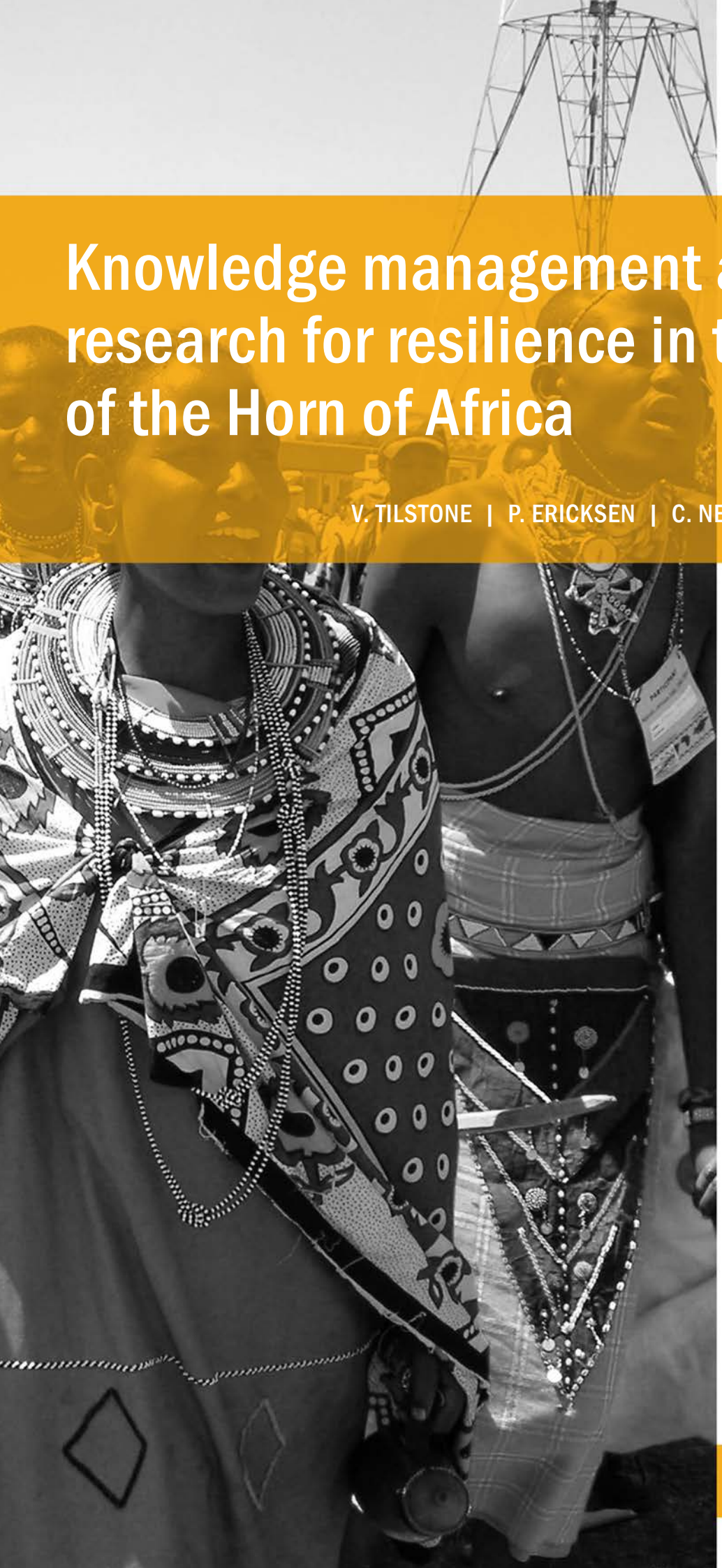
Knowledge management and research for resilience in the drylands of the Horn of Africa

V. TILSTONE | P. ERICKSEN | C. NEELY | J. DAVIES | K. DOWNIE



technical consortium

Building Resilience in the Horn of Africa

ILRI
INTERNATIONAL LIVESTOCK RESEARCH INSTITUTE

CGIAR

BRIEF 5

Knowledge management and research for resilience in the drylands of the Horn of Africa

Technical brief prepared by the Technical Consortium for Building Resilience in the Horn of Africa, a project of the Consultative Group on International Agricultural Research (CGIAR) hosted at the International Livestock Research Institute (ILRI).

AUTHORS

Vanessa Tilstone, Polly Ericksen, Constance Neely, Jonathan Davies and Katie Downie

© 2013 Technical Consortium, which is a project of the Consultative Group on International Agricultural Research (CGIAR) hosted at the International Livestock Research Institute (ILRI).

This technical brief is part of a series prepared by experts for the Technical Consortium for Building Resilience in the Horn of Africa. The briefs are 'Overview of technical components to support ending drought emergencies and building resilience to drought in the Horn of Africa', 'Disaster risk reduction management in the drylands in the Horn of Africa, 'Livelihoods and basic service support in the drylands of the Horn of Africa', 'Natural resources management in the drylands in the Horn of Africa', 'Conflict resolution and peace building in the drylands in the Horn of Africa', 'Market access and trade issues affecting the drylands in the Horn of Africa' and 'Knowledge management and research'. For more information on the Technical Consortium contact Katie Downie- k.downie@cgiar.org

This publication is copyrighted by the Technical Consortium. It is licensed for use under the Creative Commons Attribution-Noncommercial-Share Alike 3.0 Unported Licence. To view this licence, visit http://creativecommons.org/licenses/by-nc-sa/3.0/ . Unless otherwise noted, you are free to copy, duplicate or reproduce, and distribute, display, or transmit any part of this publication or portions thereof without permission, and to make translations, adaptations, or other derivative works under the following conditions:

ATTRIBUTION. The work must be attributed, but not in any way that suggests endorsement by ILRI or the author(s).

NON-COMMERCIAL. This work may not be used for commercial purposes.

SHARE ALIKE. If this work is altered, transformed, or built upon, the resulting work must be distributed only under the same or similar licence to this one.

