thinking – such as the importance of social learning and multi-stakeholder processes to develop locally-tailored solutions, action across multiple scales, and recognizing where variability is the norm. Managing resources and organizations adaptively is important in responding to uncertainty. Such programmes should build women's participation, ensure high quality understanding of gender relations and intersectionality (i.e. intersecting discrimination based on age, class, ethnicity etc.), ensure support for institutional and technological innovations which reduce women's drudgery and build upon promising household approaches in gender action planning. Where resilience assessments are conducted, steps need to be taken to ensure high quality representation by diverse groups of women and marginal groups, and to ensure recognition of women's strategic interests.

Measures are needed to ensure a redistribution of resources, given the current inequalities that exist and the poorer performance on core development indicators for women compared to men. Social protection measures are an important means of moving beyond short-term disaster relief and, where they are climate-sensitive, there is evidence that they can support longer-term resilience in ways that benefit women. Improvements for women are needed in a range of areas, including basic social services such as health, education, animal health, appropriate research and advisory services, and social protection, access to resilient crop and livestock markets, livestock development, climate change adaptation and mitigation, and sustainable land management. An improved distribution of resources will ultimately benefit male members of society as well as women.

In the policy sphere, governments, supported by donors, should support regional or national studies on dryland resilience and women's empowerment and adopt redistributive policies, such as social protection measures – the design of which should be gender-equitable. Further, governments should improve health and education services in dryland zones, ensuring a more appropriate approach and forms of delivery to reach women and especially pastoralist women. Improvements are needed in animal health service provision, and combining animal and human health service delivery for mobile populations appears to be a promising approach. More gender-sensitive climate change adaptation and mitigation, sustainable land management and women's economic empowerment opportunities are required. Private sector sourcing from female producers should be encouraged through national policies, including studies on sustainable procurement possibilities.

Governments, with support from international donors, should fund gender-equitable climate change and rural development policy implementation and programming for dryland areas. More assessments of resilience of particular dryland areas are needed, utilizing recent thinking on how to conduct such analyses and ensuring adequate attention to women's interests and rights, as well as their participation in the process, especially the identification of strategic actions. Issues in service delivery should be supported through key ministries and departments in government, in participatory reviews and strategy development and further investment in delivery provided. Education is a long-term driver of diversification and both education and health underpin resilience. Therefore, improving women's access to education and health services is a priority. Challenging constrictive social norms and harmful practices, such as female genital mutilation and early marriage, is important in such reviews. Delivery of these education, health and agricultural advisory services should work with structural variability and mobility.

Researchers should prioritize gender and resilience issues in the drylands, generating high-quality, context-specific analyses. Specific research gaps revolve around evaluating what works in different contexts for women's empowerment in value chain development, social protection, human and animal health and education, livestock livelihoods and diversification strategies, climate change adaptation and mitigation. Action research should be a priority, as well as support for South-South learning, particularly peer-learning processes and identifying how gender and social norms can be changed and improved for the benefit of all. National governments should facilitate high-level policy dialogues with academics, civil society organizations and journalists to increase the demand, uptake and use of evidence on resilience and gender in policy making. In particular, fora are recommended on dryland women's climate-resilient, economic empowerment to review economic models, capture opportunities and mitigate risks.

Capacity-strengthening actions are needed to strengthen the resilience of drylands and to empower women. National governments, donors and civil society should provide support for capacity-strengthening programmes to support resilient dryland development in ways that empower women and other marginal groups. Approaches which are participatory in nature and engage with stakeholders across different scales will be needed. Furthermore, efforts should be made to support experimentation and social learning given the growing uncertainties in dryland areas. Programmes are needed that tackle the gamut of issues of importance to dryland women, including education, health, social protection, livestock, especially small stock, and non-livestock livelihoods. Civil society organizations (CSOs) should support gender justice, involving whole communities, in particular men and local leaders, in challenging discriminatory social norms and harmful practices. Civil society organizations, including academic institutions and the media, should increase awareness of gender, and pastoralist and environmental sustainability issues in the drylands. This awareness raising should seek to counter the negative stereotypes of dryland areas to culturally revalue them and to recognize women's knowledge and equal rights in particular. Donors should provide direct investment and CSOs should support the improvement in the capacity of local governments with respect to resilience and gender equity. Finally, the international community, national governments, research institutions and CSOs should identify and share good practice, internationally and locally, on pathways for women's empowerment in resilient dryland development.

In sum, ensuring and achieving greater environmental resilience is urgently needed – this will require measures to sustain the current state of dryland ecosystems or measures to enhance or restore them. However, in the social sphere, while building on customary institutions and knowledge, there is also a clear need for transition or transformation in most contexts to enable women to realize their human rights and to strengthen the resilience of drylands now and for the challenging times ahead. Change is needed with more appropriate and enabling policies, measures to change societal attitudes and behaviours, and better development programming and research and ultimately, dryland women will lead the process of their own empowerment.

1 INTRODUCTION

UNDP

1. Introduction

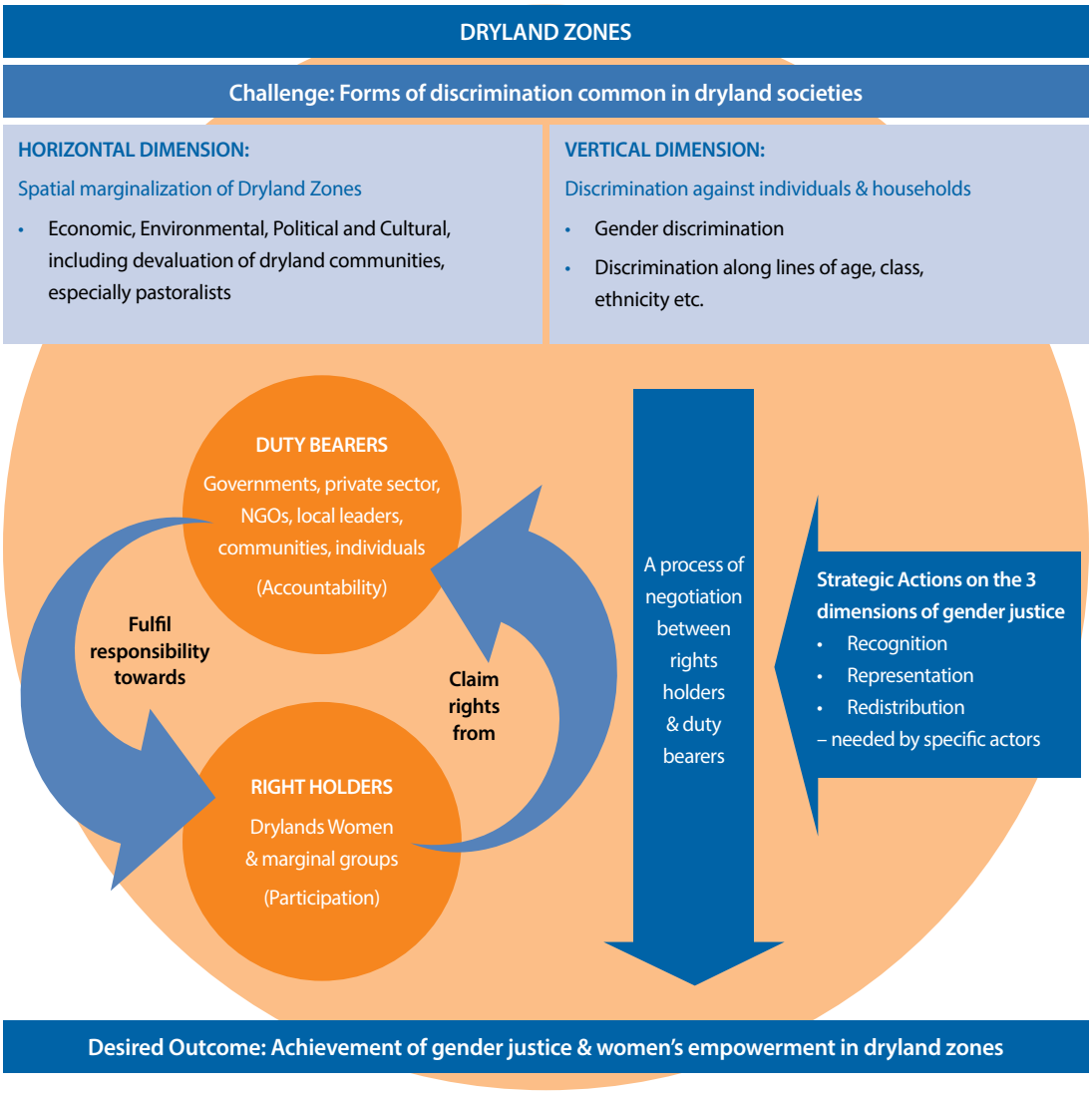
This policy research assignment has been commissioned by the Drylands Development Centre (DDC), and the UN Convention to Combat Desertification (UNCCD). The partnership recognizes that globally, drylands are important and that women play an important role in drylands development, managing land, crops, forest and water resources, which affect the livelihood options of families. The partnership also recognizes that there are new opportunities for women to actively contribute to and benefit from sustainable drylands development if they are supported. However, there is widespread discrimination, inequality and stereotypes that prevent women's participation and realization of their human rights. Gender equality rooted in human rights is thus both an essential development goal on its own and vital to achieving sustainable and inclusive drylands.

The objective of the study is to propose strategic actions in the policy, institutional and capacity spheres to advance the gender equality and women's empowerment agenda in the drylands, in three thematic areas: land rights, resilience and governance. These reports are targeted at policy-makers, but it is also of relevance to other dryland stakeholders including civil society, political leaders, traditional authorities and dryland communities and women.

This paper is based on a literature review of peer-reviewed and grey literature focused on women in the drylands in the thematic area. Due to the considerable gap in literature that examines the nexus of drylands, gender and social difference and each thematic area – resilience, governance, land rights – literature from developing countries more broadly was used to identify possible lessons and geographically-relevant examples, as well as broader thematic literature, for which gender implications have been analysed. In researching these themes, the generic marginalization of the drylands was considered as well as the specific discriminations affecting women. Furthermore, a human rights-based approach that is sensitive to the inequalities at the heart of development problems was adopted, with a view to seeking ways of overcoming discriminatory practices and unjust distributions of power.

Our conceptual framework for analysing the literature explores the three dimensions of gender justice as identified by Fraser (2008): representation, recognition, redistribution. Gender justice is achieved at the intersection of all three, i.e. it requires women's empowerment in all spheres). The analytical framework includes the intersection of gender-related inequalities with other forms of identity based discrimination and delineates the desired roles of duty-bearers and rights-holders in different strategic actions, including (policy, institutional and capacity-focused) for dryland women's empowerment

Figure 1: Conceptual framework for the study



1.1 Achieving dryland women's empowerment: environmental resilience and social transformation imperatives

This paper explores the issues of dryland resilience in relation to gender justice. The structure of the report is as follows:

- **Section 2:** A brief introduction to the key concepts of resilience, drylands and gender, and the inter-relationships between them, and presents our conceptual framework.
- **Section 3:** Presents the key challenges for dryland zones with respect to resilience and gender, and the specific challenges for dryland women.
- **Section 4:** Covers the opportunities arising for supporting dryland women's empowerment.
- **Section 5:** Lessons from practical experience are identified based on the analysis of various case studies.
- **Section 6:** Conclusion and priority strategic actions for key stakeholders in the policy, institutional and capacity building spheres.

2 DRYLANDS, RESILIENCE AND GENDER

L. Forsythe

2.1 Resilience meanings and insights

The term 'resilience' is used to refer to the ability of people, communities and ecologies to recover from shocks and stresses and fits with the normative goals of sustainable development (O'Connell, et al, 2015, p12). However, there are differing interpretations of resilience (Davies et al, 2015). In science, the resilience of a socio-ecological system is seen as a value-neutral attribute, meaning that it describes the state and characteristics of the system (O'Connell, et al, 2015). Resilience may mean the continuation of a landscape and society despite its currently degraded form and/or associated high levels of inequality and discrimination, conceptualized as separate from social choices about what form is most desirable. From a development perspective, the continuation of a degraded environment or inequality is far from desirable and change is required. In international development literature and in popular discourse, resilience is regarded by contrast as an inherently positive goal. It is used to refer to the ability of people, communities and ecologies to recover from shocks and stresses and fits with the normative goals of sustainable development (O'Connell, et al, 2015, p12). There are important insights emerging from resilience thinking about complex adaptive socio-ecological systems and the implications for policy and management – see table 1.

Table 1: Key Lessons from Resilience Thinking

Emergent properties of complex adaptive systems
Resilience is an emergent property of a system and so is not reducible to the individual components. Understanding the dynamic relations between the components is thus important including amplifying and reducing feedback and surprises. Complex systems often respond in unpredictable ways to disturbances. Change may be rapid, slow, gradual or episodic depending upon the type of disturbance (O' Connell, et al, 2015).
Multiple states or regimes in systems of inherent variability
Systems can exist in multiple stable states or regimes, not just one. When a shock occurs the system does not always return to its original state. When thresholds in controlling variables are crossed, a system can be irreversibly changed (Gunderson, 2000; Folke, 2006; Gunderson and Holling, 2002).
Adaptive management supported by new forms of learning and regular monitoring
Management systems need to manage and live within such systems, recognizing their intrinsic uncertainty, variability and potential to move to a different and sometimes irreversible state. Trying to impose stability on such a system may undermine the processes which enable it to recover from shocks. Different forms of learning are needed (e.g. learning by doing rather than traditional risk assessment and cost-benefit analysis in conditions of uncertainty; social learning for interactive learning between participants (Muro and Jeffrey 2008; Reed et al, 2010), with critical reasoning needed by both powerful and disadvantaged groups, including the challenging of underlying assumptions, and more sophisticated learning which involves the consideration of diverse contextual issues using decentralized governance mechanisms or a ground-up approach for broader learning leading to transformative change (O' Connell, et al, 2015). Multi-stakeholder engagement is critical because of the diversity of risks affecting multiple actors at different scales; the outcomes of actions need to be closely tracked and where sustainability goals are not being achieved, an effective adaptation should be devised (O'Connell, et al, 2015).

Table 1: Key Lessons from Resilience Thinking (continued)

Adaptive pathways
An emphasis on how current decision-making affects the options that will be available for future generations and environments (path dependency). Some choices may foreclose on future choices (lock-in) and this is negative where the choices left open are unsustainable (Leach et al, 2010). In contrast, adaptive pathways continue to allow future systems to prepare for and undertake regime shifts or transformations when needed. In social systems, adaptive management should embrace the richness and value that flows from inclusive governance, which is important from a justice perspective, but allows diverse voices to be heard and offers the potential for adaptive pathways, rather than seeking to impose control, although there are risks of elite capture with the former (Pelling, 2011).
Scale effects and types of resilience
Systems at a lower level are embedded in higher ones. Resilience at one level does not necessarily equate with resilience at a higher level. Resilience for an individual does not mean that community resilience will also result and the resilience of specific communities does not translate necessarily into overall social and environmental resilience (O'Connell et al, 2015). In fact, actions to promote resilience for one group could undermine resilience for another. Resilience to one type of shock does not equal resilience to other and all types of shocks. 'Generalized resilience' is the capacity of all parts of the system to cope with all kinds of shocks and disturbances, and thus to avoid crossing thresholds to alternate regimes. 'Specified resilience' is the resilience of a particular part or parts of a system to identified disturbances (e.g. potential future occurrences may be anticipated, but their timing and magnitude may be a surprise) (O'Connell et al, 2015).

The UNDP definition ascribes positive, progressive qualities to resilience. For the UNDP, resilience is an 'inherent as well as an acquired condition achieved by managing risks over time at individual, household, community and societal levels in ways that minimize costs, build capacity to manage and sustain development momentum, and maximise transformative potential. 'Risks' are factors of a magnitude and intensity able to both disrupt development progress and inflict significant direct and indirect costs' (UNDP, Strategic Plan, p34). Strengthening resilience, according to the UNDP definition, thus requires interventions that enhance people's ability to manage the risks they face, to sustain development and to enable transformation.

The notion of resilience as a positive attribute has been useful in creating linkages between those making policies and those implementing programmes in the fields of disaster risk reduction and climate change adaptation. This report draws upon the international development approach of seeking to strengthen resilience, and also seeks to capture insights from emerging resilience literature. O'Connell et al (2015, p6) suggest that resilience should be defined as the 'ability of a system to maintain high-level objectives such as sustainability, rural livelihoods and ecosystem services in the face of unknown changes or disturbance. The term 'resilience' can be coupled with aspirational goals, or system futures which are seen as desirable or 'good', for example, maintaining the resilience of ecosystem services, so long as it is clear that it is not the resilience per se that is desirable'. Our report uses the term resilience in this way, meaning that resilience is coupled with progressive development goals, and there is an assumption from here on in that resilience in and of itself is not desirable. Where there is a clear need for change, then transition or transformation will be outlined.

Social and ecological systems are intimately intertwined and co-evolve. We depend upon ecosystem services for food, water and climate regulation, etc. and human activities can undermine or enhance these services. Pastoral management of 'livestock herds shapes the productive environment by mimicking seasonal grazing patterns of natural herbivores' building semi-arid grassland resilience (Holling, 1986, cited by Davies et al, 2015). However, the social science aspect of resilience thinking is underdeveloped – assumptions have been made that social and ecological systems function in the same way and so have similar resilience attributes (Davies et al, 2015). More recent literature (Davies et al, 2015; Olsson et al, 2015) has questioned some of the assumptions of scientific resilience thinking, particularly that social change processes occur in the same way as environmental change processes. Resilience as a concept emerged from the field of ecology, but does not necessarily apply to social systems. The effects of individual agency, power and institutional arrangements in society tend not to be accounted for in resilience models, with assumptions made about consensus that are not well supported with evidence (Hatt, 2013 cited by Pelling, 2011).

While the continuation of a degraded landscape in its current form is not desirable, it is also clear, from a human rights perspective, that situations of social inequality or the non-observance of human rights may also be undesirable – transformation involving more far-reaching changes may be necessary (Pelling, 2011). The factors driving social transformation and the role of shocks, surprises and crises, which can create windows of opportunity for change, has received some attention, but more research is needed on understanding social change processes and how they interact with environmental ones. Shocks, such as drought, are part of the structural variability of drylands and it is important to understand whether and how such events may lead to more far-reaching change and the positive or negative implications of any changes. At the same time, understanding the relationships within a system rather than each individual component has to be the focus (Krätli 2015).

This contested nature of social life is often being underplayed or misunderstood in resilience thinking. There is a risk that resilience science and quantitative modelling of future scenarios under climate change, integrating human and environmental elements, could all overplay technical optimism about technological innovation and efficiency, and neglect the real-life nature of decision making which is far from neat and tidy (O'Brien, 2009, cited by Pelling, 2011). Similarly, approaches focused on technical fixes underplay the influence of political-economy and the cultural roots of risk perception (Pelling, 2011). By focusing only on the external relations between people, groups and institutions, resilience science may also ignore the internal emotions and affects which shape adaptation options and choices (Grothmann and Patt, 2005, cited by Pelling, 2011).

Good governance is widely accepted as a development goal and the main elements of good governance such as accountability, transparency, efficiency, effectiveness, inclusiveness are always thought to be positive. At the same time, good governance, including the transformation of whole regimes or systems towards good governance, is not the same as the continuation of specific institutions. Whether the latter, i.e. the continuation of specific institutions (as opposed to the whole regime or system) is actually desirable or not depends upon the specific context of the socio-ecological system and may be positive or negative. Certain institutions are integral parts of pastoralist socio-ecological systems and their loss could mean a complete transformation of the system. Examples of pastoralist institutions which are part of the adaptive system include clan councils, customary water and grazing management institutions, and traditional meetings (see Robinson and Berkes, 2010; Niamir-Fuller, 1998; and Robinson, 2009 respectively, cited by Davies et al, 2015).

Context-specific studies are thus needed to assess particular institutions and their relationships to the other parts of the socio-ecological system (Davies et al, 2015) – and critically to understand whether and how these can be navigated either to remain the same or enter transition or transformation from a gender justice perspective. Thus, while undeniably intertwined, social and environmental processes of change should not be conflated and while the new paradigm for resilience in the drylands works from the starting point – and rightly so – of working with customary institutions, there may need to be changes in cultural norms, institutions and policies to achieve dryland women's empowerment. It may be more accurate to think of environmental resilience and the extent to which there is a need for social transition or transformation with respect to certain contexts, rather than in a generic sense.

Recent work by the Commonwealth Scientific and Industrial Research Organisation (CSIRO) in Australia presents a systematic approach to assessing resilience. The Resilience, Adaptation and Transformation Assessment and Learning Framework (RAPTA) framework recognizes uncertainties and therefore the need to engage multiple stakeholders in processes of social learning, to capture multiple values in processes of experimentation and rapid uptake of lessons into management (see Box 1).

Box 1: CSIRO's Resilience, Adaptation and Transformation Assessment and Learning Framework (RAPTA)

The recently published CSIRO Resilience, Adaptation, and Transformation Assessment Framework (RAPTA), draws upon resilience theory, and outlines the characteristics of a system, the socio-ecological variables and evaluates the adaptive capacity and transformability of the system. In identifying the system to be studied, questions of resilience regarding what, to what and according to whom, are made explicit. The whole process is based upon multi-stakeholder engagement, reflecting the subjectivity of the framing of the system, the judgement upon the desirability of its current state and the potential need for adaptation and transformation. While resilience in this framework is value neutral, aspects of the RAPTA framework are normative judgements (the choice of focal scale, framing what lies within and without the system, etc). The RAPTA process leads to the formulation of specific action strategies that fall within the system or involve more far-reaching transformations. Learning, innovation, experiments and openness to challenging the status quo are assessed, because they are key features of a self-organizing system. The approach emphasizes flexibility, multi-stakeholder engagement, inclusive adaptive management to action (i.e. iterative learning) and meta-indicators of the quality of the assessment process per se. The framework is summarized visually below. It is currently being revised and updated:

RAPTA Procedure

2.2 Drylands and resilience

This section explains how thinking on resilience or lack of resilience of dryland systems has evolved.

Discussion of dryland environments has historically been associated with a number of myths or narratives around ideas of overgrazing, desertification and the general lack of prospects for development. Criticism of such overly simplistic overgrazing narratives appeared in the 1980s to mid-1990s. Roy Behnke (see especially Behnke 1994) and others argued from anthropological and economic perspectives that the 'Tragedy of the Commons' thesis, of the inevitable overgrazing of communal rangelands where livestock were individually owned, was simply not a credible description of the way that pastoralists behaved with respect to communal pastures. In 1993, the volume 'Range Ecology at Disequilibrium' (Behnke et al., 1993) included papers by Ellis, David Swift and others arguing that pastoral ecosystems in Africa should be characterized as 'non-equilibrium' in that they are driven by rainfall, not grazing pressure, though Ellis (1995) subsequently clarified that this only applied in effect to rangelands with less than 300mm annual average rainfall, and close to the equator. This literature did refer to resilience, primarily in reference to vegetation and its ability to grow back after drought. There was a certain amount of criticism of these ideas from a specialized range ecology perspective (e.g. Illius and O'Connor 1999).

In 'Living with Uncertainty' (Scoones, ed. 1995), researchers explored these ideas, examining the failure of decades of pastoral development in Africa, and found that solutions from wetter, more predictable climates, and therefore more predictable grassland production, which had been developed in North America in the late 20th Century, were being transferred to areas of inherent climate variability. As Scoones observes: 'Fences were erected to control grazing movement, stocking rates were controlled, bush was cleared, water points were drilled and supplementary feeding pens were established. This was supposed to bring a more ordered, predictable form of livestock production amenable to the market and to external management' (Scoones, 2009, p114). Such approaches failed, because they did not recognize the non-linear feedback systems in non-equilibrium environments.

Box 2: Equilibrium and non-equilibrium in drylands

"Whereas in equilibrium settings (e.g. wetter, more predictable rainfall environments) vegetation changes gradually in a succession and 'livestock populations are limited by available forage in a density-dependent manner, so that excessive animal numbers, above a 'carrying capacity' level, result in negative effects on the vegetation. In the longer term this is assumed to cause more or less permanent damage – degradation or desertification. By contrast, in non-equilibrium environments, range degradation is not such an issue. Production potentials of both grassland and livestock are so dominated by rainfall (or other external variables) that the livestock populations are kept low through the impact of drought or other episodic events. Livestock under such conditions do not have a long-term effect on rangeland" (Scoones, (ed), 1995, p2-3).

Vetter (2005) suggests that most arid and semi-arid rangeland includes elements of both equilibrium and non-equilibrium at different scales and management should consider both temporal variability and spatial heterogeneity. Ideas about non-equilibrium dynamics in ecosystems can be traced back to the early 1970s (e.g. Holling, 1973 cited by Scoones, 1995). Resilience in scientific research on complex adaptive socio-ecological systems emerged from early work on ecological management, including in rangeland ecology. (See Box 3).

Box 3: Origins of Resilience Thinking and the Implications for Ecological Management

The early work of C.S. Holling (1998) has been developed by the Resilience Alliance – an organization[1] which has explored the ecological and social dimensions of dynamic systems in diverse settings. Conventional 'blueprint' approaches to ecological management, such as maximum sustained yield in fisheries management were seen to fail because of the dynamic nature of ecologies due to the existence of multiple stable states, non-linear dynamics and inherent uncertainty (Ludwig, et al, 1993, cited by Leach et al, 2010). Instead, approaches to adaptive management have come to the fore, based upon experimentation and incremental learning about system dynamics (Leach et al, 2010) and taking account of multi-scale interactions. Rather than focusing on resilience as what is required to return a system to a previous stable state, the focus is on measuring how far a system could be perturbed before shifting to a wholly different system regime (Holling and Meffe, 1996 cited by Leach et al, 2010).

The shift in understanding about rangeland dynamics has led to a new paradigm in pastoral development (Scoones, (ed.), 1995, Mortimore et al, 2009), which shifts the focus from livestock commodity production to livelihoods, from fencing to flexibility, and from blueprints to adaptive planning with local involvement and recognition of uncertainty. (See table 2).

Table 2: Comparison between the 'old' and 'new' thinking about pastoral development

Area	'Old Thinking'	'New Thinking'
• **Objectives**	• Focus on livestock commodity production	• Focus on livelihoods and pastoral development
• **Range management**	• Open range improvement; Paddocking/fences	• Focus on improving key resources and mobility/ flexiblity allowed
• **Planning**	• Blueprint planning	• Flexible, adaptive planning, with local involvement and recognition of uncertainty
• **Drought**	• Focus on normal years and separation between this and drought in planning	• Drought 'proofing' and safety net provision integrated. focus on tracking: de/restocking, supplementary feeding etc
• **Tenure**	• Fixed tenure regimes; Conflicts ignored	• Flexible tenure; Focus on conflict resolution
• **Institutions & administration**	• Service delivery package through centralized extension services Extension workers for technical delivery	• Pastoral organisations for local management issues; Extension workers as institutional organizers

Source: Summarized from Scoones, 1995, p34

1. http://www.resalliance.org/

Added historical perspective was provided by Swift (1996) who showed how desertification narratives were actually specifically linked to French and British colonial concerns. Detailed historical analysis, innovative thinking in ecology and a better understanding of African farmers' and herders' land use practices and their ecological knowledge and views of landscape change have all challenged environmental orthodoxies about non-rational indigenous practices and desertification (Leach and Mearns, 1996). In 'Living off Uncertainty', Krätli and Schareika (2010) emphasize that pastoral production not only enables pastoral peoples to survive uncertainty, but it also allows them to actively capitalize on spatial and temporal heterogeneity of rainfall and vegetation.

The way in which non-equilibrium thinking has challenged received wisdom with respect to African drylands has important lessons for responses to climate change (Scoones, 2009; see also Leach et al, 2010). While a great deal has been learned in recent decades about climate change and its consequences, the interactions between climate and ecosystem are non-linear, complex and dynamic and this means that uncertainty is unavoidable (Scoones, 2009). Ensor (2011) argues that the increasing uncertainty caused by climate change, and the recognition that uncertainty and change is normal, means development should support experimentation and testing of locally appropriate adaptation options, extend networks, voice and influence and enable knowledge sharing in on-going processes. Leach et al (2010) argue that a 'pathways' approach is needed based upon an appreciation of dynamics, complexity, uncertainty, differing narratives and the normative goals of sustainability.

Mortimore et al (2009) have foregrounded resilience in their analysis of evolving dryland policy narratives: they suggest that a shift has occurred away from a desertification and degradation position to one that can be termed 'resilience'. A resilience narrative does not deny that there are major challenges facing many dryland peoples and ecologies, including climate change and other stressors, but it also seeks greater recognition of their strengths. Notably, such strengths include the highly evolved adaptation of pastoral systems to the inherent structural variability of the dryland climate, (a climate characterized by low, variable and unpredictable rainfall patterns). This intertwined co-evolution is the key to the sustainable development of the drylands. Rather than being seen as backward, non-economically important zones, they should be viewed according to the new policy paradigm, as valuable contributors to global ecosystem services and supportive of livelihoods for approximately two billion people worldwide.

While land degradation and desertification are serious challenges, a more sophisticated analysis is needed of dryland social and environmental dynamics to understand potential pathways to sustainable development – for drylands as a whole and in particular for marginalized groups within the drylands. Thus, recognizing the structural variability of dryland systems and the strength of pastoral systems is an important part of the way forward.

2.3 Gender and drylands resilience

This section introduces some key concepts relating to gender justice and explains the connections between dryland resilience and gender.

Drylands tend to be marginalized, because they are often remote areas. Beyond this spatial marginalization in the horizontal dimension, there are other forms of discrimination affecting dryland inhabitants in the vertical dimension of social structures (Kabeer, 2010). Gender is the most widespread form of discrimination globally and gender is 'always and everywhere cross-cut by other power relations and inequalities whether around class or ethnicity, age or place' (United Nations, 2014), a concept know as intersectionality In drylands, even among the poor, there may be specific vulnerable groups that are particularly marginalized: 'In Botswana, destitute people, orphans and other at-risk children are examples of particularly vulnerable groups' (Middleton et al, 2011). This discrimination prevents many dryland women from being able to realize their human rights.

A 'geography of gender' exists, because the gendered structures of constraint vary between places, with differing resource distribution, varying availability or acceptability of different kinds of work, and diverse forms of kinship and familial relations (Kabeer, 2013). In the same way, there is a geography of 'drylands' with respect to how remote they are physically from centres of power and how politically and economically marginalized they might be. The relative extent of marginalization of dryland zones and within dryland zones will vary from place to place (context-specific), as will the combination of appropriate strategic actions to support processes of women's empowerment.

There is now a central recognition of the need to improve people's and systems' ability to cope with shocks and stresses, by building upon local knowledge of their environment, adaptive, informal, institutional systems and creating an enabling policy environment (Mortimore et al, 2009). Pastoralist knowledge in particular helps drylands people to exploit their environments, using the structural variability as part of their livelihood strategies. Development interventions should work with these revalued customary systems and recognize women's knowledge. However, from a gender perspective, if constrictive social norms persist, it is important to challenge them from a human rights perspective. In these scenarios, it is necessary to move beyond resilience with respect to social relations to transition or transformation (Pelling, 2011). The question arises as to how far there is space for action by dryland women and supportive actors to challenge and overcome constrictive social norms. How can drylands women claim their rights and will duty bearers and rights holders fulfil their duties? Will resilient drylands development tackle gender inequalities or reinforce them? Are transformations in power relations actually needed for equitable drylands development?

In assessing resilience, for example by using the CSIRO Resilience, Adaptation and Transformation (RAPTA) framework, gender issues are not directly addressed, but would include issues of representation for women in the process of assessment, recognition of women as rights holders and the specific barriers they may face in analyses, and (re)distribution of resources along more equitable lines.

Actions are needed that improve the environmental and social status of drylands per se, along with actions that tackle gender inequality and unlock women's potential as agents of change to deliver gender justice and transformative development. Achieving gender justice requires the combination of three things: representation, recognition and representation (Fraser, 2009). Fraser's framework provides a conceptual basis for understanding the intersecting forms of marginalization of women in the drylands. The focus on justice in our framework places emphasis upon the universal applicability of norms of justice (2003:28) – an important source of protection for women's rights. Furthermore, the framework foregrounds the interrelatedness of different types of rights, which interact in different ways according to context. Box 4 sets out the key requirements for gender justice according to Fraser (2008) and applies them to the focus of this study on drylands resilience and women's empowerment.

Box 4: The relationships between gender justice and achieving resilient dryland development

Representation: Actions to ensure membership and the decision rules or procedures for staging and resolving contests are framed for full participation by drylands women.

- Improving representation requires opening up political space and empowerment for greater participation of women and marginalized groups in all kinds of decision making, for example: the governance and management of agroecosystems, in processes of assessing resilience (identifying the boundaries of systems, framing what constitutes resilience and associated progressive goals and evaluating resilience), in national policy-processes, in market development initiatives and in community-based development projects.
- Ensuring that dryland inhabitants are recognized as members of society requires firstly changing cultural beliefs (see below): pastoralists who practice transhumance across borders, for example, are not always seen as full members of a nation state.
- Actions are needed to ensure that women and marginal groups within dryland zones are seen as full members with rights to participation and decision-making and that processes of decision-making and conflict resolution should support their full participation.
- While working with customary institutions, transitions or transformations within institutions may be needed to achieve gender justice.
- Resilience thinking suggests that assessment of resilience should be carried out with multi-stakeholders, involving practical, continuous learning, monitoring and experimentation leading to adaptive management. Such assessment requires full participation by women and marginal groups as key stakeholders and to capture multiple values in social learning processes.

Box 4: The relationships between gender justice and achieving resilient dryland development (continued)

Recognition involves challenging institutionalized hierarchies of cultural value that deny Drylands women from requisite standing (ALSO recognition of intersection of spatial marginality with gender and other identity-based discriminations).

- To strengthen the resilience (i.e. assuming this is associated with progressive development goals) of dryland systems and to support dryland women's empowerment requires challenging the myths that have characterized drylands as backward, remote, inconsequential areas and their inhabitants as uncontrollable, socially inferior, etc. and created inappropriate policies and under-investment, leading to poverty and unsustainable development.
- As well as challenging the cultural norms, beliefs (e.g. stereotypes and stigmas) and behaviours that marginalize and devalue drylands, it is necessary for women to be able to realize their human rights (as well as for instrumental purposes) for equitable and sustainable development to occur. Therefore, constrictive social norms which devalue and degrade particular social groups such as pastoralist dryland women and prevent them from realizing their rights, need to be changed through processes of transition or more far-reaching transformation.
- Identifying how social change occurs may shed light on avenues to constructively disrupt assumptions and behaviour associated with the status quo.
- At its core, it means recognizing women in the drylands as rights holders and members of community groups, who are entitled to land and natural resource rights and decision-making powers in inclusive systems of governance. Recognition is needed of dryland zones themselves, entailing a revaluing of people and their adaptive socio-ecological systems. It means recognizing the value of women's local and indigenous knowledge, as well as that of men, which stems from customary practices which utilize structural variability to positive effect, but also means avoiding stereotypes of women as environmental saviours.
- A politics of recognition is needed, but instead of recognizing a group-specific identity (e.g. dryland inhabitants, pastoral community, women) it is the status of individual group members as full and participating members of society that is recognized.

Box 4: The relationships between gender justice and achieving resilient dryland development (continued)

Recognition of the barriers which drylands women in particular confront is important, such as sexual and gender-based violence and harmful practices, such as female genital mutilation.

- The multiple and increasing shocks and stresses to which dryland communities may be vulnerable, because of their spatial marginalization and lack of voice, require concerted action. Women and marginal rural groups are particularly vulnerable because they often lack the resources to respond.
- Moving beyond humanitarian responses to drought requires longer-term planning for resilience, for which a range of strategies are needed and within this, more equitable access to and control of resources for women is essential.
- Redistribution of land rights and resources may be needed to the benefit of dryland people and women, supported by policy frameworks and good implementation, with opportunities arising from decentralization and devolution processes as well as risks.
- Redistribution of land rights, natural resources and productive assets to women is seen as fundamental for women to address further social and economic inequalities.
- Investment in gender-sensitive adaptation and mitigation is needed, including sustainable land management approaches, particularly by developed nations (climate justice) to improve general and climate-specific resilience of dryland zones and women's empowerment.
- Access to different kinds of resources is relevant: human capital (education, health), natural capital (land and natural resources), credit, input and output markets (financial capital) etc. While new and expanding dryland markets (e.g. for meat and milk) may present opportunities for dryland women, they also present risks of exposure to market fluctuations, but also to the loss of control of resources, over-exploitation and increased workloads.
- As well as considering the reorganization of the distribution of land and other resource rights and capital, labour is a fundamental issue for dryland women.

3 KEY CHALLENGES FOR DRYLANDS AND WOMEN'S EMPOWERMENT

This section discusses the challenges in drylands with respect to gender and resilience on two levels: the generic challenges of the drylands and the specific challenges faced by drylands women.

R. Lamboll

3.1 Generic drylands resilience challenges

3.1.1 Multiple rural stressors and climate change

Recent discussions of climate change in rural areas including drylands are important not only because of the threat of climate change itself, but also because this literature specifically attempts to illuminate the broader context of environmental, demographic and socio-economic trends that shape vulnerability to climate change and are sometimes referred to as 'non-climate stressors' in climate change literature. There are a range of global trends that are affecting the prosperity and prospects of rural communities in developing countries (Dasgupta et al, 2014, p618). Multiple non-climate stressors affect rural populations, including 'under-investment in agriculture (although there are signs this is improving), problems with land and natural resource policy, and processes of environmental degradation. In developing countries, the levels and distribution of rural poverty are affected in complex and interacting ways by processes of commercialization and diversification, food policies and policies on land tenure' (Dasgupta et al, 2014, p618).

In China, for example, there are diverse ecologies and complex interactions with social and environmental change processes and pressures. In predominately pastoral provinces and regions, there are different environmental risks that make concerted policy effort difficult in dryland areas. For example, Sichuan is a major grain-producing area but prone to drought and flood, Xinjiang is at risk to drought, population growth and food consumption growth rate per capita, Gansu is more prone to drought. Dryland areas in China are also prone to labour shortages which also impact on food security in the regions (UN, 2011; Hua and Squires, 2015).

Rural areas, globally, are particularly vulnerable to climate change, because of their already higher levels of reliance on agriculture and natural resources make them especially sensitive to climate variability, extreme climate events and climate change, and because of 'existing vulnerabilities' such as poverty, lack of investment, remoteness, isolation and poorer levels of education (Dasgupta et al, 2014, p618). The Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment Report, Working Group II Chapter 9 on Rural Areas concludes that 'There is low agreement on factors associated with vulnerability or resilience in rural areas, but high agreement on the importance for resilience of access to land and natural resources, flexible local institutions, and knowledge and information and the association of gender inequalities with vulnerability. Specific livelihood niches such as pastoralism […] are at high risk of adverse impacts, partly owing to neglect, misunderstanding or inappropriate policy toward them on the part of governments' (Dasgupta et al, 2014, p618).

Dryland dwellers have a high reliance upon ecosystem services, both directly and indirectly, to secure their livelihoods. However, these ecosystem services, including nutrient cycling, flood regulation, biodiversity, water, food and fibre production, are threatened by trends such as the expansion of urban areas and unsustainable farming settlements, which degrade fragile soils, and this process is exacerbated by climate change (UNDP, UNCCD, UNEP, 2009). The livestock sector in Africa, for example, will be affected by climate change, including precipitation

patterns and quantities, temperature changes, alterations in winds, seasonality changes, more frequent extreme events, a decline in feed and fodder production and water availability, changes in disease patterns, and also in marketing and commodity prices (WISP, 2010). However, livestock keepers already depend upon adaptive strategies (WISP, ibid) to overcome these challenges.

African pastoral communities are vulnerable to shifting global markets and stresses. For example, documented market shocks include: sudden government and parastatal withdrawal from direct purchase of livestock and meat processing in Kenya in the 1980s, abrupt bans on meat and livestock for veterinary reasons by Middle Eastern Countries where food safety concerns are increasing, and the neglected issue of population growth (Morton and Kerven, 2013).

Increasing population pressure can also undermine the self-sufficiency of pastoral communities (Rota and Sperandini, 2009). Urbanization is being driven by rural outmigration, but when migrants reach urban centres, there is no guarantee that they will be able to realize their aspirations. For African pastoralists, all members of the family have to contribute to the family unit's livelihood security. Reciprocal support mechanisms, where they still persist, can provide social protection within the family, though such support mechanisms are declining; while some new diversified activities are effective and sustainable, others involve destitution and dependency (Morton and Kerven, 2013).

While debates continue about the extent and irreversibility of processes of desertification, localized environmental degradation around smaller urban centres is clearly occurring, driven by the settling of destitute pastoralists, and also causing further weakening of their livelihood strategies and assets (Morton, 2007). Governments fail to recognize the communal ownership of rangelands and traditional natural resource management practices, and there have been land enclosures by pastoralists and external actors. Rangelands have also been demarcated as Protected Areas in some parts (Morton, 2007). Competition for land and other natural resources is common in many dryland zones (Rota and Chakrabarti, 2010a; see also Thematic Paper 1: Land rights in this series). Decentralization processes in natural resource governance present many positives, but there are also risks of increased marginalization of already marginal groups that are weakly represented in local power structures and whose multiple rights of access could possibly be undermined.

Conflict, including both international wars and quasi-traditional raiding of livestock and the impact of HIV/AIDs on African pastoral populations are well known stressors, which increase vulnerability to drought and there are feedback processes linked to further environmental degradation, conflict and weak market development (Morton, 2007). There is evidence of diversification out of pastoralism in East Africa in response to the combined stressors, including demography (Morton and Kerven, 2013).