NOTICE:
For any reuse or distribution, the licence terms of this work must be made clear to others.
Any of the above conditions can be waived if permission is obtained from the copyright holder.
Nothing in this licence impairs or restricts the author's moral rights.
Fair dealing and other rights are in no way affected by the above.
The parts used must not misrepresent the meaning of the publication.
ILRI would appreciate being sent a copy of any materials in which text, photos etc. have been used.

Design and layout -Jodie Watt Media

Citation: "Knowledge management and research for resilience in the drylands of the Horn of Africa". Jonathan Davies, Katie Downie, Polly Ericksen, Constance Neely and Vanessa Tilstone. Brief prepared by the Technical Consortium, a project of the Consultative Group on International Agricultural Research (CGIAR) hosted at the International Livestock Research Institute (ILRI). Brief #5. International Livestock Research Institute. Nairobi, Kenya. 2013.

ilri.org
better lives through livestock
ILRI is a member of the CGIAR Consortium

Box 30709, Nairobi 00100, Kenya
Phone: +254 20 422 3000
Fax: +254 20 422 3001
Email: ILRI-Kenya@cgiar.org

Box 5689, Addis Ababa, Ethiopia
Phone: +251 11 617 2000
Fax: +251 11 617 2001
Email: ILRI-Ethiopia@cgiar.org

Acknowledgments

The authors would like to thank Michael Ochieng Odhiambo, Isabelle Birch and Gerry McCarthy for their valued input:

Abbreviations

ASAL	arid and semi-arid lands
AU	African Union
CAADP	Comprehensive Africa Agriculture Development Program
CaLP	Cash Learning Partnership
CCA	climate change adaptation
CELEP	Coalition of European Lobbies for Eastern African Pastoralism
CLA	collaboration, learning and adaptation
CSO	civil society organization
DEWS	drought early warning system
DfID	UK Department for International Development
DRM FSS	Disaster Risk Management and Food Security Sector
DRR	disaster risk reduction
ECB	Emergency Capacity Building Project
ECHO	European Commission Humanitarian Aid and Civil Protection Department
ELMT	Enhanced Livelihoods in the Mandera Triangle
ELSE	Enhanced Livelihoods in Southern Ethiopia
FAO	Food and Agriculture Organization
FSD	Foundation for Sustainable Development
HoA	Horn of Africa
HoAPN	Horn of Africa Pastoral Network
IBLI	Index Based Livestock Insurance
ICPALD	IGAD Centre for Pastoral Areas and Livestock Development
ICRC	International Committee of the Red Cross
IDDRSI	IGAD Drought Disaster Resilience and Sustainability Initiative
IDS	Institute for Development Studies
IFAD	International Fund for Agricultural Development
IGAD	Intergovernmental Authority for Development
IGAD LPI	Intergovernmental Authority for Development Livestock Policy Initiative
IIED	International Institute for Environmental Development
IIRR	International Institute for Rural Reconstruction
ILC	International Land Coalition
ILRI	International Livestock Research Institute
IUCN	International Union for the Conservation of Nature
KARI	Kenya Agricultural Research Institute
KASAL	Kenya Arid and Semi-Arid Research Program
KM	knowledge management

LEGS	Livestock Emergency Guidelines and Standards
LPI	Livestock Policy Initiative
M&E	monitoring and evaluation
MNKoAL	Ministry of Northern Kenya and other Arid Lands
MS-TCDC	MS Training Centre for Development Co-operation
NDMA	National Drought Management Authority Kenya
NEPAD	New Partnership for African Development
NGO	non-government organization
P-Fim	People First Impact Method
PLI	Pastoral Livestock Initiative
PMU	Program Management Unit
PRIME	Pastoralist Areas Resilience Improvement and Market Expansion
REC	Regional Economic Communities
REGLAP	Regional Learning and Advocacy Program
UN	United Nations
UNDP DDC	United Nations Development Program Drylands Development Centre
UNEP	United Nations Environmental Program
USAID	United States Agency for International Development
VSF	Veterinaires Sans Frontieres
WISP	World Initiative on Sustainable Pastoralism

Terms

Drylands	land areas of the world in which the moisture regime values fall in the range of 0.03-0.65 on the AI (Aridity Index) and the LGP (length of growing period) falls within 90-180 days.
Horn of Africa	for the purposes of this paper, the Horn of Africa countries are as follows: Djibouti, Eritrea, Ethiopia, Kenya, Somalia, South Sudan, Sudan and Uganda.
IGAD	The Inter-governmental Authority on Development, a regional economic community comprising the following eight Member States: Djibouti, Eritrea (suspended), Ethiopia, Kenya, Somalia, South Sudan, Sudan and Uganda
RECONCILE	Resource Conflict Institute based in Nakuru, Kenya
Share Fair	An interactive event that employ various knowledge sharing formats such as market stalls and booths, posters and presentations designed to encourage sharing of experiences and discussion.
Wiki	A web application that allows people to add, modify or delete content in collaboration with others
Writeshop	A workshop with a range of relevant stakeholders – along with desktop publishing specialists – to produce a publication in a very short time

Executive summary

Knowledge management (KM) is best defined as "enabling individuals, teams and organizations to collectively and systematically create, share, learn and apply knowledge to better achieve their objectives"[1]. KM is thus essentially a structured process of learning, for action among relevant stakeholders that is based on access and use of knowledge.

In the drylands of the Horn of Africa (HoA), this learning process should focus on supporting the primary users of information, dryland dwellers (particularly the most vulnerable), to use knowledge to promote their sustainable development goals and livelihood resilience. It should also focus on aiding those secondary or intermediary users (i.e. local government, extension services, change agents, researchers, etc.) who directly and indirectly support the primary users. These supporting partners can contribute by developing coherent and co-ordinated strategies to promote community and government capacities, and by engaging with the primary users based on their articulated priorities, to ensure that the knowledge generated and the ways in which that knowledge is communicated is responsive and enhances capacity to apply it. This is a major challenge for future knowledge management efforts in the region, as there has heretofore been little experience in this domain and weak focus on the primary users.

Knowledge management is an evolving knowledge-for-development approach. As such, there is still much work required to create functional and synergistic co-learning and knowledge-sharing platforms that can be used by decision makers from local to regional levels to enhance a resilience agenda in the drylands. This paper reviews numerous existing, relevant knowledge management activities and experiences that are associated with components of the knowledge management process, including: identifying knowledge needs, gathering and synthesizing knowledge, communicating knowledge and promoting the application of knowledge. An important area within the knowledge management learning process that requires channelled support is strengthened governance: the increased capacity of communities (and the most vulnerable within them) to access, use and add value to knowledge, to advocate that knowledge to decision makers and to hold duty bearers accountable in supporting positive change.

A functioning knowledge management system will require the full collaboration of the donor and investment community, public and private sector, the research community, development and humanitarian partners, male and female farmers, pastoralists, fisherfolk and their communities. The 'proof of purchase' of the Knowledge Management approach to be put in place for the HoA will be demonstrated by increased resilience - positive change on the ground - that results from a synergistic integration of intrinsic knowledge and practical experience, research outputs, enhanced capacity and co-learning, changes in decision-making processes and supportive policies.

[1] http://www.knowledge-management-online.com/what-is-Knowledge-Management.html

Background and introduction

Many of the institutional, economic, social and ecological problems of the HoA's drylands are to some degree associated with ineffective knowledge management. These regions have suffered decades of neglect, political marginalization and the undermining of indigenous knowledge and traditional mechanisms of self-organization, along with a lack of appropriate education, information provision and capacity-building support. Policy makers and practitioners have often based their interventions on a series of myths and misconceptions, due to a lack of local understanding regarding dryland livelihoods and ecosystems and how to work with the associated knowledge. This is exacerbated by the notion of, or the desire for, a 'one size fits all' mode of governance. Misperceptions that mobile livestock keeping is backward rather than resilient, that the drylands are wastelands and that herd management methods are illogical, have all led to ineffective and often damaging potential sustainable development. These myths continue today with the implementation of interventions that ignore the integrity of the dryland socio-ecological system and continue to advocate for converting rich water-resource areas to crop production, without understanding the subsequent implications on pastoral systems.

Poor development of the dryland areas is further exacerbated by the influence of political considerations on policy-making processes, rather than a robust evidence base of priorities and needs. As a result, compared to those parts regarded by political bodies as 'high-value', the drylands lack education, information, basic infrastructure, access to and control of resources and governance to development - despite universal evidence of the importance thereof. Furthermore, the over-emphasis on relief and short-term interventions in these areas has not allowed an in-depth understanding of the underlying causes of vulnerability to form, nor allowed those causes to be addressed. There has also been little attention to strengthening-associated institutional learning.

The resilience debate provides an opportunity to address some of these issues, if appropriately framed and acted upon. According to a recent United States Agency for International Development (USAID), the UK Department for International Development (DfID) and a World Bank discussion paper (TANGO 2012), the principles of resilience programing include a focus on government and community ownership, a commitment to integrated and multi-sector approaches to development and humanitarian work, and an emphasis on systems thinking - including both ecological and social systems. However, by embracing these complex dimensions simultaneously, the resilience concept presents additional challenges and demands for achieving effective knowledge management.

This paper sets out to explore the issues around knowledge management - what it is and how it might be applied, particularly with a view to enhancing resilience in the Horn of Africa and contributing to the improved impact of interventions and activities. This is not a comprehensive review, nor can it be considered a definitive work on knowledge management. The paper seeks to present some of the existing views and opinions on knowledge management and its role in the HoA and to inform the on-going knowledge management activities supported by the Intergovernmental Authority on Development (IGAD) and the Global Alliance.

Knowledge management and research concepts

The Knowledge Management Pyramid

The knowledge management pyramid, based originally on Ackoff's hierarchy described in an address given in 1988 (Ackoff 1989), can be viewed as being made up of, and distinguishing between, the contributions of data, information, knowledge and wisdom - or DIKW (Figure 1). DIKW also reflects a range of lifespans, short to permanent.

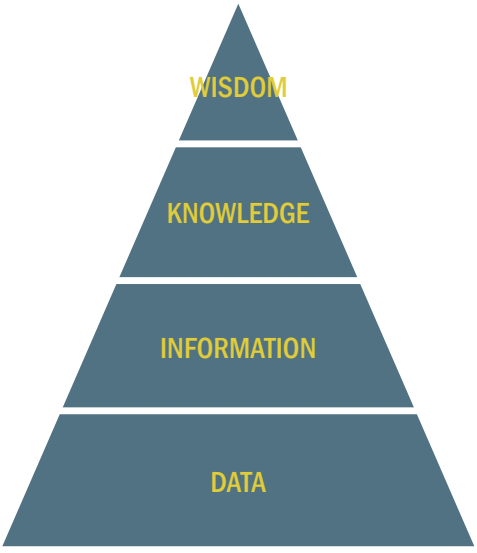
When discussing knowledge management, it is important to recognize that not all data or information leads to greater knowledge and, similarly, not all knowledge leads directly to wisdom. The human and institutional dimension, and the way in which the components are accessed and interacted upon, are not realized through a linear relationship as depicted. Instead, the pyramid helps to distinguish the increased understanding of relations, patterns and principles moving up to wisdom (Béla 2010; Frankenberger et al. 2012).

Data are discrete, objective facts that need to be interpreted to provide information, resulting in messages intended to change perceptions. Similarly, information (the "what") has to be applied to a context and infused with experience and values, for it to become knowledge (the "how"). Wisdom is the judicious application of knowledge and represents an appreciation for the different facets of a given situation, as well as a deep understanding thereof. Wisdom allows for the application of perceptions, judgments and actions, in keeping with this understanding.

In the dryland areas, there are major gaps in the data necessary to inform our understanding of the current situation. This is partly due to the cost of collecting data in remote and inaccessible areas, but is also because data collection methodologies are developed for accessible, sedentary populations and have not been adapted to dryland environments with mobile peoples and assets. As can be seen from reviews of key statistics in the area[2] (Annex 1), there is much incomplete, out-dated and conflicting information - particularly with regard to critical statistics for planning, including human and livestock population numbers, the proportion of households engaged in different livelihoods and how these are changing over time.