The vulnerability of pastoralists to climate change is 'induced vulnerability', (Krätli et al., 2013). In other words, it is not an inherent vulnerability, but the result of external multiple pressures – social, economic, environmental and political – which lead to 'encroachment on rangelands; inappropriate land policy; undermining of pastoral culture and values; and economic policies promoting uniformity and competition over diversity and complementarity' (IPCC, 2014, p637). Other factors increasing pastoralist vulnerability to climate change are summarized by the IPCC, 2014.

i. population growth

ii. increasing conflict over natural resources

iii. changed market conditions and access to services under liberalization

iv. concentration of political power in national centres

v. perceptions that pastoralists are backward

(Dasgupta et al, 2014, p636, citing Smucker and Wisner, 2008; Dougill et al., 2010; Dong et al., 2011; Rivera-Ferre and López-i-Gelats, 2012)

Although pastoralist livelihood strategies are inherently adaptive to a variable climate (Morton, 2006), including 'strategic mobility' to exploit high quality grazing (Krätli et al., 2013), and diverse shorter-term coping strategies, their mobility is reducing, undermining their community resilience and the vulnerability of people in arid and semi-arid regions (Dasgupta et al, 2014). Animals represent secure assets and where there are few alternatives in marginal areas and where mobility is becoming impeded, overstocking and overgrazing can result (Cooper et al, 2008). When water points are established they have frequently failed to consider the routes of traditional migration pathways and can be the cause of land degradation in surrounding areas (Rota and Sperandini, 2009).

The lines between coping strategies – strategies taken after natural hazards or climate variability – and adaptation strategies – strategies aimed at reducing overall vulnerability to climate shocks– are often blurred for pastoralists and small-scale farmers, as strategies that are initially adopted as means of coping with particular crises can become entrenched as norms, i.e. as longer term adaptations (Morton, 2007). In northern Kenya and southern Ethiopia, a range of coping strategies for responding to drought and longer-term adaptive strategies can be identified (Morton, 2007):, including: mobility, herd accumulation, multi-species herds to exploit different ecological niches, 'the labour of men, women and children', informal savings and credit mechanisms through shopkeepers and bank accounts, use of supplementary feed for livestock and intensification of animal disease management via both indigenous and scientific methods, payment for water from powered boreholes, livelihood diversification such as charcoal production, intracommunity mechanisms for sharing livestock products and the use of live animals to assist the poorest, although this may be declining as risk levels rise within communities.

Many drylands suffer from conflicts and insecurity: 80 percent of major armed conflicts occur within their borders, which this adds to existing perceptions of such areas being risky and problematic (Middleton et al, 2011). Short-lived insecurity can exacerbate existing challenges and disparities, and there are also longer-term conflicts which can undermine the achievement of development goals (Middleton, et al, 2011). The mobility which is so important to pastoralist ways of life also makes them vulnerable to conflict or a fear of conflict, which can impede their access to markets and to critical natural resources (Rota and Sperandini, 2009).

Crime and violent conflict, environmental degradation, climate change and migration are all examples of interwoven processes, in which identifying causality can be difficult. While climatic shocks such as drought and floods or environmental degradation can contribute to conflict, normally there are many contributing factors, often with more distant forces (e.g. national, regional and even international) playing a role (Kipuri and Ridgewell, 2008. The colonial legacy with respect to the formation of nation states in Africa continues to play a negative role in the incidence of conflict and in unsuccessful attempts at resolution of conflicts, due to the lack of cooperation between neighbouring countries on disarmament agreements (Kipuri and Ridgewell, 2008. Pressures on land and natural resources, plus increasing poverty have led to increased livestock raiding as pastoralists seek to secure bridewealth payments (Kipuri and Ridgewell, 2008.

The literature and documentation of practical experience is growing, with government policies increasingly supporting adaptation in developing countries, and private adaptations by individuals, companies and NGOs also increasing (IPCC, 2014, p617). Adaptation strategies exist, many not new to pastoralists and dryland peoples, but their effectiveness requires 'careful selection, an integrated approach and longer planning timeframes, together with an enabling policy environment' (UNDP, UNCCD, UNEP, 2009, p45).

The case for public investment in adaptation is strong, particularly for countries bearing historical responsibility for greenhouse gas emissions to fund adaptations in developing countries, which have had much lower historical contributions and have fewer resources to adapt. Interestingly, an analysis of adaptation finance in Malawi found that villages receiving adaptation finance, as opposed to engaging in autonomous and informal adaptations alone, were more likely to address climate risks and increase their agency, security and to sustainably reduce their climate vulnerability (Barrett, 2013).

3.1.2 Dryland myths

This section explains the myths which have persisted about drylands, how these myths have informed policy and programming, and what this means with respect to resilience.

Within the 'desertification' narrative, the primary focus for rangeland management was seen to be combating dryland degradation and improving livestock management. Multiple myths, especially the notion of equilibrium which implies a theoretical carrying capacity (i.e. stocking levels should be controlled at the maximum supportable in the driest years) have prevailed.

The failure to understand how pastoral systems effectively work with the structural variability of the rangelands is at the heart of many of the inappropriate policies of recent decades in arid and semi-arid areas. Rangelands depend upon herbivores – 'large herds of ungulates create the conditions suitable for the plant communities that characterize rangelands. When these herds are removed or are restricted from movement, rangeland ecology and ecosystem functions breakdown. Well-managed domestic herds can provide many of the environmental services that wild herds provide, promoting pasture growth and biomass, and maintaining desired grass, shrub and tree species. Sustainable pastoralism contributes to soil formation, soil fertility, soil carbon, water regulation, pest and disease regulation, biodiversity conservation and fire management.

Table 3: Dryland Myths

Myth	New Paradigm
• **Drylands are remote, poor, degraded and, apart from tourism, potential drylands are globally insignificant.**	• Drylands are rapidly increasing in global significance. • 2.5 billion people live in drylands and these zones are not necessarily on the margins of the 'economically productive' world. Many staple foods originate from drylands. Woody vegetation, trees and tree products support national economies (e.g. rural energy). • There is a need for an international and economic response.
• **Drylands are located on desert edges and are affected by remorseless expansion due to human misuse (over-grazing, deforestation & over-cultivation).**	• Many key cities are located in dryland zones; Drylands can be in the centre of countries. • Environmental management is based on the concept of resilience.
• **Weak knowledge and adaptive capacity means dryland peoples are helpless in the face of climate change.**	• There is existing adaptive capacity in the drylands, which, with appropriate policies and improved research, can offer positive pathways to development.
• **Drylands are of little economic value except to support the subsistence of inhabitants due to relatively low biological productivity.**	• The real or total value of dryland ecosystem services both to local peoples' livelihoods and to national economies should be taken into account.
• **A satisfactory return on investment cannot be achieved due to high risks due to low/variable rainfall.**	• Investment can and does yield a satisfactory and sustainable return, and poor people's investments are real and significant.
• **Drylands suffer from weak integration into markets due to remoteness, poverty and low biological productivity.**	• Markets have long driven dryland development. • Trade is rapidly growing in importance despite conditions of uncertainty.
• **Communities are conservative, and are resistant to modernization and institutional change.** • **Governance, rights and institutions are only of local importance.** • **New technologies are preferable.**	• Equitable rights, especially regarding the use of natural resources and institutional change are necessary and achievable for development.
• **Communities are conservative, and are resistant to modernization and institutional change.** • **Governance, rights and institutions are only of local importance.** • **New technologies are preferable.**	• Equitable rights, especially regarding the use of natural resources and institutional change are necessary and achievable for development.

There is now greater recognition of the fact that rather than overgrazing being caused by pastoral strategies of mobility, such as herd accumulation, these strategies actually allow herds to move to spread grazing pressures, thus conserving ecosystems. Overgrazing is more the result of the barriers, boundaries and regulations or lack of regulations which have prevented free movement (Mortimore et al, 2009). Furthermore, the economic value of drylands to local livelihoods, environmental sustainability, rural economies and the global environment has been consistently undervalued by policy-makers, though this is now beginning to change. Drylands have commonly been seen as barren places of little economic value, but they actually contribute globally important ecosystem services, and can deliver food security for inhabitants plus economic development despite climate hazards and unpredictability with an enabling environment (McGahey et al, 2014) (see Box 5). It is not inevitable that drylands are vulnerable to food insecurity and poverty. Small-scale herders and farmers in China, Kenya and India value the structural variability of drylands instead of seeing it as a problem (Krätli, 2015). Pastoralism contributes to 'economic growth and resilient livelihoods in lands that are exposed to unpredictable climates and numerous natural hazards' (McGahey et al, 2014). However, these dryland myths are now widely recognized as misconceptions, without scientific basis (Mortimore et al, 2009; Middleton, et al, 2011).

Box 5: The economic value of drylands

The most important staple foods originally come from drylands, such as maize, beans, and potatoes etc. Millet and sorghum, and various species of wheat and rice come from the African drylands. The woody vegetation, trees and tree products of the drylands substantially contribute to national economies (e.g. 80% of rural energy in Mexico; 70% in Peru and north-east Brazil). Some 18% of dryland areas are occupied by forest and woodland systems. Drylands in Europe and North America generate an estimated USD 4,290 and USD 277 in economic value respectively, per hectare per year; but this figure jumps to USD 6,462 in Asia, USD 9,184 in Africa and USD 9,764 in Latin America. In India, 45% of agricultural production takes place in the country's dryland areas. Drylands are home to the world's largest diversity of mammals, for example in the Serengeti in East Africa. Plant species endemic to drylands make up 30% of the plants under cultivation today. Drylands provide 44% of the world's cultivated systems, 50% of the world's livestock, and contain a variety of important habitats for vegetable species, fruit trees and micro-organisms. For example, in Argentina, 50% of agricultural production and 47% of livestock production occurs on drylands, which are home to 30% of the country's 40 million people. Animal products from dryland grazing systems have a smaller water footprint than those from industrial systems. The average yield in drylands could be increased by 30 to 60% according to recent research, by making an additional 25 to 35mm of water to crops corresponding to 5–8% of expected precipitation during critical growth periods through water conservation and harvesting. These benefits are attainable in most dryland areas of the world. About 72% of drylands occur in developing countries and this proportion increases with aridity: almost 100% of all hyper-arid lands are in the developing world.

Source: Krätli 2015, p8-9

3.1.3 Inappropriate policies

Certain myths have prevailed for many years and led to inappropriate policies and under-investment, something which has been compounded by their remoteness and political marginalization. There is diversity within dryland areas in terms of agroecosystems and cultures (Dong et al, 2011). They range from Arctic Cycle ecosystems and the cold deserts to the Sahel and Sahara and higher altitude dryland areas in Iran and Afghanistan (Krätli 2015). But, common in many dryland areas, is the attempt by policy-makers to control their structural variability, including their mobile and cross-border populations. The prevalence of these dryland myths – that it is important to control structural variability, that drylands are remote, backwaters of little consequence, etc. has led to inappropriate policies, such as damaging sedentarization programmes, political marginalization and non-investment (Mortimore et al 2009; Hesse, 2014; Rota et al, 2012).

Reynolds et al (2007) identify two key dimensions and drivers of these processes of marginalization: remoteness and distance from centres of political power. Bird, Higgis and Harris (2010) identify four factors which combine to create geographical pockets of poverty and exclusion, known as spatial poverty traps:

i. a poor environmental endowment

ii. institutional/political and governance failures

iii. negative stereotypes based on identity

iv. physical isolation and poor infrastructure

In the case of drylands many of these factors hold true. Although the environmental endowment has been misunderstood, dryland zones are actually very productive and contribute important environmental global services, and pastoralist peoples have valuable local knowledge, adaptive livelihood strategies for living with uncertainty ideally suited and co-evolved with rangeland ecologies, and have human rights to sustainable development. Institutional and governance failures have been considerable, underpinned by misperceptions which have created inappropriate policies, and which in turn have contributed to poor infrastructure, although the latter is influenced by physical remoteness as well. Physical remoteness is an issue for dryland zones and the dispersed, low and often mobile populations of most dryland regions makes service delivery both expensive and logistically challenging.

The mobile nature of many pastoralist and transhumant communities means that these groups can have a more ambiguous status in the eyes of many policy-makers with respect to their national citizenship – particularly for those nomads practising cross-border transhumance. Local dryland populations have often been seen as hard to control and classed as socially inferior and are culturally devalued. Those most likely to be left out of development progress are the groups in the population whose economic deficits intersect with culturally devalued identities, locational disadvantage and lack of political representation (Arauco et al. 2014); in drylands nomadic pastoralists have suffered in this way.

Entire dryland regions and social groups are politically marginalized, particularly pastoralists who have limited voice in national policy making and in economic terms there has been very little investment in infrastructure, markets and trade in these regions. Inappropriate policies have undermined pastoralism and led to sustained underinvestment in core aspects of human development: education, health, security and good governance (McGahey et al, 2014). Furthermore, in dryland zones, differences between nomadic and settled communities can be an issue. Horizontal inequality (group-based disadvantage) intersects with vertical (individual and household) disadvantage as well.

There are disproportionately high poverty levels in the drylands in developing countries, because of these poor policies, lack of investment and political marginalization, and this in turn has increased out-migration and furthered processes of land degradation (Middleton et al, 2011). Declining land holdings, insecure tenure and unequal access to land and other resources, as well as poor nutrition, health and education levels (Kameri-Mbote, 2005) are common challenges for dryland areas. Government capacity is limited, with unresponsive institutions, a lack of good quality and sufficient numbers of personnel, inadequate finances, and poor infrastructure, especially in transport (Kameri-Mbote, 2005; Middleton et al, 2011).

Basic service delivery is generally poor and inappropriate, leading to poorer health and lower education for many dryland populations. Malnutrition, rapid population growth, and a disease burden are the result, amongst other things, of these poor policies and under-investments in health services and education (Kameri-Mbote, 2005). Centralized services have struggled to reach low density and mobile pastoral populations, and have delivered negative messages about pastoral ways of life – more research is needed on what can work (Morton and Kerven, 2013).

Dryland data and monitoring mechanisms are weak, which means that subnational differences are not being adequately captured in assessing progress towards the MDGs (Middleton et al, 2011) and this is likely to carry through to the tracking of the Sustainable Development Goals without concerted action.

This nexus of high levels of remoteness, low levels of public and private investment, and high levels of chronic poverty can be found, for example, in many of the drylands in Africa: in semi-arid areas of Zimbabwe, there are examples of spatial poverty traps in the drylands (Bird and Shepherd, 2010).

The uncertainties associated with dryland areas can make investments by private sector investors challenging, but a review of some studies in Africa and India (Mortimore et al, 2009) demonstrates evidence of higher rates of return compared with investments in humid or irrigation areas. The investments already made by small-scale African farmers in their land should also not be overlooked (Vorley et al, 2010), including in the drylands (Mortimore et al, 2009). In the 1980s, structural adjustment policies led to the rollback of the state in the provision of services to farmers, including veterinary services. The private sector can be effective in delivering such services, as well as in responding in an agile fashion to emerging disasters, when there is profit to be made, but where unprofitable services are needed, the government, NGOs and international agencies should step in (Morton and Kerven, 2013).

Poor linkages to markets characterize dryland zones, because of their remoteness and lack of relevant infrastructure and markets, although demand for livestock and associated products is growing in many domestic and regional markets of developing countries. Linkages to local and sometimes more distant markets are increasing for some dryland inhabitants, becoming an important element of livelihood strategies. Reliance on the subsistence use of non-timber forest products such as fruits, nuts, honey, beeswax, gum resins, and medicinal plants and their commercialization is increasing (Kipuri and Ridgewell, 2008; Mortimore, et al, 2009), but there are risks of exposure to market shocks, of loss of control of key resources by women to men in processes of commercialization, and of over-exploitation of natural resources. Insecure land and natural resource rights, with complex interactions between statutory and customary systems, also present challenges for the drylands and there are challenges when dryland zones are seen as 'idle lands' which can be used for large-scale investments like commercial biofuel developments and communities are not adequately consulted (Nelson and Lambrou, 2011).

3.2 Challenges for dryland women relating to resilience

This section explores the specific challenges for women and certain social groups within drylands societies, intersecting with the generic spatial marginalization of dryland zones. We explore these issues with respect to gender justice including representation, recognition and redistribution issues, and consider what resilience means for drylands' women's empowerment.

3.2.1 Unequal distribution of resources and access to services

Dryland livelihood resilience to shocks and stresses relies in part on access to key resources and services. We discuss in this section the uneven patterns of resource access and control to a range of basic social, agricultural and climate-related services and the discrimination faced by women. With rising uncertainty caused by climate and other rural stressors, households need resources to cope and adapt to shocks and stresses. Women tend to have less access to these necessary resources for adaptation.

Uneven distribution of land and natural resource rights

Land rights are important for the resilience of individuals, households and communities. Women tend to have access to and control of weaker 'bundles' of land rights as compared to their male counterparts in developing countries, although patterns are context specific (UN, 2013; Deere and Doss, 2006; Adelman and Peterman, 2014). Natural resource rights can be as or more important as land for dryland women's livelihoods, but they tend to be restricted to use rights as well and there are rural stressors affecting women's tenure insecurity.

Box 6: Dryland women's land rights

The root of inequality with respect to women's land rights is found in patriarchal gender norms in statutory and customary land tenure systems, as well as on-going processes of land privatization (IFAD, 2006: 4; FAO, 2003:12; Agarwal, 1994; Adelman and Peterman, 2014). Women have limited decision-making authority and representation with respect to land, and institutional gender bias and capacity impede women's land rights (Bezabih and Holden, 2010; Sircar and Pal, 2014). In some dryland societies there are particularly strong patriarchal and communal socio-cultural norms which can exclude women: In sub-Saharan Africa and Asia, settlement patterns are mainly patrilocal (i.e. women settle in the husband's community and on his land) and women tend to be restricted to use rights derived from men through marital status, which is linked to male lineage (Berge et al., 2014; Odgaard, 2012). See Thematic Paper 1: Land rights in this series.

Uneven livestock ownership and access to related products

Beyond land rights in dryland areas, livestock ownership and access to associated products is very important for livelihoods and is gendered in nature - although in ways which vary with context. The multiple stressors in dryland areas often exacerbate gender inequalities (Rota et al, 2012)). For women and girls, there can be an increase in subsistence and income, generating burdens when men have to graze livestock in more distant communal areas or are forced to find other employment where government policies impede land access, or in situations of environmental degradation or conflict. Settled pastoralists can incur livestock losses as they cannot keep their animals close enough and women as a result have to find other sources of cash, which in some instances has involved commercial sex work. At the same time, some pastoral women have sometimes managed to secure better access to health care, education and new market opportunities through settlement (Rota and Sperandini, 2009). While access to livestock for pastoralist women may be more restricted than that of men, compared to other natural resources, they do have livestock rights – often for smaller stock – and rights over associated products such as milk and hides (Rota and Chakrabarti, 2008). As well as their domestic and caring responsibilities, women are also livestock managers, amongst other things (Kipuri and Ridgewell, 2008), but this has not been widely recognized to date.

Uneven access to health, education and social protection services

Pastoral societies in the Horn of Africa often have poor health status, although it is not clear from the evidence whether there are pastoralist-specific patterns of ill health. Effective delivery of both curative and preventative health services is challenged by dryland remoteness, low population density, pastoral mobility and poor infrastructure. Pastoralists experience poor levels of maternal and infant health, for example. Particular challenges exist with respect to services requiring high levels of professional supervision (Morton and Kerven, 2013). Pastoralist women face particular challenges due to their tasks in collecting water and firewood, which can cause stress to the body – tasks which are often becoming more onerous where resources are dwindling (Flintan, 2008).

Similar to health, compared to regional averages, education provision is particularly poor for pastoralists and there are disparities between girls' and boys' access to education. For five countries studied in the Horn of Africa – Dijbouti, Eritrea, Ethiopia, Kenya and Tanzania – the gross enrolment rate (GER) for the nomadic study areas was found to be less than half the national ratio and in pastoralist communities the GER is lower for girls compared to boys, and this disparity is more pronounced than in settled communities (Morton and Kerven, 2013 citing Carr-Hill and Peart, 2005, p15). The designs of current education systems are inappropriate for nomadic groups and schools are not sufficiently secure and decent (see Reidy, 2012).

Improving education is a priority for female pastoralists, (Rota and Chakrabarti, 2012). Education was identified by female pastoralists as a priority, but not by male participants in a workshop held by researchers in northern Mali in an area which has experienced significant environmental change, for example, a drying lake has become reforested. (Brockhaus et al, 2013). There is evidence that education is influential with respect to diversification of livelihoods and drought resilience – education is a long-term driver of livelihood diversification, something which is important for resilience to shocks and stresses (Little et al, 2009; Morton and Kerven, 2013).