There is, however, a lot of general information on the Horn of Africa that can be found on websites,

Figure 1. The knowledge management pyramid (DIKW)



[2] See Annex 1: REGLAP's overview of key statistics on dryland areas in Ethiopia, Kenya and Uganda

bibliographies and in summaries of existing information[3], but that is not well supported by robust evidence or practical application and experience. A more urgent concern for knowledge management in the region is that, even when data and information are available, it is either not used because the user lacks the capacity for converting information to knowledge for particular dryland contexts, or there has been little opportunity to apply the knowledge in a coherent and meaningful way.

The Knowledge Management Process

As illustrated in Figure 2, knowledge management is a process of identifying, gathering, synthesising and sharing knowledge as well as promoting its application. Information and data management feed into this process at each stage, but are not sufficient to ensure that the desired change is realised. Knowledge management is considered most effective when the primary users (i.e. individuals and communities) are integral to this process.

The process of knowledge management includes the following sequentially occurring processes:

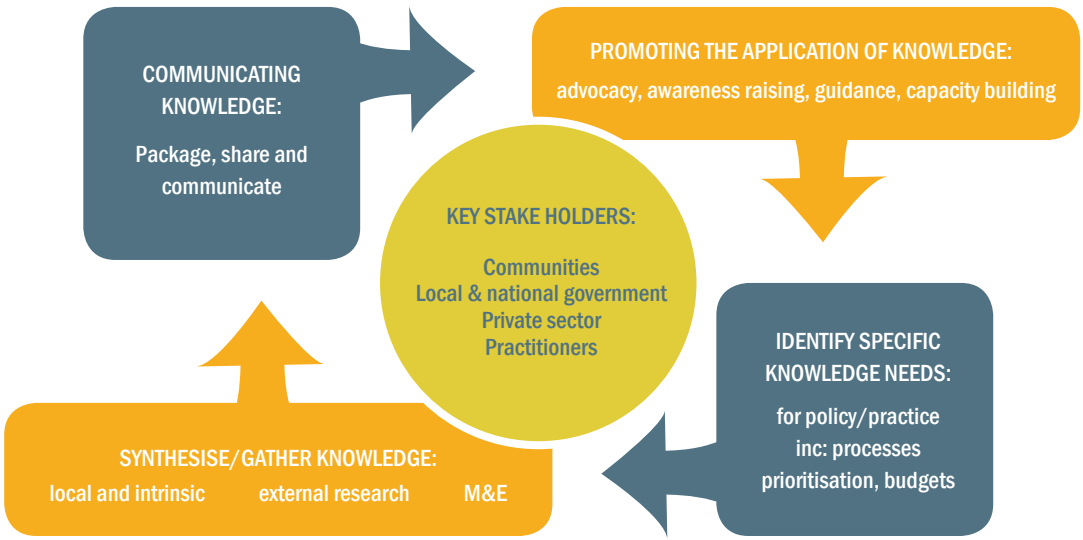
1. Promoting the application of knowledge.

This requires the capacities and the opportunities to apply knowledge. Both are often lacking in the HoA's drylands, causing limited progress and impact despite strong evidence on the development interventions that are working or missing in dryland areas.

2. Communicating knowledge.

Effectively communicating knowledge depends on knowing one's audience, to ensure that appropriate knowledge is communicated in the most efficient way. Communication should be succinct, focused and practical enough for different contexts and audiences. Technological improvements have vastly increased the volume of information available and improved the means of sharing that information. But as key information users become increasingly overwhelmed by the amount of information or receive conflicting messages, discerning and distilling available information is essential. To encourage the sharing and application of useful information and knowledge requires that budgets, processes and policies be in place for donors and governments.

Figure 2. The Knowledge Management Process



[3] See Annex 2: REGLAP's key reference documents on dryland resilience

3. Synthesising/gathering knowledge.

Given the vast amount of information, it is only feasible to synthesize and gather knowledge for very specific needs and purposes. More importantly, primary users must be skilled to do this themselves in a systematic fashion through their on-going activities. Encouraging users to recognise the importance of intrinsic knowledge, in the form of insights and learning through experience and wisdom, is vital to enhancing the value, accessibility and relevance of data and information. In addition, the understanding of the role that current data plays in the setting of priorities and budget allocation is often lacking, yet it is critical in promoting and achieving a greater return on investment.

4. Identifying specific knowledge needs.

Only through the application of knowledge, can the key user identify what they know and do not know. Thus, knowledge needs can only be identified by knowledge users as they try and promote their goals. However, this process of identifying needs should be better tracked so that knowledge holders and developers can respond.

Knowledge Management in the Drylands of the Horn of Africa

Promoting the application of knowledge

In policy and practice, this is by far the most neglected area of knowledge management and requires greater attention in developing capacity and creating opportunities for the use of knowledge.

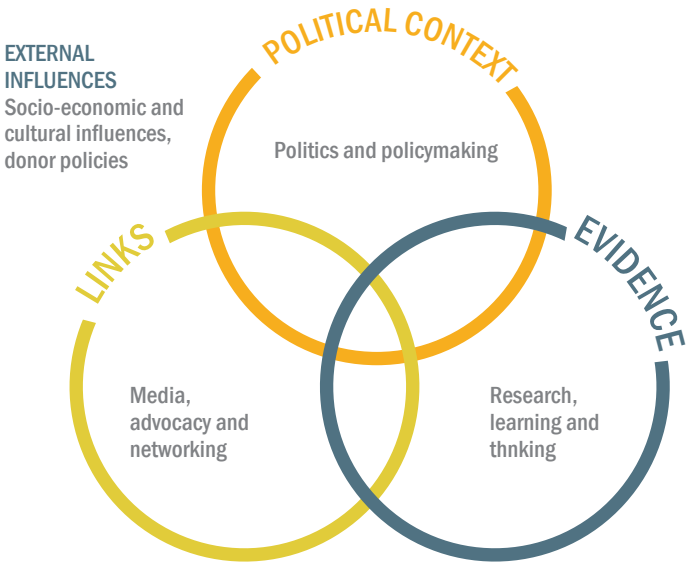
For policy making and implementation

Policy-making is often influenced by political/power interests, so that the provision of information or evidence alone will not have an impact. For example, while evidence on the economic potential of pastoralism is readily available to governments and policy makers in the region (Behnke 2010, 2011; Behnke et al. 2011; Kratli et al. 2013), there still remains an overriding policy thrust of settlement and land allocation to foreign investors, particularly for the production of commodities such as cotton and sugar. In Kenya, despite lobbying by civil society organizations (CSOs), the Veterinarian Association was able to push through the Veterinary Surgeons and Veterinary Para-Professionals Bill (2011)[4] that made community animal health workers illegal and left most of the drylands without any form of animal health service provision.