Social protection measures, as a basic service, are receiving greater attention, because traditional forms of mutual support are being eroded, with the desire to move beyond continual reliance on emergency relief (Morton and Kerven, 2013) and with the increased risks posed by climate change. Productive safety nets (PSNs) now exist in all regions, especially in South Asia and Sub-Saharan Africa (Subbarao et al, 2012 cited by Combaz, 2013). In the agricultural sector, the main goal of productive safety nets is generating employment through labour-intensive works.

Generic findings on social protection schemes indicate that 'policy choices can address gendered economic and social risks in Productive Safety Net Programmes (PSNPs). Entry points in design include quotas, the organization of worksites, especially childcare, and the adjustment of wage modalities. In targeting, households should be disaggregated by individual' (Combaz, 2013, p2). The literature identifies programming solutions for including youth, such as providing skills training, for people with disabilities (e.g. social assistance and empowerment interventions) and pastoralists (e.g. accounting for mobility needs) (Combaz, 2013). Social protection programmes in dryland zones need to accommodate the diverse livelihood strategies of pastoralists, especially with respect to mobility. Specifically for pastoralist communities, there are promising social protection measures, including safety nets and index-based insurance (Morton and Kerven, 2013).

There is limited analysis of the extent to which agricultural schemes address social inclusion and the number of cases in the evidence base is limited (Combaz, 2013). Livestock insurance is widely used in Asia, but is not common in Africa (Miller, 2011). There are concerns that increased costs can exclude poorer women, but working and paying in groups represents one solution (Hill, 2009 cited by Miller, 2011). Gender norms and institutions, which create gendered vulnerabilities, can shape women's and men's access to index-based livestock insurance (IBLI), which is intended to protect livestock owners against catastrophic losses as a result of drought – yet there is limited research (Bageanta and Barrett, 2015).

Uneven access to climate change responses and disaster risk reduction measures

Current gender inequalities are likely to be exacerbated by climate change (Nelson, 2011a; 2011bef). The recent IPCC 5th Assessment Report, Working Group II, chapter on rural areas (Dasgupta et al, 2014) summarizes the issues: 'Socially and geographically disadvantaged people exposed to persistent inequalities at the intersection of various dimensions of discrimination based on gender, age, race, class, caste, indigeneity, and (dis)ability are particularly negatively affected by climate change and climate-related hazards. Context-specific conditions of marginalization shape multidimensional vulnerability and differential impacts […] Existing gender inequalities are increased or heightened by climate-related hazards. Gendered impacts result from customary and new roles in society, often entailing higher workloads, occupational hazards indoors and outdoors, psychological and emotional distress, and mortality in climate-related disasters' (IPCC, Chapter 13, Olsson et al, 2014, p796.).

Access to climate change adaptation support and disaster risk reduction measures can also be uneven. Seasonal forecast information usage has been relatively limited, but is important for understanding climate scenarios for agricultural development, for use by pastoralists and arable farmers, and in coordinating input and credit supply, food crisis management, trade and agricultural insurance (Dasgupta et al, 2014). There are multiple factors influencing the (sub-optimal) uptake, with the choice of dissemination channel being different according to gender (Dasgupta et al, 2014). A seasonal climate forecast was introduced in 2011 in Mali, Ghana, Senegal, Burkina Faso and Niger by the CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS) (2011–2012). Research among semi-arid farming communities in Kaffrine, Senegal, found that the impact of increasing climate risk was not equally distributed through the population and there were patterns of unequal access to climate information and advisory services, with potential negative implications for those groups' ability to manage climate risks. Further, it was concluded that gender-specific climate services are needed. Female farmers require a forecast of rainfall cessation, not onset, and that the choice of communication channels varies by socio-cultural realities. Location- and gender-specific needs should inform the design of new climate services in order to increase resilience[2].

2 'Farmer Responsive climate services built in Tanzania and Malawi'. A blog from the CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS).

Existing approaches to providing drought insurance to the poorest had not been effective owing to high administrative costs and the inability of cash-poor smallholders to afford premiums (World Bank, 2010).

Adaptation finance can help to strengthen community resilience in dryland areas, but as such investment and programming is implemented in contexts of gender and social inequality, there are risks that these inequalities can be worsened, without concerted analysis and action. A case study from Malawi found that the benefits may not be evenly felt, though shaped by existing power relations (Barrett, 2013). Access to adaptation funds was shaped by gender, as well as household functionality and the nature of relationships with customary leaders (Barrett, 2013). There are more adaptive learning and management approaches being implemented, though it is not clear how alert such projects and programmes will be to gender constraints and issues. One project which is just beginning indicates a cross-cutting research theme on gender will be integrated across the programme. The Adaptation at Scale in Semi-Arid Regions (ASSAR) project (the Canadian International Development Research Centre and UK Department for International Development, 2014–2018), covering southern eastern, and western Africa and south Asia, will seek to facilitate widespread and transformative adaptation at multiple governance scales. Its regional research programmes will generate knowledge and evidence to guide and inform adaptation policy.

Uneven access to animal health care services

A number of obstacles constrain dryland women's access to animal health care. In sub-Saharan Africa, the key factors have been identified by Miller (2011): men receiving most of the training and replacement stock; information being shared through usually male-dominated dip tank committees or livestock producer groups; limited sharing of information by men with their wives, livestock training oriented towards men; limited focus on small ruminants and poultry which are often of more interest to women; mainly male veterinarians and extension agents limiting interactions with women; women having longer workdays, higher levels of illiteracy, a lack of confidence and less mobility. As women sometimes require male permission to travel, they need to access health products such as animal medicines within the village and may prefer to be able to buy from other women in some instances (Miller, 2011).

Uneven access to markets and producer groups

Dryland women tend to have more limited access to markets than their male counterparts and opportunities are being missed because of the focus on larger stock.

Numerous obstacles challenge pastoralist women's access to markets: limited access to productive assets, such as livestock and land; low literacy levels; lack of expertise in running small businesses; lack of access to credit because of a lack of collateral; limited experience in capturing value in value chains; limited access to markets; a lack of time for income generating activities; limited self-confidence; lack of access to family and community decision-making, including in development projects (Rota et al, 2012). The extent to which women face these constraining factors, and more than men face them, do vary from place to place, but they are commonly experienced in pastoralist societies.

African women have limited access to markets for animals and products due to numerous obstacles, including: a relative lack of market contacts and information; limited participation in livestock cooperatives reducing their influence; lesser access to mobile phones which are essential for livestock trading; higher illiteracy levels, lack of experience and limited financial skills; lower prices offered by traders who know they have fewer options due to their limited mobility; lesser access to credit; the need to have a husband's permission to make livestock sales

(even when they are absent); a portion of the income being retained by male relatives when they sell a woman's animal or products; milk checks by private sector dairy collection plants usually consult heads of household, limiting married women's access to income; government regulations on informal milk sales and other foods of animal origin (Miller, 2011).

At the Global Gathering of Pastoralist Women in India (2010), the participants demonstrated a desire to 'improve their income-generating potential for bettering their lives and coping with unexpected environmental and economic shocks' (Rota et al, 2012, p11). Pastoral women are increasingly keen for different reasons to make improved use of their livestock and other resources and activities such as handicrafts. Examples given include sending their children to school, compensating for reduced income when men outmigrate and also to increase their level of status – the latter outweighing the tensions which frequently arise in decision-making in the use of income from these new or intensified activities (Rota et al, 2012). Economic empowerment is important for the broader empowerment of women, as it can increase their confidence, networks and access to social capital (Rota et al, 2012), but there are also risks to integration into markets for small producers; such risks are particularly pronounced for pastoralist women.

It is the balance between exposure to market shocks and stresses following increased integration into markets, compared to the benefits that come with increased income generation that is foregrounded by a resilience lens. Rota et al (2012) suggest that 'many initiatives either fail or are successful for only a limited time – a woman's response is often to try again, using similar skills and inputs, but with different products or in a different place.

Control of income and the labour implications of new or intensified livelihood activities need to be carefully assessed from a gender perspective, as often there can be time costs for women and labour-saving technologies are urgently needed (Rota and Sperandini, 2010a). Improved service provision is also more likely if services are not only efficient, but culturally sensitive and sometimes mobile (Rota and Sperandini, 2009).

There is evidence that where women are successful in generating income and managing small businesses, that they can still lack control over the income: In Kenya, anecdotal evidence shows that a group of Maasai women who began trading in livestock, faced resistance from male community members and the income from one transaction was taken away. Gradually, the women negotiated enhanced financial independence from men (Rota et al, 2012). Norms also exist which mean pastoralist women tend to use any additional income earned to invest in their families, potentially to the neglect of themselves (Rota et al, 2012).

Major opportunities to support women's engagement in livestock development have been missed in development programming. While goats and poultry have only recently received more support, new products such as camel milk present opportunities for women in particular, and donkeys, given the important role that they play in some dryland areas in animal traction and transportation present an opportunity where they are underutiliized. Donkeys can be important for saving time and labour for transporting water and fuel to the home and goods to market (Miller, 2011).

Women's membership and active participation in livestock producer groups and cooperatives have been limited (Morton and Kerven, 2013). Many livestock cooperatives and marketing groups are male dominated, and while there are some successful women's groups, more are needed with associated capacity strengthening investment (Miller, 2011; Coppock et al, 2011).

The most successful groups are those that combine technical and social goals that provide multiple services at the same time, such as livestock production and literacy (Miller, 2011). There have been mixed results in the provision of micro-credit or non-collateral loans in Africa – although cash can help women to start up livestock enterprises, organizations frequently lack the capacity to monitor and extend loans. Group-based credit, larger amounts for capital, numeracy training, group bank accounts, and follow-up monitoring to ensure men have not taken control of funds are all found to be desirable strategies (Miller, 2011).

Changing private sector attitudes towards women livestock owners is urgently needed – frequently companies do not recognize that women are willing to invest in their animals and therefore represent a market opportunity. There are opportunities for companies to reap reputational benefits through branding on products where they source from poorer women producers, (Chan, 2011), and this can provide benefits to women producers. This opportunity is particularly available in specialty markets, for example for camel or goat cheese, and for export or tourist industries (Miller, 2011). Some private companies are recognizing the opportunity to source from female producers, requiring producer groups to increase women's membership and the number of female leaders and sometimes in seeking to improve government provision of services and infrastructure to liberate women's time so they can engage in markets (Chan, 2011 cited by Milller, 2011). While private companies can provide important services to livestock producers, it is also important that the government steps in to ensure the 'public good' (Morton and Kerven, 2013).

3.2.2 Lack of recognition of women's roles, knowledge and specific barriers

Gender roles not adequately recognized

Traditional, customary systems are being accorded greater value, because of their adaptive capacity in contexts of uncertainty. But the associated gender norms often mean that women have heavier workloads, as well as the resultant unequal access to and control of resources outlined above. There is a lack of recognition of women as rights holders and members of a community group, who are entitled to land and natural resource rights and decision-making powers. There are also specific barriers which women face, such as sexual and gender-based violence and harmful practices, which are addressed in this section.

There is variation in livestock responsibilities between dryland societies and within, according to gender, age, ethnicity, tradition and class (Miller, 2011). Pastoralist women generally take responsibility for caring for animals near the home and have tasks for other household animals when they return from pastures in the evening. Men tend to herd larger animals, while women take care of small stock. Livestock decision making is also gendered, generally speaking with men dominating (Miller, 2011). Socially ascribed gender norms mean that women are often given responsibilities for firewood and water collection.

In agropastoral systems, women and men also tend to own different animals, cultivate different fields and retain the income from their own activities (Miller, 2011). Commercialization and intensification processes in dairy and poultry can have negative gendered effects as women's work increases and they can lose control of income, reducing household welfare (Miller, 2011). Women tend the animals on the farm – cleaning, feeding and treating them with medicines – and so more closely observe diseases. Both women and men milk the animals, but domestic processing of milk is always done by women (Miller, 2011). Women are more exposed to zoonotic diseases, such as brucellosis and tuberculosis, as a result of their exposure to manure, offal and milk etc., although the different genders' exposure to anthrax as a result of slaughter and tanning activities varies with ethnicity. Sometimes women are slower to obtain treatment as well (Miller, 2011).

Despite increased legislation aimed at protecting women and women's rights in many countries, social norms continue to be observed by male and female community elders. This is often because of the processes of socialization which mean that girls and boys internalize gender norms from a young age. While such gender norms change, they are also re-enacted and reinforced through the processes described in Box 7 below. Other factors, such as age, class, religion and marriage status influence the position of a particular pastoralist woman. Elderly women, particularly widows, have a high status in the household and community.

Box 7: Socialization processes in pastoralist societies in east Africa and the Horn of Africa

'Among pastoralists in eastern Africa and the Horn, girls are socialized early on to accept their role as helpers to their mothers, who are themselves subordinate to their husbands. As the young girl grows older and enters marriage, she too will occupy the same position as her mother in a household that her husband heads. Folklore, stories, legends, sayings and proverbs help to reinforce these prescribed roles. The impact this has on girls' education and their overall participation in society is described in section 5 in this report. Girls are cast as the weaker sex and are taught to obey, respect and submit to the leadership of men. While young men gain prestige for trekking livestock to distant camps and protecting the community, young women are taught deference. Among the Maasai of Kenya and Tanzania, girls respond to greetings from men with shrill voices as a sign of deference to the caller. They continue to do this when they enter adulthood, as Clementina Meteyian, a Maasai woman from Tanzania, explains: 'Maasai women and girls are expected to have two voices, one for normal talk and another little voice used to demonstrate respect for men. Boys and men are not required to change their voices at any time.'

Source: Kipuri and Ridgewell, (2008, p6)

Gender norms are context specific, however, and it is important to avoid over-generalizations. Although much of the literature finds women having responsibility for firewood collection, in the Córdoba province of Argentina, men often have greater responsibility for collecting fuelwood when out tending the cattle, or at least the task is shared between men and women (Cardoso et al, 2012). Women are ascribed responsibility for selecting the fuelwood to be used on the stove and keeping the stove alight. Men and women have complementary, but differing knowledge of woody species.

Given increasing environmental pressures, the erosion of some customary management regimes and male outmigration in some dryland areas, there are increased challenges for women in rural areas. African pastoral women are spending longer on subsistence tasks, such as grazing animals, finding water, collecting firewood and other fuels at increased distances from home – which also carries greater security risks for women (Rota et al, 2012). Tree losses mean women spend longer on fuelwood collection and there are also more female-headed households relying on fuelwood collection and sale (Kipuri and Ridgewell, 2008). More Samburu men are using timber for house building in northern Kenya rather than thatching grass, but as women tend to have to collect and carry the materials, this trend results in more drudgery for them. There is more frequent migration to find water and pasture, meaning that houses have to be taken down, moved and put up more often (Kipuri and Ridgewell, 2008). Moving more frequently creates more work but also reduces education and health opportunities (Rota et al, 2012).

Men are increasingly seeking work in other places and this can lead to increased tasks for pastoral women (Rota et al, 2012) and for agropastoral women in semi-arid areas in Tanzania, where there is increased outmigration by men and by younger women, and increased workloads due to increasing climate variability (e.g. increased need for replanting with erratic rains) (Nelson and Stathers, 2009). Declining natural resources available for use in livelihood activities and traditional medicine are also reported by pastoralist women (Rota et al, 2012).

Some challenges in east Africa affect the entire community, though existing inequalities mean women tend to have fewer resources to cope (Kipuri and Ridgewell, 2008). Examples of such challenges include the spread of Prosopis, a damaging invasive species of flowering plant in the pea family, found especially in riverine areas important to pastoralists, or water and pesticide pollution.

Gender norms are context specific, dynamic in nature and have sometimes been more positive in the past. In many dryland countries, a woman's position has been worsened by colonialization and commercialization processes and by inappropriate government policy and the failures of pastoral development programming. In some cases, prior to such processes taking hold, pastoralist women's household and community status was actually more equitable. In Kenya, Tanzania and Uganda during the lengthy colonial periods, women's extensive role in herd management was ignored. They were not recognized as livestock owners and colonial governments based their tax demands upon the number of animals held by men. Boys were enrolled when missionary and government schools were first established in the first half of the twentieth century. Assumptions were made that men owned and controlled resources among the Masaai, so that when new dairy cooperatives were established, the herds were formally registered to male household heads. Men then collected payment from collection points, even though women were managing milk and milk products, increasing their vulnerability (Kipuri and Ridgewell, 2008).

Other processes of large-scale land acquisitions and agricultural development also pose risks for drylands women. Agricultural expansion, environmental conservation, tourism and biofuel production may present opportunities for dryland communities, but there are also risks, and as women tend to have fewer resources and less political voice within their households, within their communities and beyond, they are disproportionately vulnerable to these risks (see Nelson and Lambrou, 2011 on biofuels and gender).

The relative increase in the importance of agriculture in some pastoralist communities is leading to changes in household division of labour. In agro-pastoralist communities, partial settlement has occurred, and while men may carry on with livestock herding and visiting distant satellite camps, women remain behind and act as head of the household, and have responsibility for their previous tasks and crop cultivation work as well. This can also have a knock-on effect as more girls have to leave school. Further, the increased workload can mean that women have even less participation in social events when important decisions are made (Kipuri and Ridgewell, 2008). Likewise, pressures on existing agropastoral communities in semi-arid Tanzania are leading to outmigration by men, and also younger women, leaving older women to should a greater burden of the workload running the farm and sometimes with lesser access to labour and necessary inputs (Nelson and Stathers, 2009).

Broader processes of diversification out of pastoralism in east Africa are also thought to be challenging men's status in some instances (Morton and Kerven, 2013). A more recent decline in the importance of livestock and increasing diversification in the pastoralist economy in east Africa has challenged men's status and led to increased abuse of alcohol and khat (a mild narcotic plant) among men. In the Somali Region of Ethiopia this has increased the burden of work for women (Kipuri and Ridgewell, 2008).

Differences among women by age are also not given adequate attention in programming. Older women can have greater status and influence in their communities than other pastoral women, especially where they are perceived as having wisdom which they will use in the community's interest (Rota et al, 2012). Given the far-reaching changes affecting some communities such as settlement and diversification out of pastoralism, there can be a disconnect between the expectations of donors, parents, teachers and governments seeking to sustain pastoral livelihoods and to achieve sustainable land management, and the aspirations of young people: pastoralist mothers, when interviewed, reported that they were concerned that their children want to leave what is essentially a challenging and marginalized way of life (Rota et al, 2012). Furthermore, girls tend to face more challenges than boys, including incidence of early, and sometimes forced, marriage, Female Genital Mutilation, receiving less food, limited access to education and very limited influence and voice in their families and communities (Rota et al, 2012).

Neglect of dryland women's traditional knowledge

In the past, women's traditional knowledge was often overlooked in analysing agricultural and livestock-related indigenous knowledge. Pastoralists of both sexes have extensive knowledge of livestock and production, particularly where they are tending animals, e.g. milking or caring for sick animals (Flintan, 2008).

While recognition of the gendered nature of indigenous knowledge and women's knowledge has grown in recent years, there is further to go. Dryland women should not be cast as 'sustainability saviours' (UNDP, 2014) as there is the risk that this discourse could reinforce gender norms, including women's domestic and reproductive roles, rather than help to challenge them by engaging men in sharing such tasks more equally, without a full distribution of rights to accompany the activities involving women.

Youth, government staff and private veterinary and animal health agents sometimes do not accord much value to traditional medicines, but they may be widely used and programmes should build upon existing methods and add in new technologies such as vaccines (Miller, 2011).

Specific barriers facing dryland women

Women lag behind on education and health indicators in many dryland zones, not only because of uneven access to services, but because of some socio-cultural norms, such as bridewealth, and harmful practices, such as Female Genital Mutilation (FGM).

Some pastoralist traditions are gender specific and particularly harmful to women including FGM, as well as norms which mean women have less access to productive resources (e.g. livestock and land), public services of all kinds and participation in decision making, the latter being dominated by male elders, and women are often unable to inherit property (Kipuri and Ridgewell, 2008). In some pastoralist societies, men have control and ownership of livestock, dominate politics and household decision making, are perceived as the heads of households, lineages and clans and are seen as being 'true pastoralists', while women have secondary, supporting roles in livestock rearing, are subordinate to their male relatives – fathers, husbands and sons, face exclusion from public life and their pastoralist identity is belittled (Kipuri and Ridgewell, 2008). However, Hodgson (2001) argues that pastoralist societies are not inherently patriarchal. She presents several anthropological case studies which indicate that they are complex and evolve through local and trans-local interactions[3].

3 Case studies include pastoralism, patriarchy, and history among Maasai in Tanganyika; women's roles in peacemaking in Somali society; the fertility of houses and herds; gender, aging, and post-childbearing experience in a Tuareg community; and milk selling among Fulani women in Northern Burkina Faso.

Pastoralist livelihood strategies place special health pressures on pastoralists and especially on women: herding livestock long distances on a low energy diet and in heat can stress the body – and for women carrying heavy loads of water and fuelwood over long and, sometimes increasing, distances stress on the body can be significant and there are risks of injury and miscarriage (Flintan, 2008). The gendered health impacts of smoke inhalation from cooking on traditional stoves are well known. Modern health services require access to and control of cash, which can exclude women (Owoh K cited in Thuren 1991 cited by Flintan, 2008). Travel to reach clinics can be expensive, but also poses risks for women and often requires permission from husbands (Flintan, 2008).

Establishing causality between violence and conflict, environmental degradation and land rights issues is challenging. However, it is clear that conflict can lead to a dividing up of pastoral lands and impeded access for pastoralists to those lands. The impacts of war are gendered – men are more likely to go off to fight in a conflict elsewhere, but women can then have increased domestic burdens and there are increased physical risks to pastoralist women and girls (Rota et al, 2012).

Women often suffer disproportionately during conflicts, because they become victims of gender-based violence. Karamajong women have faced significant increases in domestic violence involving weapons. When men go off to fight or are injured, women have to sustain the household, which may already have been hit by livestock raiding; collecting wild subsistence products can become unsafe and there is the on-going fear of harassment or attack and bereavement of loved ones (Kipuri and Ridgewell, 2008). Amongst the Karamajong, mothers in other groups who are the potential mothers of future generations of 'enemies' are targeted, and they are often victims of abduction, rape and murder as a result (Kipuri and Ridgewell 2008).

However, pastoralist women are not just victims of conflict, they can catalyse violence. Examples include: promoting hero worship of their male kin encouraging violent acts; increased social status of a fighter can transfer to his wife; upward pressure on bridewealth payments placed by a woman on her future husband with more raiding needed by men to avoid ridicule. Women can have an important role as peace-makers who are not involved in the fighting and have less constrictive ties to a particular clan or lineage (Kipuri and Ridgewell, 2008). There is also the risk that socially excluded groups can be blamed when they migrate to other regions for political unrest and crime, and have fewer connections to political elites meaning they have less protection.

3.2.3 Lack of women's representation

Overall, women are poorly represented in all kinds of decision making at all levels, although the extent of marginalization varies with context and there are differences between women depending upon their position in society and local cultural norms and power relations. Despite the challenges in women's participation in decision making, dryland women should not be characterized purely as passive and vulnerable victims.

Inclusive governance is central to achieving greater resilience for dryland peoples and environments. **These issues are addressed in-depth in *Thematic Paper 2: Governance* in this series on dryland women.** In this section we explore some of the issues most pertinent to women's empowerment with respect to resilience and representation.

The introduction of new dryland land governance institutions can provide new opportunities for women's representation. However, success in achieving greater gender equity in land decision making has been limited to date. New municipal land committees in Niger, for example, were not being used by communities, with local structures for negotiating access to natural resources used in preference. Despite a quota being set requiring 10 percent female councillors on the committees, women councillors' participation was primarily symbolic, as both women and men had little awareness on women's land rights (Diarra and Monimart, 2006). Local notions of successful agricultural performance and good character determining selection of leaders on merit, rather than by outsiders also undermined their credibility in the community (Diarra and Monimart, 2006). Similarly, at the national level, women's rights to participation in decision making are extremely limited in countries with dryland zones.

In adaptation programming, there are challenges given gendered and unequal power relations in many contexts. In Malawi, a study of an adaptation project shows positive outcomes, but also points to less positive aspects with respect to procedural justice – with poorer households not participating or excluded from certain benefits through elite capture, often with gender dimensions (Barrett, 2013). Village headmen were found to sometimes have taken control of the cassava gardens themselves. Many community members were not able to take advantage of public works programmes, including flood defences. Often the more productive, better off households had agreed access to the funds (Barrett, 2013).

4 OPPORTUNITIES FOR WOMEN'S EMPOWERMENT IN RESILIENT DRYLAND DEVELOPMENT

L. Forsythe

4.1 Improving women's access to basic services: fundamental for resilience

There is a major opportunity to improve educational and health provision for women – both key elements of a more resilient society. Pastoralist research in east Africa found that pastoralists highlighted the importance of their basic needs – water, healthcare and access to education – being met, pastoralist or not (McPeak et al, 2012). Responsibility for the provision of basic services lies primarily with the state, but local government institutions lack capacity and in processes of decentralization, such as in Kenya and Ethiopia, there are challenges with respect to elite capture and disproportionate government cuts (Morton and Kerven, 2013).

Education as a long-term driver of livelihood diversification

Dryland girls and women tend to have much less access to education. Assumptions have been made that children learn well in a permanent school classroom with a standard curriculum (Krätli and Dyer, 2009). Educational achievement overall is low for pastoral areas of African countries compared to national averages and girls fare worse than this, for example in Kenya (Krätli and Dyer, ibid). Recent studies assessing community resilience to disasters focusing on several locations in Kenya and Uganda also found that dryland community members, including women, highlighted the importance of education, including completion of secondary and tertiary education, as a key element of resilience (UNDP, 2014). Resilient households tend to have higher levels of education and this was perceived to partially account for their higher levels of access to diverse sources of income (UNDP, 2014). Mobility, the importance of young people's labour in pastoral production, low population densities and curricula that do not meet pastoralist needs are contributing factors.

Proposed alternative educational models include 'open and distance learning', which covers the whole range of educational options. For pastoralists, especially girls, a combination of high-quality and locally relevant broadcast programmes, face-to-face teaching, and printed materials based on a fully recognized core national curriculum, focusing on the children, but also targeting the household as a whole is needed (Krätli and Dyer, 2009). A more successful curricular approach is to understand how learners use literacy within the wider family, community and local environment, and to make these aspects central from the start.

Improving dryland women's access to health services to underpin resilience

Improving health services for women in dryland zones can underpin both individual and more broadly household resilience, because of women's roles in subsistence and reproduction. However, instead of a top-down approach to service delivery, an empowerment model is required which promotes 'women's individual sense of self-worth connecting to the value they attach to their own health, women's individual decision making over access to health care, and women's collective empowerment through organizing to make health services more accountable and to increase women's choice, decision making and control over their bodies' (Oxaal 1997:17 cited by Flintan, 2008, p16).

There are promising experiences on the provision of training for female health workers and specifically on challenging the stigmas associated with HIV/AIDs through collective group training.

The inclusion of a focus on nutrition education is important in improving pastoral women's health and indeed that of the wider family as women tend to pay greater attention to assuring family needs are met (Bravo-Baumann, 2000, cited by Flintan, 2008) as is a package of interventions aimed at improving the livelihood systems of the household (Flintan, 2008).

Women's health can be improved where social protection services are supported. This is the case in the Pintadas dryland in north-east Brazil, where a government social protection programme, Bolsa Familia, has provided low income families with a monthly cash payment with positive outcomes, including the construction of cisterns and improving the quality of life for women. Similarly, he Egyptian Conditional Cash Transfer (CCT) programme which began in 2008 is providing low-income families with financial support based on conditions of school attendance, regular visits to health clinics and nutrition, but revisions were later made to recognize women's rights, such as recognizing unpaid care work and ensuring women's control of the finance through bank transfers.

Improving gender-equitable social protection services for drylands resilience

Social protection schemes show great promise in supporting vulnerable groups in dryland areas and particularly women. However, early pilots of social protection schemes provide lessons regarding the importance of addressing women's strategic interests (e.g. ensuring unpaid care work is recognized, ensuring meetings are held at appropriate times and compensating women's participation, encouraging increased women's participation in household decision-making, not just their practical needs.

The Productive Safety Net Program (PSNP) of the Ethiopian government funded by the World Bank is a promising example of a large-scale safety net programme, which can strengthen household and environmental resilience in a gender-equitable manner, although areas for improvement have also been identified with respect to women's participation in decision making to ensure they capture the benefits of such programmes.

Combaz (2013) reviewed social protection schemes and found that they can address gendered economic and social risks. Lessons for good design included quotas, the organization of worksites, especially childcare, and 'the adjustment of wage modalities. In targeting, households should be disaggregated by individual' (Combaz, 2013, p2). The literature identifies programming solutions to support the participation of youth, such as providing skills training such as social assistance and empowerment interventions, for people with disabilities and training in accounting for mobility needs for pastoralists (Combaz, 2013). Specifically for pastoralist communities, there are promising social protection measures, including safety nets and index-based insurance (Morton and Kerven, 2013).

Relief or humanitarian assistance programmes are transforming into social protection or development programmes, because older models of food aid were seen as limited in addressing the range of livelihoods shocks in areas such as Kenya's Arid and Semi-arid region. Kenya's Hunger and Safety Net Programmes addressed the 2011 drought crisis in Northern Kenya. The programme targeted 40,000 households affected by the drought to register them for a branchless bank account to receive cash transfers. Outreach was a considerable challenge and so the programme facilitated strong working relationships with implementing agencies. Administrative registries and other data sources with broad coverage provided information on vulnerable groups that went beyond narrow poverty lists and existing social protection beneficiaries (Bastagli and Holmes, 2014)[4][1]

Holmes and Jones (2010) also found that social protection programmes should not just target women. They need to understand the gendered nature of the risks women and men face, and how gender dynamics shape responses, political support and implementation practices. Instead of reinforcing women's traditional roles and responsibilities, they should harness the potential for a transformation of gender relations in both economic (e.g. opportunities for work) and social (e.g. voice and agency in the household and community) spheres; in a more transformative approach (Holmes and Jones, 2010). Programmes should thus be integrated with or be linked to complementary measures which address intra-household dynamics and include microcredit services, rights awareness campaigns and skills training (Holmes and Jones, 2010). A positive example of a social protection programme is provided in Box 8.

4 [1] http://www.odi.org/publications/8468-social-protection-shock-response-vietnam-bangladesh-kenya-pakistan

Box 8: Unconditional cash transfer programme in Pakistan

The Benazir Income Support Programme (BISP) is one positive example from Pakistan. BISP is a social protection and child malnutrition programme developed during the economic crisis with rising food prices in 2008. It is an unconditional cash transfer programme that delivers (Indian Rupees) INR 1,000 (USD 11) to women in households with a monthly income below INR 6,000. Coverage has been steadily expanded since its launch. The programme also includes microcredit, and health and life insurance coverage and vocational skills training are being piloted (Save the Children, 2012[5][2]).

Social protection and livelihood Disaster Risk Management (DRM) programmes can improve the economic resilience of women and poor people to disasters and climate change, by recognizing women's productive needs, improving their opportunities through training and increasing their access to financial resources, such as micro-credit and micro-finance (World Bank, 2012). Informal insurance mechanisms such as burial societies and health associations should be considered, as well as more formal ones, such as index-based insurance (World Bank, 2012).

4.2 Improving women's access to risk management, insurance and climate change adaptation programming

A key avenue for improving women's resilience to climate variability and shocks is through investment in their access to and uptake of risk management strategies. For example, the Horn of Africa Risk Transfer for Adaptation (HARITA) Programme in Tigray state, northern Ethiopia, strengthens poor farmers' and herders' resilience by increasing their capacity to manage weather-and livestock-related risks through improved resource management, insurance and micro-credit (World Bank, 2012). Existing approaches to providing drought insurance to the poorest had not been effective owing to high administrative costs and the inability of cash-poor smallholders to afford premiums. HARITA built an 'insurance-for-work' (IFW) programme, for example by creating terraced fields, into the government's Productive Safety Net Programme (PSNP), which provides unconditional cash or food transfer for eight million chronically food-insecure households in Ethiopia. This programme has been beneficial for poorer women, although an external study in 2010 found that there is need to pay greater attention to building awareness and capacity about the programme's gender-related provisions among beneficiaries and staff, as these were being unevenly implemented. The PSNP should also tackle unequal gender relations in food security and agriculture productivity within households better. The programme should also be more cognizant of women's differing abilities to do onerous physical labour. Finally, more budgetary and human resource investments in gender-sensitive programming is required (World Bank, 2012).

Risk management plays a role in avoiding and escaping chronic poverty throughout the world, particularly for women, who are disproportionately negatively affected by shocks. Livestock insurance is widely used in Asia, but is not common in Africa (Miller, 2011). There are concerns that increased costs can exclude poorer women, but working and paying in groups represents one solution (Hill, 2009 cited by Miller, 2011).

There has been limited analysis of the extent to which agricultural schemes address social inclusion, with fragmented evidence, drawing on a few empirical cases, and while many studies look at poverty and/or gender to some extent, analysis of exclusions resulting from age, migration, health and ability are lacking (Combaz, 2013). Ethiopian experiences dominate in the evidence base for sub-Saharan Africa (Combaz, 2013).

In a case of Index-Based Livestock Insurance (IBLI) among pastoralists in southern Ethiopia, Bageanta and Barrett (2015) analysed three years of qualitative and quantitative data and found that there is relatively equitable access

5 [2] Save the Children 2012, Social Protection and Child Malnutrition Pakistan.

to IBLI, but demand is gendered in three ways: risk aversion, informal insurance and modalities and channels for providing education on production; some differences occur according to age and relative reliance on livestock for income. IBLI can overcome some of the key problems with standard insurance products, but demand has not proven as strong as anticipated, (Jensen et al, 2014 cited by Bageanta and Barrett, 2015) possibly because, under IBLI, a policyholder can be compensated for losses not actually incurred or can experience losses without receiving compensation. Recent studies point to the capacity and process of selling by sales agents as influencing the uptake of IBLI. Takahashi et al. (2015) found that being female increases the likelihood of buying the insurance, possibly because of their lower social status and hence greater vulnerability to pressure from the agents selling the insurance, but it did not influence the level of coverage purchased (Bageanta and Barrett, 2015).

An assessment of five ILBI programmes in India, Kenya, Mongolia, Rwanda and Tanzania (Greatrex et al, 2015) found evidence of benefits accruing to large numbers of smallholder farmers in the developing world, although there is not enough evidence that the scaling up can be sustained at the current rate. Weak capacity in service delivery, rather than an underlying lack of demand from farmers has been the obstacle to expansion in recent years according to Greatrex et al (2015).

The gender equity of adaptation programming and agricultural investment schemes can be improved and more lessons need to be learned as practical experience grows. Agricultural irrigation programmes can ignore women's lack of influence in decision making, particularly in securing irrigated land, despite their active role in agriculture and water collection (IFAD, 2006). In biofuel developments, contract farming development and other agricultural investments, processes of negotiation between external investors and companies and smallholder farmers require honest brokers to support less powerful groups (Nelson and Lambrou, 2011). Improving women's participation in land purchases, investments and development projects is urgently needed to ensure more gender-equitable outcomes. See Thematic Paper 1: Land rights in this series on how processes of community demarcation for land title or income derived from community resources can be biased towards the interests of certain groups, particularly leadership, which often excludes women and the least vulnerable.

4.4 More effective and gender-sensitive research and advisory services

The imperative to invest not only in pastoralist livestock-related livelihoods, but also in diversification, stems from the recurring crises and on-going requirement for humanitarian aid in dryland zones of the Horn of Africa, and these 'underscore the need to build household resilience' (Morton and Kerven, 2013). Technical research and assistance for the livestock economy and promotion of livelihood diversification are inputs needed to strengthen dryland resilience (Morton and Kerven, 2013), and ensuring women's priorities and access to such services is a priority. There are well known problems with agricultural research and advisory services with respect to women's access (Martin and Nelson, 2008), but as the next sections show, there are now delineated strategies for reaching women and addressing their needs and interests more effectively, but more investment is needed as well as research to improve their effectiveness. It is important that efforts to raise awareness are not only focused on women, but also include specific efforts to sensitize men in dryland communities and male officials in extension services on gender issues and positive responses. More recruitment is needed of female extension workers and on responding to women's strategic interests and practical needs.

4.5 Women's access to animal health services

Improving animal health is a high priority for pastoralists and agro-pastoralists and there are new models of service delivery, such as community-based animal health workers. There is positive evidence on impacts from East Africa (Catley et al, 2004; Peeling and Holden, 2004 cited by Morton and Kerven, 2013). Although not specifically

focused on drylands, the myriad strategies and solutions identified by Miller (2011) drawing on existing good practice in Africa, give good indications of the types of strategies needed for dryland communities as well. Institutional measures include organizational gender policies and audits, investment in staff training and public organizational commitments to women's empowerment. For partner institutions, there are different roles and changes required, such as improved coverage of gender and livestock issues in university curricula and practitioner training in agriculture, with much greater emphasis on small stock. In programming, there are also multiple recommendations, for example, ensuring that training for men includes gender topics, including on workloads, cash needs of women, and training more female Community based Animal Health Workers (CAHWs). Promising examples exist of collaboration between human and veterinary medicine when seeking to reach women in remote locations including pastoralists.

Table 4: Strategies for improving women's access to animal health services

Institutional
• Political will • Committed resources • Public commitments to women's empowerment as a goal
Partner Institutions
• Governments: Promotion of gender equality. Capacity building of Agriculture Ministries & Livestock departments; Appropriate national policies, research evidence & disaggregation of national statistics • Gender training of veterinarians, animal health technicians; • Engendering of & inclusion of small-stock in university curricula & training in agriculture; Greater focus in research & development on gender and livestock • Investment in capacity and skills of existing and new women's groups on livestock issues; Train & incentivize existing livestock groups to be more inclusive and more effective • Private Sector: Encourage awareness among private sector providers; Training for shop owners to target women customers, hire female clerks • NGOs - Highly diverse. Play a key role in service provision e.g. livestock vaccinations, but may need capacity strengthening.

Table 4: Strategies for improving women's access to animal health services (continued)

Programming
• Ensure the use of existing evidence in project planning to ensure gender responsive planning • New vaccines should be integrated with animal health training for women and men • Interventions focusing on areas of women's responsibility (e.g. milking) should target women, ensuring their participation in technology design and testing and dissemination • Ensure training for men includes gender topics (e.g. on workloads, cash needs of women etc) • Raise men's awareness and willingness to give women permission to participate and to help with both domestic and livestock chores, especially using group workshops and enlisting the support of respected leaders to encourage more reluctant husbands. Use of improved productivity arguments. • Reach women through pre-existing women's groups focused on social and human capital (e.g. health), women's networks (religious, schools, NGO etc) and by enlisting the support of the wives of traditional leaders. • Adopt participatory approaches for direct training of farmers, and organizational and policy development, but this requires deep institutional commitment to change, consistent rewards and backstopping. Train existing female extension agents in livestock extension. Include market components in training to ensure women have access to cash as well as support for subsistence activities and recognize that gender roles are dynamics and women can learn male skills. Coordination between different ministries may be needed where bundling of training is arranged and reinforcement of messages is needed among different professionals. • Accountability and assessment: Formal surveys to monitor project impacts on women's livestock livelihoods, but informal annual participatory assessments needed for impact tracking with respect to the critical indicators of workload and control over decision making and assets in the household. Include women's time as a cost and, going beyond income and production, family impact (e.g. child nutrition, schooling and medical care) should be covered in benefits. Sometimes, participatory assessment can be used to measure child nutrition, which can be otherwise expensive to measure. Data should improve performance and be shared with the people impacted. • More women should be hired and retained as veterinarians, technicians and CAHWs, although numbers are already growing. To retain female staff they need flexible working hours and protection from sexual harassment and to feel safe when travelling. Increase efforts to recruit rural girls into training as livestock extension specialists. More female CAHWs are needed, and lessons should be learned from the successful and sustainable approaches of some NGOs, with their combination of technical and social development support. CAHW procedure regulations vary widely. Vaccines are needed that can be administered by informally trained women without the use of needles for upscaling.
Links to human health – 'One health' approaches
• 'One health' approach of collaboration on public health issues in human and veterinary medicine can reach women in remote locations, including pastoralists who are responsible for the health of their children and livestock. Positive impacts are especially clear when zoonotic disease is controlled by sanitation. Supplementary funding is needed as service delivery is established, but cost recovery can later be the norm through membership fees and vaccination charges. Drought conditions can interrupt services.

An evaluation of support by the US Office of Foreign Disaster Assistance (OFDA) for CAHWs in several east African countries (Leyland et al, 2014) found positive impacts including reductions in animal disease as a result of CAHW work, but that challenges largely stem from lack of capacity in veterinary governance in supervision and in maintaining good quality and reliable veterinary drug supplies. The research shows the importance of training female animal health workers to meet the needs and interests of female livestock keepers.

4.6 Improving women's access to livestock markets and development

Dryland women's empowerment can be supported by a whole range of livestock-related strategies. Linking women to markets for livestock-related products can promote social and economic empowerment, and can be culturally acceptable, but it requires adequate support and carries risks – market risks, risks of tension with male members of the household where income increases and of food security being compromised. In pastoralist societies, although livestock assets are not equitably distributed, compared to other productive resources, women do own and have rights to livestock and associated products.

Demand is increasing for livestock products in east Africa (Morton and Kerven, 2013). The increase in trade, the growing integration of markets and greater regional interconnectivity present opportunities for pastoral societies, particularly given the high and rising demand for animal protein globally (Rota and Sperandini, 2009).