It is therefore critical to improve knowledge about policy-making processes and events, and to develop the capacity to analyse policies in various contextual dimensions. This can then be used to empower communities, and to enable their defenders and decision makers to engage in and apply evidence-based advocacy and decisions. Such empowerment becomes increasingly important in the context of wealth disparity and diverse interests within the drylands, as outsiders exploit its natural resources and economic opportunities. As can be seen from the RAPID framework (ODI 2004) in Figure 3, there is a need to better link research to policy making processes via advocacy and networking support.

One way of safeguarding the better use of knowledge in policy-making processes, is to ensure that draft policies are publically accessible. Despite public commitment to consultation, governments and indeed many development partners rarely release information on what stage policy processes are in. Instead, policy documents are increasingly only made public once they are final – as can be seen with the country program papers of the IGAD Drought Disaster Resilience and Sustainability Initiative (IDDRSI) process that were not released by several member states until final. Several other policies in the region (e.g. the pastoral policy/

Figure 3. The RAPID framework



[4] See Abebe D, Leyland T, Lotira R. 2013. *Evaluation of Community Animal Health Delivery Systems in South Sudan*. OFDA. Kenya, Ethiopia.

code in Uganda) have not been made public, nor has information about the process been released. Instead, it is suggested that the United Nations (UN) and regional economic communities (RECs) who partner with and support governments should promote increased transparency and model desirable practice in their own work. As policy documents are often written in legalistic language, there is also a need to synthesise the implications and key issues for different groups in order for them to be easily understood and engaged with.

There is potential to improve the promotion of knowledge application through the changing policy-making environment in the HoA. For example, under the new Kenyan Constitution, parliament will have a much greater role in policy-making that will necessitate an increased focus on parliamentarians, rather than technocrats in policy advocacy. Subsequently, county governments will have increased power to develop local legislation. Ideally, policies would be analyzed in collaboration with the stakeholders who are influenced, with a focus on the capacity for the policy to address root causes while clarifying the cultural, social, economic and environmental implications.

For practice

Once good practice guidance has been developed, there is a need for raising awareness, implementing training programs and ensuring that donors promote its incorporation in proposals and programs. Although there are a number of learning and capacity development programs (such as CaLP[5] and ECB[6]), very few focus specifically on dryland communities or explicitly incorporate dryland issues.

NGOs with a particular focus and interest in the dryland areas are those that tend to be engaged in discussions and learning groups on good practice. In the case of Livestock in Emergency Guidelines and Standards (LEGS), for example, half-day awareness sessions have been used to sensitize management staff of external organizations, including those at headquarter level, who are then encouraged to send their field staff on the training.

Methods

Many of the methods for communicating knowledge can also develop capacities for greater use, especially if they are focused on how to put knowledge into practice.

Capacity building/empowerment processes
Community development processes that are facilitated by a skilled facilitator/community worker are often the most powerful method of promoting the use of knowledge with communities, as the facilitator can develop capacities, mentor and act as an intermediary.

Training
Training (including workshops) can ensure devoted focus on issues, away from the distractions of daily life, and can be particularly good for developing capacities to apply knowledge, rather than relying solely on information dissemination which can be performed more efficiently in other ways. For example, the LEGS training provides practical exercises on how to navigate the course handbook and apply the guidance and tools within it rather than simply disseminating the content[7].

Face-to-face events have the obvious additional benefits of building relationships and trust between participants who have not previously worked together, and promoting networking for the future sharing of information and insights.

While it is important to ensure training reaches community representatives, front line agencies and government extension personnel, training sessions may need to be shortened and focused in order to maintain the presence of key decision makers such as high-level government officials, as it is often challenging to obtain their participation in such training sessions for an extended period of time due to their busy schedules.

Working/learning groups and task forces
Working groups are a useful way of bringing different actors together for sustained engagement on a particular area of interest. Such groups allow reflection and practical application between interaction, and their success often depends

[5] See http://www.cashlearning.org/

[6] See http://www.ecbproject.org/

[7] See: Practical Action, (2009). *Livestock Emergency Guidelines and Standards*. Practical Action Publishing. Warwickshire. UK

on their leadership, networking ability, effective management and the common interest they provide. For example, under Enhanced Livelihoods in the Mandera Triangle (ELMT), the Natural Resource Management Technical Working Group in Ethiopia was effective in bringing researchers and practitioners together largely due to the respect and the networking ability of its role in leading this group (Nicholson 2010).

Learning visits and routes

It is particularly useful for decision makers to experience the realities of dryland communities through exposure and dialogue. To encourage these activities, opportunities must be created for decision makers to listen, gain insights, explain and then obtain feedback from communities on how the decision makers are acting on the communities' behalf. It is not always possible for high-level decision makers to travel to the more remote areas, for the length of time needed to ensure a genuine understanding and engagement with communities and the diverse groups within them. It is therefore important that agencies empower front-line staff to engage in inter-agency action with local government and community groups, and to then support the outcomes of such actions.

It can also be difficult to assess the impact of high-level visits, although some learning visits do develop action plans and follow up mechanisms, such as the International Land Coalition/International Fund for Agricultural Development (ILC/IFAD) Learning Route. If well executed, these learning routes can provide decision makers and investors with first hand exposure to field realities and community perspectives.

Knowledge platforms and programs

Although there are no clear definitions as to what a knowledge management platform is, examples from the region and beyond suggest that it is a space created for different types of organizations to generate and share knowledge - usually through websites, e-groups, workshops, share-fairs and joint research, among others.

For example, the United Nations Environment Program (UNEP) Asia Adaptation Knowledge Platform claims to help "*developing countries in the region by building bridges between initiatives, researchers, policymakers, business leaders, and those working on climate change adaptation 'on the ground'. The overarching goal of the Adaptation Knowledge Platform is to strengthen adaptive capacity and facilitate climate change adaptation in Asia at local, national, and regional levels. It focuses on three pillars:*

1. *establishing a regional system for sharing knowledge, making it easy to understand and available to those who need it;*
2. *generating new knowledge that national and regional policymakers can use as they plan for climate change; and*
3. *promoting the application of new and existing knowledge."* (UNEP 2013)

The impacts of such initiatives at a regional level should be carefully reviewed, as they do not address all aspects of knowledge management in the drylands of the Horn of Africa and have little potential to respond to communities' knowledge management needs.

It is suggested that a variety of programs on different issues with different actors be supported and interlinked within the region to promote better knowledge management, rather than a single program or platform. These platforms could together become a Community of Practice on Resilience for the Horn of Africa.

Communicating knowledge

Synthesising, packaging, and disseminating information on the drylands has improved considerably in recent years. However, challenges still remain in getting critical information and knowledge to the appropriate people in the appropriate form, and particularly in sharing information with communities and local government. The key challenge is to understand the audience and choose the information, tools and languages that enable an appropriate response to the audience's context and needs. Again, a close relationship with the end users is key, but consulting people who have experience with these requirements is also helpful.

In all cases, capacity development to understand and analyse the implications of new information is important. In relation to promoting information for policy-making and implementation, different types

of information are necessary at different stages – depending on the positions of those involved and what is likely to influence them. Briefs giving options in the earlier stages of policy making are useful, while later in the drafting process more specific recommendations (including language recommendations) may be required.

Packaging information

Briefs

Although the increased use of summary, technical and policy briefs has helped highlight key findings and issues, there is still room for improvement:

- Policy briefs may not be specific or contextual enough to be actionable;
- Technical briefs on approaches may lack evidence or potential for replication and may be too detailed or not locally informed for communities or local government who may need shorter, accurate contextual information;
- Summaries of studies may lack practical recommendations on the use of its findings;
- Policy documents are often written in legal language, motivating a need for analysis briefs that highlight the key concerns and implications of legislation on different groups within the drylands to promote advocacy and engagement. There is also a need for more information on the status of draft policies and their progress.

Good practice bibliographies, principles and guides

Although there are increasing amounts of 'good practice' documentation, few are comprehensively and independently evaluated or tested, often being used as a public relations tool rather than for learning and critical reflection. LEGS, which combined rigorous impact assessment with clear decision-making tools[8], could readily be used as a model for future guidance.

Studies and reports

Most organizations are only prepared to share final, positive and 'approved' studies. This limits knowledge sharing and learning, and precludes input before outputs are finalised. More wikis and consultative processes on draft documents would enrich information and promote ownership and interest. Writeshops or reviews with stakeholders are a specific tool for encouraging this.

Furthermore, organizations and donors should reward self–critical reflection and provide incentives to share. For example, a highly negative report on NGO interventions in Haiti produced by People First Impact Method (P-FiM) was only widely shared after a high-level minister congratulated the NGOs involved for their honesty in the report[9].

Community feedback

Often, studies do not plan feedback mechanisms for the communities involved. P-FiM impact assessments repeatedly highlight the drylands communities' desire for information and that even basic information about critical issues (such as livestock diseases) is not accessible (P-FiM 2013). Feeding of information to local actors, such as local government and other local duty bearers, is also weak. This represents a critical loss in the potential to improve the accuracy of information and promote its use; therefore community feedback should be encouraged by donors and via data-sharing protocols - particularly the sharing of community plans and priorities facilitated by NGOs for that purpose.

Disseminating information

Forms of dissemination have to be chosen carefully as some dryland areas in the region still have no mobile coverage or vernacular radio[10]. Promoting information infrastructure development while exploring the use of additional dissemination forms (such as drama and world space radios) should be considered.

Local information resource centres have not always had the resourcing or the sustained support to make

[8] See Watson C. and Catley A. 2008. *Livelihoods, livestock and humanitarian response: the Livestock Emergency Guidelines and Standards.* HPN network paper.

[9] Gerry McCarthy, P-FiM, personal communication

them successful; however they can be creatively designed to ensure that dryland communities are still able to access the wealth of information available via the internet and other sources. A practical option for pastoral communities would be to have resource hubs associated with trade markets or slaughterhouses.

If carefully used, mechanisms for disseminating information have the potential to generate and enrich knowledge. A greater use of the internet in the form of wikis and online consultation could promote ownership and enrich content for those who have reliable access, although other mechanisms should be designed for those who do not.

Websites

Most organizations have their own websites for disseminating their information. Those that specialize in dryland information include: World Initiative on Sustainable Pastoralism (WISP); Tufts University; ELMT; Kenya Agricultural Research Institute (KARI); Kenya Arid and Semi-Arid Research program (KASAL) and International Livestock Research Institute (ILRI).

In some cases, there is a lack of attention to systematic uploading. Donors need to ensure that their grantees continually share and update information generated by their funds and there should be more efforts by all agencies to do this. While it is recognised that books and academic journals need to cover costs, special arrangements should also be made to ensure that the subjects of research can access the research information, particularly in developing countries.

There are some attempts at combining different information sources in order to provide more in-depth information, such as the Regional Learning and Advocacy Program (REGLAP) and Coalition Of European Lobbies For Eastern African Pastoralism (CELEP). However, these are not comprehensive and not always easy to navigate with poor search facilities and limited thematic organization[11].

E-bulletins and social media

There are an increasing number of e-bulletins that combine sources of information on the drylands of the Horn of Africa, such as the WISP, FAO's Disaster Risk Reduction website and United Nations Development Program Drylands Development Centre (UNDP DDC). However it is unclear how useful this form of communication is, given the continual updates required on new studies and events and given the limited on-the-ground impact of this information.