As livestock ownership and access rights, including actual, usufruct and nominal rights, are often complex, embedded in tradition and strongly held – women's rights should not be undermined and these roles should be incorporated in planning (Flintan, 2008) and/or a more equal gender division of labour sought. Sale of meat and livestock products can undermine household food security if men take over control of activities previously controlled by women or if women lose control of access to specific resources (Flintan, 2008).

A review of strategies to enhance African women's access to livestock markets (Miller, 2011) found that this can be facilitated through agricultural and market groups, but support for the strengthening of leadership and market skills is needed (Miller, 2011).

Box 9: Livestock development strategies to empower women

Understand what are often complex gender roles, rights and responsibilities vis-à-vis livestock prior to making interventions to ensure women's livestock rights are not undermined.

Women's and men's knowledge of livestock and production should form the basis of decisions about livestock development, but women need to be centrally involved and their knowledge properly valued.

Tackle the daily challenges faced by women e.g. lack of access to credit, resources and illiteracy.

Provide practical, hands-on training to women and men directly involved. Separate training sessions are sometimes desirable, but not always. Training should be taken to pastoralists not vice versa.

With training women can handle tools and machinery as well as men. Any new technologies promoted should be affordable, easy to maintain, low risk, and socially acceptable.

Customary and government bodies can both protect and restrict women's access to and rights over livestock – enabling institutional arrangements are needed.

Attention should be paid to the risks of selling meat and livestock products, which can undermine household food security if women lose control of key resources.

Opportunities exist with respect to the processing and marketing of livestock products, when sustainable market development activities are also provided. Care needs to be taken to involve men in gaining their approval to avoid tensions.

NGOs can provide support in export value chain development (creating linkages with international clients and supporting innovative internet marketing schemes).

Milk can be a contested commodity as it has multiple functions (feeding the family, calf rearing mainly by men, generating income mainly by women). When there is sufficient milk to sell, the income can be used for buying grain or other necessities. Women tend to be involved in selling milk, and complex marketing strategies have been developed to reach markets in time. Where women's role in milk marketing has grown, women have more opportunities to participate in the public sphere.

Development programmes place disproportionate emphasis on livestock, especially large livestock and miss opportunities in hide processing (and marketing), meat processing (including dried meat), wool processing, manure production and sales. Women can control these activities and benefit from them.

Women can become skilled animal health workers. Training programmes that use non-literate and practical learning-by-doing methodologies run by women can overcome some of the barriers that women face, and provide a good entry point into other activities.

Women may not participate in project activities, because of their household commitments, and may need to provide inputs without being present at project sites and meetings. Where possible, committees linked to livestock activities should include women and facilitate their participation.

The livestock sector can be an entry point for promoting gender issues because: of the relatively good access arrangements for women; the involvement of all household members in production, which facilitates shared goals and working relations; the interlinkages between livestock and other sectors such as marketing, the environment and provision of basic needs; and evidence that long-term promotion of change in gender relations through livestock interventions can lead to sustainable development. Livestock projects that include or target women can have empowering impacts, including increased self-confidence, well-being, security and purchasing power.

Source: Summarized from Flintan, 2008 cited by Rota and Chakarabarti, (2012, p14–15).

Women can engage in trade with new products. For example, in north-east Somalia, there is a growing trade in camel milk among women in a private system in which women coordinate a network of agents through complex relationships (Nori et al, 2006 cited by Miller, 2011).

Formalizing women's ownership of animals can have positive effects on their livestock trading, but there needs to be backing for these ownership rights through the justice system, including local courts, and women's claims over land for fodder use is important (Miller, 2011).

There is potential to support small livestock ownership and dairy marketing to strengthen pastoralist resilience – if a gender-equitable approach is adopted. In Tanzania, one development project has supported women's empowerment in two semi-arid districts of Tanzania through diversification into root crops and dairy goats and at the same time it has successfully improved gender relations (Lekule et al, undated).

The development potential of equids has also been neglected, despite the relative resilience of donkeys and horses, and because they are important animals for animal traction and transport, particularly for women (Miller, 2011). 'Donkeys are especially important for women, since they save time and labour for transporting water and fuel to the home, and goods to market. Owners rarely spend time or money caring for donkeys, although many suffer from skin infections, lameness and harsh beatings, which limit their work potential' (Miller, 2011). The use of donkeys for ploughing can increase crop production (Miller, 2011). In an action research project to strengthen adaptive capacity through the use of climate modelling, study tours and participatory video, male and female community members, travelling from northern Ghana to southern Burkina Faso learned a key lesson about the use of donkeys: this is an animal not used in their home community. The visitors saw the value of donkeys in reducing women's workloads and drudgery (Lamboll et al, undated).

Women's membership and active participation in livestock producer groups and cooperatives should be increased. A Kenyan dairy cooperative increased its female membership hugely after one gender training workshop, because they changed membership criterion from land to cow ownership (Rubin, 2009 cited by Miller, 2011). Practical steps include: gender training for all members; membership criteria based upon animal use or ownership, rather than land ownership; quotas for women's leadership combined with increasing women's representation in sub-committees and support for wider organisational change; form networks of producer groups for lesson learning on gender and other issues; support the legalization of (frequently informal) women's community-based producer groups; forming women's groups where existing producer groups are resistant to change (Miller, 2011). NGOs can facilitate innovative approaches to export marketing using the internet and developing linkages to international buyers (Flintan, 2008 in Rota and Chakarabarti, 2012).

In a study in Almaty, Kazakstan, women tend not to be involved in the trade in live animals, which is dominated by small groups of men of kin relationships and involvement in trading relies upon ownership of a truck. Women sell wool and milk products. Producers in Almaty have not marketed their livestock collectively beyond their own households, because of a lack of trust – this means there is no collective transportation of small producers' livestock. However, some women's groups have emerged within a certain distance of the city to jointly market their milk and some dairy products, setting up frequent cow's milk deliveries and relying on their relatives in town who can who sell the milk and dairy products (Kerven, 2005). This income is of special importance to poorer households with their limited stock. In more distant areas, milk and butter are sold only within the village by women. Some farmers specialize in camel and horse milk production, as the fermented product is valued for traditional medicine. After the collapse of the Soviet state processing and distribution system after independence, many farmers have moved into producing meat instead, but consumer demand for milk is still strong.

In southern and central provinces of Zambia, draft cattle were introduced after a disease outbreak led to cattle losses and male outmigration rose rapidly. The 'Heifer Zambia' project provided veterinary and social development support and women learned to plough and care for oxen as well as men, demonstrating the dynamic nature of gender roles (Miller, 2011).

Importantly, some scholars suggest that rather than seeking to integrate women into existing project activities, more positive impacts can be achieved by focusing on women and designing more closely according to their needs and interests. For example, Tipilda and Kristjanson, (2008) found that although gender analysis must involve both women and men, and that men are often gatekeepers to women's participation, projects that focus specifically on women can be more effective.

It is clear that gender-equitable livelihood opportunities will be context specific. Morton and Kerven (2013) note what is required with respect to diversification in natural and craft products, but in fact this applies to livestock as well: 'high quality participatory diagnoses of supply and demand and local market chains and hard-headed analyses of demand from end markets, be they domestic or export' are thus necessary (Morton and Kerven, 2013) ;also they need to integrate a specific focus on gender or there need to be studies which specifically unpack gender issues in livestock development and which support women's engagement in programming design processes. Livestock development programmes should follow generic best practice with respect to development programming – in terms of participation and adaptive management (i.e. building upon the structural variability of the drylands and local knowledge).

4.7 Improving dryland women's access to markets for crops and participation in processing

More investment is urgently needed to stimulate economic development in a range of areas, such as farming, livestock, and trees and this should include contract farming schemes (Mortimore et al, 2009). Promoting income generation for pastoralist women can increase their socio-economic position in the household and sometimes in the wider community (Rota and Sperandini, 2009); however, it is important to recognize women's existing time burdens and lesser influence in household decision making in programming design.

Although sourcing by processors, exporters and retailers from dryland smallholders should be promoted, such schemes often require good understanding of markets, in-depth accompaniment through adaptive facilitation, and donors should recognize the setbacks that can occur (Wiggins and Keats, 2013; Lamboll et al, 2015). Investment in women producers makes commercial sense for companies that operate at both the low-value, high volume end of the market and those that target higher value or premium markets (Chan, 2011). There are rapidly growing domestic and regional markets for agricultural produce in Africa, which have less stringent food safety requirements and may be less risky (Jaffee, 2011). Production and market demand (e.g. quality and volumes) can vary over time (Wiggins and Keats, 2013). A study of cassava value chain development programme funded by the Bill & Melinda Gates Foundation indicates that these fluctuations and risks mean on-going iterative support is needed for smallholder groups until they have greater resilience to potential market shocks (Lamboll et al, 2015).

There is a large amount of literature on producer groups and women's participation in them. In some groups, such as the Nununa Foundation of shea nut producers in Burkina Faso, women form the majority (Wiggins and Keats, 2011). However, in many cases they are the minority, especially in commercial schemes. As well as ensuring that women can benefit from technical training, extension services and production inputs, Chan (2011) proposes that private sector companies interested in sourcing from women smallholders should take pro-active steps to encourage women into contract farming and producer organizations and they will be rewarded commercially for doing so. The requirements to participation such as land ownership, being able to produce a minimum

harvest, or being head of household should be re-considered. Quotas for women's participation in leadership positions are important to stimulate change, while care should be taken to explain to men the benefits of women's representation (Chan, 2011). Most of the case studies provided by Chan (2011) are not located in dryland zones. However, there are examples of contract farming involving low value crops from dryland zones, such as cassava (Lamboll et al, forthcoming) and sorghum (Kudadjie-Freeman et al, 2008). Of course, women can benefit from participation in contract farming and outgrower schemes where male household members participate, but there are likely to be risks as well for women given their limited influence in household decision-making and risks regarding their workload and ability to control the resulting income. Much depends on the extent to which incomes are shared within households, but more should be done to pro-actively seek to address such issues with men and women participants.

There can be indirect benefits for women from contract farming schemes: In soya farming in Togo, some women have cooked and sold soya-based products in their communities and in Benin some women have been able to specialize in parboiling rice for local sale as a result of a neighbouring rice scheme (Wiggins and Keats, 2013). Although many of the jobs created are low skilled and are poorly remunerated, there are exceptions such as the Nununa Foundation of shea nut producers in Burkina Faso, where some women have been able to take on skilled processing work (Wiggins and Keats, 2013). Insights from work on the women's labour rights in agricultural production should be taken on board to ensure decent work goals are met – e.g. ensuring women have access to employment on plantations and in contract farming with skills training and access to education, but also have equal pay, maternity benefits, freedom from discrimination and sexual harassment etc.

Participatory research in Ethiopia, Mali and Tanzania conducted by Oxfam (2009– 12) informal savings and credit schemes are a common form of women's collective action and can enable poorer women to build up savings, confidence, and social capital (Baden, 2013). The International Fund for Agricultural Development (IFAD) (undated) stresses the importance of credit constraints for dryland women and gives a number of examples of successful experiences of credit provision through women's groups. There appear to be fewer examples of programmes facilitating women's individual access to formal credit institutions. However, credit on its own will not bring about a transition to effective women-led agricultural marketing groups and for significant change to be achieved in women farmers' livelihoods, the quantity and quality of the groups' production, adding and capturing of value and identification and accessing of lucrative markets is necessary. As groups become more formal, the risks increase and poorer women drop out (Baden, 2013). However, for women with some assets and who may already have some experience of collective action, such women-only groups can be effective development strategies, particularly in sectors that are traditionally associated with women.

Where both women and men are involved in production and where access to household land and labour is needed, as in the case of vegetable production in Tanzania, then supporting women's participation in mixed groups may be more important (Baden, 2013). More research is needed on the different ways in which women engage both in markets and in marketing groups and the strategies they are using to overcome structural gender inequalities through collective action for example with negotiations on land rights, joint buying of goods from villages such as sorghum and millet in Mali (Baden, 2013). Studies to evaluate the effect of value chain schemes promoting women's empowerment should take into account not only their financial impacts, but also the impacts for women's wellbeing and social capital (Baden, 2013).

Wiggins and Keats (2013) suggest that governments should establish forums for value chains with the participation of key players, providing them with political support, the active engagement of ministers, and should demonstrate to change policies and regulations based on the findings of such forums. From a gender perspective, women's

participation in such forums should be facilitated and efforts made to raise awareness and attention to issues of relevance to women.

Irrigated agriculture on family farms can be a profitable source of livelihood diversification in the drylands, but only where high value crops can be produced for assured markets and not large-scale commercial irrigation schemes that expropriate productive land from local residents (Morton and Kerven, 2013).

It is also important that development programming takes steps to actively reduce women's workload and to be cognizant of the potential risks associated with new innovations such as market linkages and value chains for women who already have such high work burdens. Experiences from India indicate that where investment is made in multiple time-saving technologies, women have saved up to 5 hours a day and this has enabled them to diversify into many productive and community activities, including joining self-help groups, and becoming change agents and leaders, even influencing policies relating to their need for accessible drinking water and alternative energy sources (Bilgi, undated). Further, while recognizing the value of women's indigenous knowledge with respect to biodiversity and natural resources, as well as that of men, it is important to also deliver access to scientific knowledge for women and control over technologies by women, especially in the absence of men in dryland areas.

4.8 Improving support for women's participation in alternative livelihoods and their ability to capture value

Investment is also needed to improve women's participation in alternative livelihoods, to ensure that their rights and interests are recognized, for example with respect to unpaid care work, and to ensure that women capture value by being able to control the income from alternative livelihood activities. To tackle drought-related emergencies and strengthen longer-term resilience in the Horn of Africa, for example, requires improved evidence to inform long-term development planning. This should go beyond livestock-based strategies to include diversification to alternative livelihoods (Morton and Kerven, 2013).

Tackling drought-related emergencies and strengthening resilience in the Horn of Africa requires improved evidence on a number of issues to guide long-term development planning, including livestock-based strategies, but also with respect to diversification (Morton and Kerven, 2013). The latter is occurring to a lesser or greater extent in different areas, with pastoralists already or increasingly engaged in rainfed and irrigated crop agriculture, wage employment and the trade and harvesting of natural resources, and there are opportunities for increased investment by governments and the private sector to stimulate work, and increase income and wellbeing (Morton and Kerven, 20131). There is rising demand in the region and beyond for meat, hides and skins.

There is significant potential for enhancing the collection and marketing of natural products from dryland areas, although these need to have good quality support to enable women's inclusion and also their ability to benefit, without their rights being neglected. This includes basic market infrastructure, such as roads, which are needed to tackle the marginalization of drylands, but also specifically to ensure that women can overcome the specific barriers they face.

An increasing range of products are being traded on diverse markets - local, national, regional and international, sometimes in combination, as a result of growing consumer demand and donor and NGO investment in value chain development. Product examples include gums and resins, honey, aloe, baobab, myrrh, and devil's claw. There are risks when products previously used for subsistence purposes or for sale by women are further commercialized, as men can sometimes, but not always, take control of the resource itself or the income from women's work, and may feel threatened by women's new economic status. Further, there are always risks to engagement in markets,

6 [2] Save the Children 2012, Social Protection and Child Malnutrition Pakistan.

even local markets, for women and men, although the nature and extent of the risks vary by commodity and context. However, there are lessons emerging from the increased focus on value chain and market development for different products.

Box 10: Insights from a drylands, women and natural product programme in Namibia

The Namibian Indigenous Natural Product (INP) sub-sector is a leading example of how to develop successful commercial value chains based on the collective wild harvesting of natural products from drylands. Key challenges have been overcome over many years including: developing a wild harvesting friendly regulatory environment, clarifying the rights of harvesters over their resources and intellectual property, building institutional infrastructure at national and local levels, overcoming a whole range of complex market access issues unique to novel plant products, and identifying buyers of individual species with a long-term commitment to growing the value chain. Developing sustainable value chains for novel plants in isolated dryland areas takes a very long time. The evidence from Namibia is that sustainable income from managing harvesting and processing indigenous natural products can be captured by women producers, but continued investment by external supporters over many years is not unusual.

A programme supported by the Millennium Challenge Account – Namibia (MCA-N) has worked with a range of different plant species that have been undergoing commercial development for a number of years. A variety of species were covered, such as Marula (Sclerocarya birrea), a source of food and cosmetic oil from its kernels and an alcoholic beverage from its fruit flesh; Ximenia sp. a source of cosmetic oil from its kernels; and Devil's Claw (Harpagophytum sp.), a source of the anti-inflammatory agent harpagocide extracted from its tubers. A strong focus on gender was employed in the programme from the outset, with a dedicated gender specialist in the core team, and an early analysis of gender and social difference issues and potential management responses. Building value chains for wild harvested natural products can have hugely beneficial impacts on in situ resource management by empowering resource stewards to protect and conserve their source of livelihood.

Women and vulnerable groups are particularly likely to benefit from interventions in this sector because they often traditionally occupy this economic and social space. When INP value chains suddenly become valuable, resource capture by men and elites is likely, but can be managed. Some of the strategies used by the project included: group formation, encouraging the emergence of women leaders and forming women-only processing businesses. By focussing on improving the negotiating and assertiveness skills of women from the outset, their engagement in the complex range of decisions needed to organize wild harvesting and processing at scale is much more likely. All aspects of developing successful wild harvested natural product value chains are affected by and affect gender relations: Appreciating this will help minimize gender-related constraints and improve the success of development programmes.

The project has worked with 9,238 individual harvesters, of which 5,528 were women (60 percent). To date, 67 Producer and Processor Organisations have been created alongside three INP processing businesses. This is a considerable achievement, but much still has to be done. The markets for INPs are not static and most countries do not suffer the same transaction costs as Namibia with its dispersed population. Productivity gains to drive down prices are likely to be important in the future to maintain competitiveness. This will mean upgrading processing facilities but may result in reduced labour use, especially by women, and this process of change will need to be managed, for example, by expressly forming women-only processing investments as has been done in the programme in Namibia. Not every plant with an apparently commercially interesting property will meet with market success. Having a range of INPs with different possible markets, both local and international, is probably the best strategy for producer groups to adopt to mitigate the dual risks of supply shortfalls and demand changes.

Source: B Bennett, Deputy Director, Natural Resources Institute, former manager of the MCA-N programme in Namibia.

Handicrafts provide potential for women's empowerment in dryland areas. Beekeeping has traditionally been seen as a male activity in many African societies. However, there are examples of development projects supporting women's participation by overcoming the social stigma, supporting the development of value chain linkages and marketing for producer groups including women, and using new hive technologies which can make beekeeping more accessible for women.

However, from a gender justice perspective, further research is needed on economic empowerment approaches in ways that question prevailing economic models. Many approaches to gender and development would 'aim to shake up or challenge the existing economic paradigm rather than work within it' and more research is urgently needed, because there are often situations in which value chains may not be the most effective way to address gender issues (KIT et al, p43). Within the 'limits of value chain development' there are, however, still many opportunities to tackle gender inequalities (KIT et al, 2012, p43). Firstly, to achieve upgrading of women in the value chain, it is important to understand the basic types of upgrading that can be achieved. Secondly, it is essential to recognize the wider context of the extent to which women are currently able to realize their rights for example, whether they are recognized by other actors as value chain players. Thirdly, it is necessary to unpack where there are changes in women's agency and in structural issues (KIT et al, 2012, p45).

Box 11: Engendered chain empowerment matrix

'Upgrading as a chain actor: This is not only about a farmer doing what she does better, but it is also about her being seen as a fully-fledged chain actor: it is about recognition of women's economic contributions along the chain.

Upgrading as an activity integrator: This is not only about a farmer entering into activities further up the chain, but also about women making the choice to take up these activities themselves in light of their other responsibilities (e.g. reproductive, household). Women gain the skills required to participate fully in the value chain; they are capable and confident to do so.

Upgrading by developing chain partnerships: This is not only about farmers building long-term alliances with buyers, but also about female farmers being recognized partners. Moreover, it is about removing constraints for female farmers to participate in decision making: rules, regulations and policies become gender sensitive.

Upgrading by developing ownership over the chain: This is not only about farmers becoming owners of chain enterprises, but also about female farmers having the capacity and support to take up leadership roles. Rules, regulations and policies support women's leadership'.

Further, it is important to understand not only whether activities enhance women's 'agency' (e.g. participating in a training session on quality), which may influence how she performs her activities, but also if there are structural changes (e.g. if men in the community both recognize her contributions and ascribe value to them)'.

Source: KIT et al, 2012, p45

4.9 Improving our understanding of gender relations in dryland societies to inform policy and programming

A strengthened evidence base on gender relations in dryland societies will enhance future policies and practice aimed at enhancing resilience and women's empowerment. Given the complexity and uncertainty inherent in these societies, it is important that good practice in facilitating action learning approaches, which support social learning, is widely disseminated amongst development actors.