Social media increases the possibilities for targeted information dissemination and should be further explored and monitored.

E-discussions

While the quality of the interaction depends on generating interest of critical informants and incentives to share, e-discussion groups still have the potential to bring together practitioners, policy makers/advocates and researchers from across the world, to discuss specific issues. Probably the most dynamic and sustained interactive forum has been the CELEP e-list[12] which includes a wide range of practitioners, researchers and lobbyists who share and comment on information on East African pastoralism. Useful technologies for e-discussion and group information sharing and exchanges (such as Dropbox and wikis) are becoming more accessible and accepted.

Workshops/writeshops

Focused workshops have the ability to bring key people together for more sustained engagement, but depend on clear objectives and good targeting, organization and facilitation. They can also be useful in generating knowledge and interest on particular issues. For example, the Futures Agriculture Consortium workshop on the Future of Pastoralism[13] helped enrich and promote the subsequent book: 'Pastoralism and Development: Dynamic Change at the Margins' (Catley et al. 2012). However, it is important that increased focus is given to 'discussion among pastoralist communities' rather than the standard 'discussion about them'.

[10] See *Strengthening information dissemination at community level: A Disaster Risk Reduction and Early Warning Information Perspective, a report to the Kenya Rural Development Program/ASAL DM*. 2012

[11] See www.celap.info and www.disasterriskreduction.net/reglap

[12] See www.celep.info

Writeshops are another way to generate knowledge by combining different perspectives and sources of information, and to promote consensus and common understanding. They can be time-consuming and need to be carefully organized and facilitated. The drought cycle management publications that were produced out of the International Institute for Rural Reconstruction (IIRR)/Cordaid writeshop were instrumental in developing and promoting this approach (IIRR et al. 2004).

Synthesis and gathering of knowledge

Data and information collection in dryland areas face a number of challenges. These areas are often extremely remote, sparsely populated and are increasingly diverse both within and across communities. Some livelihood groups are mobile (sometimes across national borders) and close community and clan ties mean that household units are not as discernible as they are in other contexts, with animals and other resources frequently shared or lent out.

This complexity of relationships underlines the need for a depth of local knowledge and direct communication with communities, as well as the assessment of dryland communities against internal criteria. For example, measurement surveys may assess living standards by an external criterion such as quality of housing, which is not as important for pastoralists as it is for settled populations.

Economic data for pastoral areas is also lacking and again hard to collect, as the informal livestock trade which forms the backbone of pastoral economies does not include standardized mechanisms to monitor herd size or mortality rates, that continually fluctuate due to drought or disease. These data are often not combined with land use/land cover change, weather patterns, or feed availability, etc.

The economic potential of pastoral production systems is increasingly recognised but, again, difficult to quantify. A logical approach would engage pastoralist communities in defining appropriate mechanisms, and thus ensure a detailed dialogue in issues directly affecting their lives and livelihoods.

With indigenous knowledge typically undervalued, community perceptions are not often gathered genuinely, systematically and in a disaggregated fashion. Organizations often collect information in ways that support or rationalize their agendas – such as carrying out needs assessments geared to what assistance the organization can provide, or evaluations focused on organizational activities. There are rarely discussions where communities express their honest opinion about their priorities and activities[14] (REGLAP 2013a). Due to excuses of remoteness and communication in non-local languages, often only leaders or 'pastoral elites' are consulted (Bayer et al. 2002). Poor general education provision and increasing disparities between rich and poor dryland dwellers, results in increasingly diverse views regarding regional priorities and the vulnerable or mobile are less likely to be heard.

NGO and donor research in dryland areas is often carried out by generalist consultants, rather than specialist researchers or a combination of mixed specialities. It is important to make sure that when rigorous research is needed, rigorous methodologies are applied, while ensuring the local context and perceptions are understood and integrated in the resulting information.

There is often a lack of participatory, results-oriented monitoring and evaluation approaches, particularly regarding impact assessments. Outcome mapping and evidence of change monitoring[15] approaches have the potential to track change in a complex and dynamic environment, but need to be complimented by more rigorous impact assessments particularly in relation to resilience.

Identification of critical knowledge needs

Defining research agendas is often done with little reference to the end user or without a clear strategy to promote its use. NGOs or donors often carry out

[13] Held from 21 -23 March 2011, Addis Ababa, www.future-agricultures.org

[14] Exceptions include the P-FiM impact assessment ref and truly participatory evaluations where community members who are trusted by the communities collect opinions of community members.

research for their own internal program purposes or to have their own perspective, working in isolated disciplines, but may not share that information for wider use or input until published.

Research institutions linked to implementation and policy-making processes are more likely to ensure that their research responds to user needs and priorities and has a practical application. As research institutions are generally better at research, and practitioners are better at implementation, partnerships between the two are likely to be mutually beneficial. For example, Pastoral Livestock Initiative (PLI), Index Based Livestock Insurance (IBLI) and Milk Matters have all combined rigorous assessments with practical application as a result of partnerships between NGOs and research organizations. This is increasingly becoming the trend as investments are tied to impacts.

Some of the critical information needs that are lacking in dryland areas (e.g. reliable, basic human and livestock population statistics) are seen as the sole domain of government statistical agencies, and other organizations are reluctant to address them. This is partly due to the fact that this kind of data is highly political, as it is used to define political constituencies and ethnic population data. Thus some of the most basic information is lacking despite the fact it is essential in proper planning and understanding of priorities for the drylands. By addressing such challenges on an inter-agency basis with communities fully engaged, these sensitive issues can be raised, discussed and addressed - making it difficult for any one group to abuse or politicise the issue or results for their own gain. Joint data portals in which different types of data can be combined would be very useful in this regard.