Gathering an improved understanding of how social change occurs may also be useful with respect to challenging constrictive social norms. There is increasing support for gender equality around the world, (Boudet et al, 2011, cited by A. Evans, in her blog)[6], but much of this change is occurring mainly in urban areas, whereas in rural areas, men appear less willing to accept women's changing roles and aspirations (Boudet et al, 2013). Rural–urban migrants as well as long-term rural and urban residents in the town of Kitwe and in a rural village of Chinsanka, Zambia, were interviewed by Alice Evans, through life histories, group discussions and participant observations and found that urban areas have 'disruptive' tendencies. Women are more likely to observe flexibility in gender divisions of labour. Girls and women can see other women in town working in diverse professions, such as market trading, mining, mechanics, management, and even as Government Ministers (Evans, 2015[7]). 'Seeing a critical mass of women performing socially valued roles seems to – slowly and incrementally – erode gender stereotypes, relating to competence and status. It broadens their aspirations and hardens their resolve to progress in education' (Evans, 2015, blog). Secondly, urban heterogeneity increases women's and men's exposure to men sharing care work – something which might be ridiculed in rural home villages and in this way challenging constrictive social norms. Conversely, in rural Chinsanka men are revered as providers by both women and men and stereotypes about gender roles persist. In Kitwe, more women are earning income from a variety of informal and formal jobs and this can also disrupt perceptions of men as the breadwinners, whereas in rural areas women's unpaid work in subsistence tasks is not adequately recognized. Finally, Evans (2015) suggests that being closer to government services such as health clinics or police stations can help women to sometimes have greater access to justice to prevent gender-based violence or to control their fertility.

While these processes of 'constructive' disruption are occurring autonomously, there are potential lessons for how development agencies seek to challenge gender norms. For example, the Climate Change, Agriculture and Food Security (CCAFS) programme has supported climate learning study tours involving village participants in Tanzania and Ghana-Burkina Faso. The study tours provided opportunities not only for the female and male participants to learn about climate adaptation technologies and institutions, but to participate on an equal basis in the journey and to observe very different gender relations in their host communities (Lamboll et al, 2013).

Achieving transition or transformation in the social sphere requires better understanding, but there are of course no quick fixes – changing gender norms will take time and there will be setbacks, but investment and political will is important, and understanding how change might happen or could be facilitated is important. The growing practical experience from community based programmes that seek to facilitate women's empowerment, through participatory exploration of gender relations and identifying positive solutions to benefit women and men, including many examples from dryland regions are outlined in Section 5.

6 [2] Save the Children 2012, Social Protection and Child Malnutrition Pakistan.
7 https://oxfamblogs.org/fp2p/support-for-gender-equality-is-growing-but-why-is-this-mostly-in-urban-areas/

5 LEARNING FROM EXPERIENCE

This section provides more detailed case studies of promising responses to the challenges and opportunities outlined above, and including insights on how to ensure gender-equitable approaches.

UNDP

5. Learning from Experience

This section provides more detailed case studies of promising responses to the challenges and opportunities outlined above, and including insights on how to ensure gender-equitable approaches.

5.1 Experiences in improving dryland women's access to education through Open Distance Learning approaches

To overcome the multiple challenges of providing education services for nomadic peoples, such as low population densities, children's work commitments in the household and in livestock production, resistance to educating girls, mobility, a lack of funding and training, Krätli and Dyer, (2009) review diverse practical experiences in developing countries and conclude that it is not enough to bolt on new programmes to the existing traditional school-based system – a new strategy is needed for effective delivery. Such an approach is important for increasing girls' participation.

Box 12: Innovative approaches to education for nomads

- There are trade-offs in formal education as currently provided and the informal learning opportunities available to nomadic children as part of a wider caring and complex social network – the latter is critical for children yet there is often enforced separation of pastoralist children from their families.
- It is necessary to think outside of the normal school-based approach to education. Mainstream education should be linked to, and should harness the contexts and processes of informal learning.
- Traditional school-based education conflicts with household functional-mobility patterns which are the key to animal production in dryland areas. No expansion of the current education model will help to overcome this.
- There are three types of innovative approaches to nomadic education – family learning, open and distance learning (ODL) and core curriculum. There are also opportunities through radio and media messages and 'edutainment'.
- Family learning combines basic adult education for parents alongside education for children, fitting with existing norms of inter-generational learning. Joint learning by adults and children at the camp and during daily activities drawing upon traditional methods of sharing 'social and livelihood' knowledge from elder to junior is proposed. Community consultation and the design of a menu of activities allowing families with choices to fit their specific and differing needs are recommended.
- Open learning removes unnecessary barriers to learning by maximizing flexibility of delivery. This is particularly the case in conflict-affected areas and where there is gender bias within educational provision (i.e. with more boys attending than girls because of cultural norms). Distance learning is recommended. Face-to-face contact between teachers and learners and the use of a fully recognized formal curriculum should be integrated within distance learning programmes. Content should be effective, but technology for delivery should be as simple and affordable as possible. Educational strategies should be rooted in the process of communication, rather than adapting messages from traditional school-based understanding of learning.
- Curricula cannot be made relevant by adding 'relevant' topics – it must tackle foundation systems from the perspective of pastoralists' daily realities and pre-existing knowledge and be constructed by pastoralists themselves. Curricula must be updated and cannot be developed centrally.
- Capacity building of all the institutions concerned with pastoralism and education at all levels is needed.
- For nomadic and itinerant groups, together with gender-biased educational contexts and conflict ridden regions, distance learning is a promising approach.

Source: Summarized from 'Mobile Pastoralists and Education: Strategic Options for Krätli and Dyer, 2009

The strategies outlined above are likely to make it easier for girl and women pastoralists to gain a relevant education. Krätli and Dyer, (2009) do not address gender issues specifically in great depth. More research is needed as to how such strategic approaches to pastoralist education can be gender sensitive. Investments in identifying learner interests so that curricula are 'relevant' must ensure that there is scope to challenge constrictive gender norms.

5.2 Improving dryland women's access to health services in Uganda, Ethiopia and Chad

An approach to challenging the stigma associated with HIV/AIDs through collective capacity building appears highly promising from a gender justice perspective. Mburu et al (2013) report that despite the growing access to antiretroviral therapies, HIV-related stigma remains an on-going concern for those affected in Africa. A study of groups of people living with HIV and their health service providers in Jinja and Mbale districts, Uganda, found that HIV stigma in their communities had declined, because the groups of people living with HIV provided peer support and improved the confidence of their members, which ultimately reduced self-stigma and improved their ability to deal with external stigma when it was encountered. The stigma itself is the result of gender norms and inequalities, and other factors such as family relationships. By challenging stigma collectively, the groups transcended individual experiences and united people living with HIV in a process of social renegotiation to achieve change. Mburu et al (2013) suggest that future interventions should therefore look beyond individuals to group-based efforts to collectively cope with and challenge HIV stigma. They should be gender sensitive in design and should respond to the contextual social, economic and structural factors that create and reinforce stigma and discrimination.

Strengthening the capacity of health workers is important in reaching pastoralist women in dryland areas. The Afar Pastoralist Development Association (APDA) is giving training and support to health workers, linked to formal government standards, in the Afar region of Ethiopia. In this region, women are affected by harmful traditional practices, including Female Genital Mutilation (FGM), poor reproductive health, illiteracy, and conflict, and traditional leadership is weakening with respect to local government authority; as a result the traditional leaders are less able to resolve community disputes[8]. In 2008, the APDA trained 134 health workers using a 6-month course certified by the Bureau of Health. 59 pastoralist women extension workers were funded to teach and motivate women on hygiene, nutrition, safe pregnancy and delivery, and to raise awareness about the harmful effects of various traditional practices. 370 traditional birth attendants (TBAs) providing delivery and prenatal services have been trained and are linked to the health workers and women extension workers in this programme. People are beginning to use soap and mosquito nets, and to eat iron-rich grains to combat anaemia. Overall, this programme is strengthening women and community health (Flintan, 2008).

As well as improving women's access to health services, there is an innovative example of the combined delivery of animal and human health vaccination to positive effect. The scheme works with the structural variability of drylands to positive effect for women's empowerment and will strengthen their resilience to shocks and stresses. Schelling et al (2007) note the remoteness of many rural communities which makes the delivery of vaccination services challenging, both for humans and livestock. An innovative programme in Chad combined vaccinations for nomadic pastoralists and their animals, reducing costs through the pooling of transport logistics and equipment between physicians and veterinarians. By fitting with the mobility of the nomadic pastoralists it was possible to reach many more pastoralist groups and the services are highly valued by the recipients. Schelling et al (2007) report that in the intervention zones, for the first time approximately 10% of nomadic children (>1–11 months of age) were fully immunized annually and more children and women were vaccinated per day during joint vaccination rounds than during vaccination of persons only and not their livestock (130 vs. 100, $p<0.001$). Secondly, the more efficient use of logistical and human resources improved the public health and veterinary services particularly at district level (Schelling et al, ibid).

8 https://www.cordaid.org/en/projects/improving-the-well-being-of-pastoralist-women/109905/

5.3 Improving dryland women's access to social protection in Ethiopia

The Productive Safety Net Program (PSNP) of the Ethiopian government, funded by the World Bank, is a promising example of a large scale safety net programme, which can strengthen household and environmental resilience in a gender-equitable manner. A World Bank study (2012) firstly, sets out the background context for the programme. Risks and vulnerabilities are gendered and in Ethiopia women are more vulnerable to economic shocks (e.g. they lack access to education, credit, social networks, etc) and to social sources of vulnerability (e.g. a lack of national and community level participation and voice, workloads, lack of access to labour especially for female headed households etc). Female headed households are disproportionately found in the poorest sections of society and older people have high care burdens due to HIV/AIDS. Women's health is also affected with high rates of fertility and high maternal mortality, plus gender-based violence is common (Jones et al, 2012).

The Government of Ethiopia's Productive Safety Net Program (PSNP), funded by the World Bank aims to support eight million vulnerable people and to meet the needs of chronically food-insecure households. It comprises two modalities of Social Safety Nets: i) Public works programme: to create productive and sustainable community assets such as terracing fields on slopes to reduce erosion and conserve water, with cash paid to targeted beneficiary households who do the work; ii) Unconditional cash or food transfers: Ten percent of the poorest people receive cash or food transfers. An associated programme seeks to build up household assets (e.g. credit and agricultural extension services, funding for irrigation and water harvesting schemes). Importantly, there is an in-built aspect to the programme design that allows for rapid scaling up during a crisis or post-disasters, to provide more help to those households who are already being supported and to reach a wider proportion of the whole population which is affected (World Bank, 2012).

According to the World Bank (2012), a gender-sensitive design includes:

- Recognizing gender-specific vulnerabilities. For example, women frequently have less access to labour, and may have differing abilities to do heavy physical tasks. There are also different vulnerabilities affecting women at different stages of the domestic life cycle, as well as variations in gender cultural norms. Women who are heavily pregnant or breastfeeding require additional support. Creche provision within the community can free up women's time for other work and income generating activities.
- Particular support should be given to help women in female-headed households to join public works activities - flexible working hours are important and the construction of community-based water and fuelwood sources can save labour and drudgery. Funding can also enable public works in the fields of female headed households.
- It is important to promote women's participation in decision making at the community level, in local and state committees of the Women's Bureau.

The World Bank study (2012) concludes that there is strong evidence that the programme is positive for dryland peoples and particularly for women, helping to stabilize livelihoods and reduce food insecurity, and creating significant environmental improvements through investments in soil and water conservation. Between 25–52 percent of those who have benefitted are women. For people in households receiving support (at least 10 days of work in the preceding three months) after a drought in 2008, their calorie consumption was 30 percent higher than for non-beneficiaries and they had more livestock. The public works programme led to significant rises in wheat and maize yields. Those receiving transfers from the PSNP programme could meet their basic needs and avoid selling off key assets during a crisis. Some male and female participants reported having been able to participate in saving groups, overcoming discrimination in the process. The remaining key areas for improvement are: i) Capacity

strengthening for those receiving support and for those delivering the programme on the gender provisions of the programme; ii) The need to create changes within households with respect to food security and agricultural productivity; iii) Recognition of the varying capacity of different women to conduct very physical tasks; iv) More investment of resources and staff time in programming that is gender sensitive.

However, there has not been sufficient assessment of the extent to which the PSNP has been socially inclusive – more tracking of the implementation of gender policies and of indicators on youth, women and cultural indicators is required, according to Subbarao et al, 2012, cited by Combaz, (2013). Further, women do not have adequate control of the cash which they earn through the public works activities, where they are members of male-headed households and there are specific dynamics in situations of polygamy where second wives and their offspring become more reliant on first wives (Jones, et al, 2010). Powerful community members can intimidate excluded groups, effectively preventing them from claiming their payments (Thakur, Arnold and Johnson, 2009, cited by World Bank, 2012).

5.4 Practical experience of risk management, insurance and climate change adaptation programming

Experience in the field is growing about how to deliver gender-equitable responses in climate change adaptation, risk management and insurance. The CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS), in particular is exploring these issues and highlighting good practice.

CCAFS conducted a gender survey across four sites in Africa. It reveals gender differences in terms of perceptions of climate change, awareness and adoption of climate smart agriculture (CSA) practices, and types and sources of agro-climatic information in the four sites (CGIAR, 2014). The study concludes that both men and women are experiencing changes in long-run weather patterns and that they are changing their behaviours in response; albeit relatively minor shifts in existing agricultural practices. For example, the most prevalent changes reported include switching crop varieties, switching types of crops and changing planting dates. Women have more limited awareness of many CSA practices compared to men, but adoption by women is as likely or more likely compared to men in east Africa when they are provided with information. In west Africa, overall, uptake was more limited. There is gendered access to information from varied sources and differences between the CCAFS sites. Targeting women with climate and agricultural information is likely to result in the adoption of new climate smart practices (CGIAR, 2014).

The aim of a CCAFS programme in Burkina Faso, Ghana, Mali, Niger and Senegal in west Africa, is to build the assets and influence of women and marginal groups. A study by Tall et al (2014) explored gender and climate in three farming communities which are considered vulnerable to climate shocks and stresses, all located in semi-arid Kaffrine, Senegal. Variation in climate service needs and local capacity were analysed. A seasonal climate forecast was introduced by the programme in 2011, and the differing perspectives of women and men were assessed relating to the new service. Uneven patterns of risk and access to climate information and advisory services were revealed by the study, which potentially undermines the ability of specific social groups to use the climate service. The study concludes that gender-specific climate service needs exist. Women farmers require a forecast of the end of rainfall periods rather than their start, and the design of communications should be done with the most vulnerable in mind, although this will vary with location (Tall et. al., 2014).

A study by CCAFS of climate-smart village activities in Makueni, Kenya, supported by the CCAFS programme, found that over the past two years, women have been supported in particular to gain new skills and knowledge. With support from local partners two women are leading two learning sites, testing several climate-smart techniques

and drought-resistant seeds to understand which are good solutions tailored to their areas and also to identify practices which may not be appropriate. These strategies can support both mitigation and adaptation, and help improve yields and income. The work is also building the conference of women farmers: Josephine Mutua, from eastern Kenya said that "Now that I have knowledge about different agricultural techniques, I have the confidence to speak up and share the information in church or when I have visitors"[9].

Finally, between 2011 and 2013 CCAFS supported the Natural Resources Institute (NRI) of the University of Greenwich and partners in Tanzania and Ghana to test a methodology called 'Farms of the Future'. This project sought to strengthen the adaptive capacity of rural communities. Specific lessons emerged with respect to the 'constructive disruption' of gender norms. Box 12 explains the process undertaken and the lessons learned with respect to gender and social difference.

Box 13: Farms of the Future and the constructive disruption of gender norms

- To strengthen the adaptive capacity of rural communities requires action both to tackle gender equality and specifically to empower women, but responding to climate change, especially longer-term climatic trends, is not easy. This is because of the uncertainties inherent within climate change and the systemic nature of rural change. Thus, it is critical that adaptation responses are tailored to local realities. As new knowledge and means are needed to strengthen adaptive capacity, this requires new approaches to learning – and this includes participatory learning to challenge 'given' or critically disrupt gender relations.
- CCAFS designed a 'Farms of the Future' (FoTF) (2011–13) approach, aiming to strengthen farmer adaptive capacity. It comprises two main elements: i) climate modelling using a newly created CCAFS climate analogue tool to identify possible climate analogue sites; ii) farmer exchanges with itineraries based on the climate analogue tool findings. The visits were envisioned as supporting visiting farmers to build a mental picture of what their climate and farming systems might look like in the future. In other words, farmers could learn from what those living in the analogue site do now, and use this knowledge to test specific cropping systems and technologies in their own community, either now or in the future. NRI and partners were commissioned to test this approach in east and west Africa to see if it could be a valuable option to strengthen farmers' capacity to adapt to climate change. Tanzania and Ghana were selected as the countries where the approach would be piloted.
- There are several key innovations in this research project, for example: i) the use of the climate analogue tool to identify potential learning sites; ii) climate focused study tours to these learning sites, one from north Tanzania to south Tanzania and the other from northern Ghana to southern Burkina Faso involving farmers and other agricultural stakeholders; iii) the use of participatory video, so that farmers and stakeholders are trained to use video cameras to film their study tour and share the findings with their own communities; iv) three dimensional participatory modelling by groups of women and men of their own community in the past, present and future.
- While gender was not a prime focus of the research project, the NRI team was asked to consider the gender implications of such an approach. Important insights can be garnered as to the opportunities and challenges that are posed by such an approach, especially the study tour element, in terms of facilitating social learning and more specifically gender learning. Alone, such an approach is unlikely to create significant change – that requires a combination of social movements, policy and legislative reforms, organizational change and longer-term participatory agricultural adaptation action research etc.

9 http://ccafs.cgiar.org/blog/climate-smart-women-farmers-breaking-gender-barriers-kenya

Box 13: Farms of the Future and the constructive disruption of gender norms (continued)

- However, there is a key element to study tours – the possibility of visiting societies in which social relations are different and to see how female role models can benefit themselves and also the wider household. This presents an opportunity for participants – female and male – to challenge their own assumptions on how far gender roles are 'fixed givens' by interacting with peers in another location. This is therefore an opportunity to facilitate conscientization of farmers, and also of other agricultural stakeholders.
- By giving women equal space within the study tour to participate, to evaluate technologies and practices, to report back to home communities using their videos, this can also be beneficial. In terms of the learning process facilitated by Farms of the Future while fewer women than men were able to participate, particularly in Ghana, the approach was valuable to both female and male participants according to their own evaluations and the process itself can positively reinforce women's voice in reflections and shared experiences.
- We provide some key examples of highlights noted by participants in Burkina Faso by Ghanaian women and men regarding the use of donkey carts for transportation which can reduce women's work burden and increase their mobility, and of lessons drawn from visits to an agribusiness female farmer, and Fairtrade shea nut women's collective. In Tanzania, where farmers travelled from Lushoto in north-east Tanzania to the very south, women participants in particular were interested to learn about improved coffee cultivation techniques, tree nurseries, indigenous techniques for soil and water conservation, informal savings groups and a women-led marketing cooperative.

Source: Nelson and Lamboll, 2014; Nelson et al, (2014). See: http://projects.nri.org/farmsofthefuture/ and the video links: https://www.youtube.com/watch?v=hq4EkjxcgkY&feature=youtu.be and https://www.youtube.com/watch?v=uwV8Ewq7hy8&feature=youtu.be

5.6 More effective and gender sensitive research and advisory services

A study by the International Food Policy Research Institute (IFPRI) provides evidence on the importance of employing women as extension agents in sustainable land management. Kondylis et al, (2014) conducted a study (2010–2013) focused on Mozambique. Using an experimental approach, 200 communities in the Zambezi Valley were randomly selected and female extension workers identified and trained in sustainable land management practices and tasked with sharing these practices in the community. The study found that where women are extension agents, they can improve communication with female farmers, and are better at meeting the information needs of women producers. Panel survey data from the experimental areas showed that women's knowledge of micro-catchment farming techniques rose by 9 percent in 2012. Technology adoption rose by 5 per cent in 2013 in the communities with female extension officers. Synergies can occur where male extension workers also join the efforts to raise awareness of these practices and their uptake. More research is needed on how this process of synergy occurs and when for different technologies in order to inform future policy making (Kondylis et al, 2014).

5.7 Improving dryland women's access to animal health services

The case study below presents the findings of an in-depth evaluation of Community Based Health Workers (CAHWs) in east Africa, with particular focus on the gender implications. Leyland et al (2014) conducted of the training of CAHWs, a role that first appeared in the 1980s in east Africa, as part of efforts to supply veterinary services to remote regions. There was early success, at a time of government reductions in funding of veterinary services overall. NGOs expanded their support for such services to other remote regions, especially in support of livestock-based livelihoods. By the mid-1990s, governments paid greater attention to this approach and questions arose as to how to manage this expansion and to regulate it properly.

In an evaluation of the initiative conducted by the US Office of Foreign Disaster Assistance (OFDA), it was found that women preferred female CAHWs as a source of advice and support. In Kenya, the evaluation found that women were less mobile. Male interviewees noted the familial obligations which restrict women's ability to travel and to attend to their needs during unusual hours. A small proportion of the CAHWs were women and in some locations, such as Ethiopia, women were not represented at all. In South Sudan, male interviewees indicated a preference for male CAHWs, because they can manage larger animals. The management of smaller stock by women had not been recognized in the CAHW selection process. Differences were not found when comparing male and female CAHWs on technical capacity and income indicators, and in some cases female CAHWs had shown greater skill in managing income from veterinary drugs (Leyland et al, 2014).

5.8 Improving dryland women's access to livestock markets and root crops in Tanzania

The following case study highlights the positive outcomes for dryland women in Tanzania of improving their access to livestock and root crop production and sales. Diversification activities are likely to improve resilience to climate change and this is an indicator commonly used to measure resilience. However, solutions have to be locally tailored and appropriate to context. Further, diversification activities should recognize and improve women's workloads and intra-household influence and should take account of climate change projections to avoid mal-adaptations.

A promising example has been supported by the International Development Research Centre (IDRC) initiative in semi-arid regions of Tanzania. This initiative has funded the introduction of dairy goats and root crops among agro-pastoral women, who tend to have low incomes, limited access to natural resources and often experience poor nutrition. Dairy goats provide food and income, reproduce each year and do not require large amounts of feed. Goat milk is highly nutritious and of particular suitability for infants, sick people and the elderly. To boost household food security, nutrition and generate income in resource-constrained, semi-arid areas of Tanzania, the initiative is piloting a system of integrating dairy goats with the production of cassava and sweet potato and also trialling and promoting four improved varieties of drought-tolerant and nutrient-rich cassava and sweet potato for human consumption and dairy goat feed (Lekule et al, undated).

The project targeted women and female-headed households in two districts and employed a methodology tackling gender roles, assets and decision-making among smallholder farmers. For example, anticipating increased workloads, the project conducted intensive training to encourage men, women and youth to share roles and responsibilities in feeding, watering, cleaning, milking and daily management of the animals and related activities. Women now participate in goat breeding and record keeping and there is greater sharing between men and women of household chores, reducing women's workload. Women now have enhanced access to resources: for example, 45 female-headed households out of 111 households in total now own dairy goats; women in male-headed households also own many of the 224 dairy goats supplied through the project, controlling sales of milk and making joint decisions on overall management and sales (Lekule et al, undated).

The project has led to more balanced and nutritious diets, through the uptake of cassava, sweet potato and goat milk and goat milk yoghurt in meals, and in particular children and the sick are given goat milk. During the first lactation, farmers have earned USD 160 from milk sales from two dairy goats and this is expected to rise from 600ml per goat per day to 1.5–2 litres per goat per day as the animal matures. Women control the income from milk sales, which is used to buy household items and exercise books for children. The improved crop varieties have been widely adopted by men and women, as have good practices such as planting on ridges. Field trials show that both cassava and sweet potato leaves have higher protein and are significantly better feed supplements, with a better feed-to-live-weight conversion ratios compared to traditional alternatives such as sunflowers. During 2014, over 100 goats will be passed on to new groups of farmers. A large number of farmers have already shown great interest in obtaining dairy goats, which also points to increased sustainability (Lekule, et al, undated).

5.9 Improving women's participation and value capture in natural product trade and crafts

While recognizing the importance of securing dryland women's basic needs, there are also opportunities to support their economic empowerment through craft sales, at least on a niche basis. An example from Namibia indicates how the diversification of livelihood strategies has supported women's economic empowerment in a programme that integrated gender analysis and issues throughout and that set up institutions to ensure sustainable resource use.

Box 14: Women's empowerment through craft sales, Namibia

A craft programme began in 1995, supporting women producing crafts for sale at the Caprivi Arts and Cultural Association, and later expanding in the Kwando basin and the eastern side of the Bwabwata National Park. It was a component of the wider Enterprise Unit of Integrated Rural Development and Nature Conservation (IRDNC), which aims to support income generation from the sustainable use of natural resources. The craft unit provided opportunities to rural communities, in particular to women, to earn an income from producing traditional handcrafts to sell. Over the past 20 years, the traditional practices of some craft making in Caprivi have become increasingly commercialized and as well as baskets a wider range of items are made such as jewellery, bags, carvings and cloths. Mashi Crafts, in the Zambezi region, was ultimately established to market the products.

The main benefits of the programme have been to date:

- Income earned by over 220 craft makers, benefitting their dependants. 89 percent of the craft makers are marginalized women. The cash earned from the sales of baskets was the major contributor providing an average yearly contribution of 37 percent for middle income earners and 51 percent of total household cash income for the higher income earners.
- Most of the women interviewed kept control of their earnings from basket sales and decided alone how it was spent. Some women make joint decisions with their husbands, and only two women lost control of their earnings to their husbands. Thus, income from craft sales alleviates poverty by enabling women to cope better with the most vulnerable aspect of their and their families' lives – food security.
- Improvements in the quality and standard of living of participating families. Children who could not have attended school now receive an education.
- Mashi Crafts is now a tourist attraction.

Box 14: Women's empowerment through craft sales, Namibia (continued)

- Mashi Crafts is now a tourist attraction.
- Provision of an alternative to trophy hunting as a source of income for conservancies.
- Capacity strengthening for many marginalized rural women in craft making, craft centre management, marketing, business and financial management and decision making. Greater recognition and social awareness of women's traditional skills and abilities. Increased social status of women and given recognition of their role as providers. Helped rural women to realize their potential, built self-confidence, self-reliance and self-esteem and gave them recognition, status and developed social bonds.

Mashi Crafts, the original craft centre, is now fully self-sustaining. Two of the three rural women's groups have management committees who run and manage the market independently. A resource monitoring and management programme was established, with locally employed Community Resource Monitors (CRMs), all of whom are women. They gather information and feed this back to the communities and conservancy committees to inform their overall land use and management plans. Careful monitoring of the resources is important to maintain the resource base. Many of the natural resources used are now more highly valued. In some villages women now harvest palm and dye materials and sell them to weavers, trading in natural resources that were once difficult to access.

Source: Annie Symonds, Case Study commissioned for this research (2015) drawing on her personal experience and the following articles: Suich, H and Murphy, C. 2002 Crafty Women: The livelihood impact of craft income in Caprivi, DEA Research Discussion paper number 48; NACSO (Symonds, A. Mashi Crafts) Namibian CBBNRM Program Case Studies of Tourism Enterprises in Communal Conservancies 2008; Symonds, A. Final Report: Caprivi Crafts, 2000

5.10 Improving understanding of gender relations in drylands to inform programming

IFAD has developed a range of innovative approaches to facilitate women's empowerment. Trained facilitators or mentors work with households, and the participants develop a shared vision of their targets for the next 3–5 years and the steps for getting there. The focus is placed upon people's activities, workloads, interactions, hopes and ambitions, rather than on their assets, resources and infrastructure. The approach seeks to tackle the inequalities in households with respect to the sharing of resources and benefits. It has been successful in revealing to participants that gender inequality is one of the reasons that they remain trapped in poverty and provides a facilitated way of renegotiating domestic divisions of labour to share women's workloads or to enable women to engage in income-generating activities that can benefit the whole household. Women and men are also encouraged to make changes outside the household by joining self-help groups and accessing financial services. To date, approximately 100,000 people have been reached across different sub-Saharan African countries with this approach, including Malawi and Uganda. Key benefits include improved productivity, higher incomes, decreased domestic violence, greater familial harmony, increased happiness and greater resilience in the face of shocks. Women have gained more confidence and their participation has increased in decision making in the household, but also beyond.

The Gender Action Learning System (GALS) is an example of the household methodologies supported by IFAD[10]. With IFAD and Oxfam Novib (the Dutch affiliate of Oxfam) over 34,000 people in Rwanda, Nigeria and Uganda, approx. 20,500 women and 13,500 men, have used the GALS methodology to develop visions, plans and strategies for promoting gender equality and improving their livelihoods. The approach has been integrated into a number of IFAD-supported development projects such as pro-poor value chain development in the Maputo and Limpopo Corridors in Mozambique and Rural Finance Institution Building Programme, Nigeria (Bishop-Sambrook, 2014). Evaluating the changes instituted by GALS, Bishop-Sambrook concludes that GALS can institute powerful, positive

10 GALS manuals have been produced detailing the different stages and steps of the process and are available to download at:http://www.wemanresources.info/2_GenderActionLearning/2_0_GenderActionLearning.html

changes in gender and social norms and relations for both men and women, including among young people, and at different levels, such as with households and groups. Diverse livelihood improvements have been achieved following behaviour change at the household level for example higher productivity, better access to services and markets and increased household assets, increased investments in education for boys and girls etc. Reduced alcohol abuse, gambling, and domestic violence, and men sharing in more household tasks such as fetching water and firewood and cooking food) are key areas of behaviour change that can unlock these livelihood benefits. By reducing women's workload, women have more rest and leisure time and can spend more time on other income-generating activities. Further, women are more able to openly discuss with men issues such as family planning, expenditure decisions and new enterprise activities. Women are more likely to take up leadership positions and to gain access to and control of property. Young people are more motivated as they see a brighter future for themselves. Common group and cooperative level visions result in more collective businesses and strengthen community organizations, and can facilitate better links to buyers and input suppliers. Community development project staff can gain better skills in working with women and men from poor households.

Key success factors for tackling gender norms previously seen as fixed include (Bishop-Sambrook, 2014):

i. Through dialogue and positive change (e.g. showing links between gender-based constraints and poverty reduction/wealth creation for both women and men)

ii. Individual analysis helps participants to see the potential benefits of tackling gender inequalities and analysing personal life dynamics at the outset as the starting point with people themselves placed as the solution to any challenge they are facing. Exploring a shared vision motivates women and men to gather information, analyse it and identify solutions, with concrete targets and actions helping to show progress over time, including some early gains

iii. The use of pictorial tools is important for facilitating collaboration between women and men who cannot read or write and those who can. Giving space for participants to develop their own plans is important, as is planning and tracking income and expenditure flows and the use of resources – to help poorer households cope during the long hunger gap and in other crises.

The overall approach improves communication in the household, group and enterprise (Bishop-Sambrook, 2014): the move from individual to collective action can support local advocacy on local issues and through the networks of community facilitators and peer learning with a pyramid outreach network, it can be possible to stimulate a community-level movement to change gender norms. Other key lessons include the importance of strengthening new leaders emerging from vulnerable participants, rather than following existing power structures, which enables behaviour change and livelihoods improvement to scale up quickly. Learning events within a country can foster peer learning and motivate community facilitators and GALS champions. An international network is also emerging of practitioners including south-south learning processes in Africa. It is critically important that extension staff facilitate rather than seek to teach in order to nurture community–led empowerment. When engaging with private-sector stakeholders to negotiate win-win strategies, attention to addressing gender issues can slip off the agenda if not well facilitated.

It is important to note that changes at the household level need to be matched by wider structural and policy changes, but these are included here as valuable practical strategies for the neglected area of intra-household change and transformation. However, changing entrenched gender norms has proved difficult at the local level and so successful approaches need to be found to achieve positive change.

Sustainable livelihood programming including support for the organization of disadvantaged rural women can provide improvements in individual and household quality of life and well-being, but also change the perceptions of migrants to dryland zones for the better. The Dom Hélder Câmara Project (DHCP), 2005 to 2010, was initiated as a result of the influx of migrants to north-east Brazil following a process of agrarian reform and helped to form rural women's groups focused on production or income generating activities. Training for young women and men was provided in technical skills, literacy, and leadership training. Women's associations were given support in vegetable production and sales at agro-ecological fairs, and their financial management skills improved (IFAD, 2011). The project also ran a campaign to enable over 14,000 women to obtain identity documents, which enabled them to access state benefits and land. Women are increasingly gaining employment as community organizers and in providing technical advice, with improved self-esteem apparent for women as well as men, and more positive perceptions of the environment, reducing the desire to migrate.

The value of action-oriented approaches to community-based capacity building is demonstrated by a project (2000–2004) which has sought to strengthen the capacity of Ethiopian pastoralists, by helping them to diversify their livelihoods, raise their living standards, and improve their livestock marketing (Coppock et al, 2015). The project has involved collective action, microfinance, and participatory education. The domestic work burdens of disadvantaged women have been lightened and many women have become leaders and have changed their communities. Drought occurred from 2005–2008 and the researchers assessed the impacts of the interventions on household drought resilience through a quasi-experimental approach. They included survey-based comparisons of treatment groups with ex post controls. The study found that the project had led to major improvements in trends for quality of life, wealth accumulation, hunger reduction, and risk management. Coppock et al (2015) conclude that it is human development processes, rather than technical solutions, which are the key driver for positive change. Vision, aspirations and opportunities to change come from capacity strengthening of people, and then technology can be used to meet these hopes and desires. One group only used available technology once they already felt confident and financially secure, and only more recently are group members using mobile phones to obtain livestock market price information and early drought warnings. The action-oriented approach 'perturbed this social system, revealing the potential of women as leaders and entrepreneurs…Changes in gender roles have been rapid' (Coppock et al, 2015, p1379).

6 STRATEGIC ACTIONS

This section provides key recommendations for different actors, including rights holders and rights bearers, to improve policy, institutions and capacity for gender-just, resilient development in the drylands and to empower women to act as active agents for change.

R. Lamboll

6.1 Overview

To achieve dryland resilience and to empower women requires a wide range of measures to achieve gender justice in recognition, representation and redistribution.

Measures are needed to ensure that there is full recognition of women as equal members of dryland communities and as citizens of the state who should have equal rights to participate in decision making from the community to national levels, to receive high quality government basic services, and to have equitable access to appropriate resources, networks and markets. The value of women's indigenous and local knowledge, particularly in pastoral societies, should be fully acknowledged by policy and programme makers. However, action is needed where customary norms are negative for women: specific traditional and modern practices which undermine women's health, wellbeing, dignity and resilience in dryland societies, for example, gender-based violence, early marriage, and female genital mutilation. Efforts are needed to transform the cultural norms and institutional arrangements which prevent women from realizing their human rights; this requires conscientization of both women and men. The value of adaptive pastoral livelihood systems, particularly the element of mobility should be recognized, given the structural variability of drylands. Any measures must recognize that women tend to have more limited influence in decision making, higher work burdens, and less secure rights to access resources and should seek to change this for the benefit of women themselves, but also entire households and communities. The latter can be supported through the development of appropriate and enabling policies, measures to improve societal attitudes and behaviours, and in development programming and research. Ultimately, dryland women will lead this process.

Work is needed to improve women's representation in all kinds of decision making within customary and statutory systems, in negotiations with dryland actors including community-based organizations, private sector companies, conservation agencies, religious bodies and researchers. In particular, change has to be facilitated within household decision making so that women's rights to participation are recognized by their male relatives and so that any government services or development interventions, such as climate adaptation projects play out in more equitable ways. Capacity strengthening is needed to increase the presence of women in delivering key services to dryland women, such as community animal health workers and in programming and policy design so that they are more gender equitable. To be more effective, service delivery should not only be extended in terms of coverage of dryland peoples, but a new strategy should be fully embraced which values pastoralist lifestyles and forms of learning, and overcomes the barriers which come with nomads' mobility and the remoteness of many drylands. Social protection, climate change adaptation and mitigation, market development and livelihood development schemes should utilize the lessons of resilience thinking – such as the importance of social learning and multi-stakeholder processes to develop locally tailored solutions, action across multiple scales, and recognizing where variability is the norm. In particular, managing resources and organizations adaptively is important to respond to uncertainty. Such programmes should build upon women's participation, ensure high quality understanding of gender relations and intersectionality (i.e. intersecting discrimination based on age, class, ethnicity etc), and build upon promising household approaches in gender action planning. Where resilience assessments are conducted, steps are needed to ensure high quality representation by diverse groups of women and marginal groups, and to ensure recognition of women's strategic interests.

Measures are needed to ensure a redistribution of resources, given the current inequalities that exist and the poorer performance on core development goals for women compared to men. Social protection measures are an important means of moving beyond short-term disaster relief and, where they are climate-sensitive there is evidence that they can support longer-term resilience in ways that benefit women. Improvements for women are needed in a range of areas, including basic social services, (health, education, animal health, appropriate research and advisory services and social protection) access to resilient crop and livestock markets and livestock

development, climate change adaptation and mitigation, and sustainable land management. An improved distribution of resources will ultimately benefit male members of society, as well as women.

Ensuring and achieving greater environmental resilience is urgently needed – this may require measures to sustain the current state of dryland ecosystems or measures to enhance or restore them. However, in the social sphere, while building on customary institutions and knowledge, there is also a clear need for transition or transformation in most contexts to enable women to realize their human rights and to strengthen the resilience of drylands now and for the challenging times ahead.

In the following sections we outline the policy actions, institutional actions on and capacity building steps needed to achieve these goals. Improvements are needed in in gender-equitable governance and land rights recognition, representation and redistribution, which are covered in Thematic Papers 1 and 2 in on land rights and governance respectively. The recommendations below should be read alongside the other thematic papers in this series.

6.2 Policy Actions

To achieve resilience of the drylands and support women's empowerment, the following policy actions are needed to achieve a supporting enabling environment:

- National governments, with the support of donors, should undertake more fine-grained, regional or national studies on dryland resilience and women's empowerment to inform effective policy making and implementation.
- National governments to adopt redistributive policies, including social protection measures, such as cash and asset transfers and livestock index-based insurance to improve dryland resilience, taking steps to ensure they are gender equitable.
- National governments to adopt policies which enable improved health and education service provision in dryland areas, to deliver improved access for dryland women and more appropriate approaches and forms of delivery.
- National governments to adopt policies which enable improved animal health service provision in dryland areas, to deliver improved access for dryland women and more appropriate approaches and forms of delivery; opportunities to combine animal and human health service delivery to mobile populations should be taken up in government policy.
- National governments to adopt gender-sensitive policies across a broad range of policy sectors, including delivering improvements in dryland women's access to climate change adaptation and mitigation opportunities, sustainable land management programming and increasing women's access to development initiatives, including women's economic and financial empowerment, and to lasting security and its development benefits
- National governments to adopt policies to promote private sector sourcing from women producers, while also filling the gaps for harder to reach groups, and to undertake studies to assess the potential for sustainable procurement programmes, including those that favour women producers.

6.3 Institutional actions

Institutional actions can support women to drive institutional change (e.g. awareness, cultural norms, power relations, informal institutional arrangements at different scales) to achieve a supportive enabling environment for gender-just and resilient development:

- Governments, with support from international donors, to support funding lines for gender-equitable climate change and rural development policy implementation and programming for dryland areas.

- Governments, donors and researchers to fund and facilitate resilience assessments that are needed for particular dryland areas engaging with all key stakeholders and ensuring gender equity in the process of assessment and identification of priorities for action to strengthen dryland resilience.
- Ministries and departments of education, animal and human health, agricultural and livestock extension, with donor support, to review gender issues in service delivery, developing strategies in a participatory fashion with users, and identifying approaches that tackle problematic gender norms and work with structural variability and mobility. Investment is needed to extend coverage in dryland regions and to increase women's representation in agricultural advisory services.
- Academic institutions to seek support for research on gender and resilience in the drylands, to inform policy and programming. Fundamentally, this research should generate context-specific analyses on how gender relations and outcomes are changing with respect to dryland dynamics and resilience, and to help identify new opportunities and appropriate policies and strategies. Specific research gaps to be filled include evaluating what works in different contexts for women's empowerment in social protection, human and animal health and education, livestock livelihoods and diversification strategies, climate change adaptation and mitigation. Action research should be a priority, as well as support for South-South learning, particularly peer-learning processes and identifying how gender and social norms can be changed and improved for the benefit of all.
- National governments to facilitate high level policy dialogues with academics, civil society organizations and journalists to increase the demand, uptake and use of evidence on resilience and gender in policy making. In particular, fora are recommended on dryland women's climate-resilient, economic empowerment to capture the opportunities that exist and to find ways to ameliorate risks.

6.4 Capacity strengthening actions

Capacity strengthening actions are required to strengthen the resilience of drylands and to empower women.

- National governments, donors, NGOs and CSOs to support capacity strengthening programmes to support resilient dryland development in ways that empower women and other marginal groups. Approaches which are participatory in nature and engage with stakeholders across different scales will be needed. Further, efforts should be made to support experimentation and social learning given the (growing) uncertainties in dryland areas. Programmes are needed that tackle the gamut of issues of importance to dryland women, including education, health, social protection, livestock (especially smallstock), non-livestock livelihoods and access to credit.
- CSOs to support gender justice involving whole communities, in particular men and local leaders, to challenge discriminatory social norms and harmful practices.
- CSOs, academic institutions and the media to increase awareness of gender, pastoralist and environmental sustainability issues in the drylands. This awareness raising should seek to counter the negative stereotypes of dryland areas to culturally revalue them and women's knowledge and equal rights in particular.
- Donors to direct investment and CSOs to support the strengthening of the capacity of local government with respect to resilience and gender equity.
- The international community, national governments, research institutions and CSOs to identify and share good practice (internationally and locally) on pathways for women's empowerment in resilient dryland development.

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