There is generally an over-emphasis on explicit knowledge within formal research rather than the intrinsic forms of knowledge that are essential in understanding the complexity and dynamism of these areas. Understanding perceptions of different groups within communities is essential in determining how development interventions are designed and received, and how external information is used. Where policy-making processes are essentially political, understanding the power of key actors and how to engage with them is critical in ensuring positive influence over the key actors and the integration of evidence-based information in their decision-making. However, despite lip service to public consultation, information about processes or even draft policies or strategies is rarely documented or made publically accessible by governments and other institutions, and those people with influence over decision-making already have the power to gain insights into policy-making processes. For example, information on content and the process of the pastoral policy in Uganda was not available until recent discussions facilitated its possible combination with the Rangeland Management Policy (IIED, 2012).

Monitoring and evaluation (M&E) can contribute critically both to knowledge generation and learning, as well as being a tool of performance management and the promotion of accountability (UNICEF 2008). Good M&E processes should engage all stakeholders and trigger reflection, learning and, ultimately, improved impact. Unfortunately in many organizations, M&E has become a procedural, compliance issue carried out to fulfil donor requirements within a narrow focus on outputs. In this case, achievement is measured in terms of process indicators and there is little focus on project impact and even less on organizational impact and how communities perceive that impact.

Current funding regimes mean that funding for M&E is linked to project budgets and timescales. Many NGO projects in the drylands are based on short term funding cycles (6-18 months) and are for narrow, donor-determined activities that neither respond to community priority needs nor are able to address the underlying causes of vulnerability. NGOs are aware that these types of activities are unlikely to lead to significant impact and are thus reluctant to carry out rigorous impact assessments or share information about impacts that may have negative implications for future funding allocations. For example, in the four phases of the European Commission Humanitarian Aid and Civil Protection Department (ECHO's) regional drought decision-

[15] See '*Evidence of Change and Outcome Mapping as Learning Approaches to Monitoring and Evaluation*' (http://www.elmt-relpa.org/FCKeditor/UserFiles/File/elmt/200912/Evidence%20of%20change%20approach_final%20draft.pdf)

making projects, there has never been a rigorous independent evaluation of impact - despite the 70 million Euro investment (Raven-Roberts et al. forthcoming).

As with development interventions in the drylands, there is often a lack of co-ordination of research and data collection. In an increasingly competitive environment for donor funds, NGOs are developing their own resilience frameworks and documents, rather than promoting collaboration and joint understanding, and are often motivated to engage in research in order to keep ahead in new debates or donor interest. This means that information is unlikely to be shared for all who could act on it; furthermore, the same information is re-produced by different organizations, wasting opportunities and resources.

There is an additional lack of coordination between existing and new agencies in the region. The mounting focus on the drylands by humanitarian agencies, due to repeated crises, has meant an increase in organizations and individuals implementing projects in the region that have little knowledge or experience of working in these contexts. For example, in the 2011 drought in Kenya, much of the poor practice in water development (excessive water trucking, inappropriate borehole development) was carried out by agencies new to the area. Even existing agencies can lack regional context if they have little institutional memory to learn from the strategies and experiences of the past.

Additional failures include the various failed attempts to promote crop production in arid areas, the introduction of improved livestock breeds and business development by NGOs, as well as poor water development that has encouraged land fragmentation degradation (Flintan 2011). Because such poor practice and failures are rarely documented, these mistakes are regularly repeated by NGOs and governments.

Assessing capacities for knowledge management in the region

Given the plethora of actors engaged in knowledge management in the drylands, it is important to review the capacity of existing structures and actors, and to examine the extent to which it is possible to strengthen their capacities rather than create new structures and programs, particularly given the time it takes to establish initiatives and the relationships and respect for their effective functioning. It is particularly important to identify actors that are effectively building community and government capacities in knowledge management, so that scaling-up can be promoted and advanced.

Ramalingam (2006) outlines 5 competencies with associated criteria that are useful in assessing institutional capacities for knowledge management and learning, an example of which is given in Figure 4. The criteria are also useful in providing benchmarks and indicators for strengthening capacities in knowledge management, although they need to be extended to the ability of organizations to promote knowledge management capacity externally, particularly with communities and governments.

Governments

Knowledge management within the region's government is poorly resourced and generally weak in relation to all 5 competencies listed in Figure 4. There is often low capacity and a weak culture of sharing or communication. Sectoral ministries rarely have dryland information or understanding and the dryland-focused ministries often lack the capacity or political influence to promote an understanding of dryland issues across ministries. Knowledge

Figure 4. Knowledge management competencies and example criteria

COMPETENCY	CRITERIA FOR MAXIMUM SCORE
Strategy	Knowledge and learning are integral parts of the overall organizational strategy. A set of tools is available and well communicated, and the capacity to apply them is actively strengthened.
Management techniques	Managers and leaders recognize and reinforce the link between knowledge, learning and performance. Managers regularly apply relevant tools and techniques, and act as learning role models. Staff terms of reference contain references to knowledge sharing and learning.
Collaboration mechanisms	Collaboration is a defining principle across the organization. A range of internal and external collaboration mechanisms operate, with clearly defined roles and responsibilities in terms of the organizational goals. Some have clear external deliverables while others develop capability in the organization.
Knowledge sharing and learning processes	Prompts for learning are built into key processes. Program staff routinely find out who knows what, inside and outside the organization, and talk with them. A common language, templates and guidelines support effective sharing
Knowledge capture and storage	Information is easy to access and retrieve. Selected information is sent to potential users in a systematic and coherent manner. High priority information assets have multiple managers who are responsibility for updating, summarizing and synthesizing information. Exit interviews and handovers are used systematically.

management functions are divided or not clearly assigned. For example, in Kenya both the National Drought Management Authority Kenya (NDMA) and the Arid and Semi-Arid Lands (ASAL) Secretariat have knowledge management functions, however it is unclear how they relate. Neither has a dedicated website, and that of the former Ministry of Northern Kenya and other Arid Lands[16] is not easy to navigate and does not contain a document library. There are some more progressive attempts at improving knowledge management in the Kenyan Government and relating this to other stakeholders, through the establishment of the ASAL Stakeholder Forum and the further establishment of partnerships with research institutions including IIED and ILRI, as well as with CSOs.

Understanding the drylands and developing processes that adapt to the differences of dryland populations presents a major challenge to Government in the region. As Green (2012) states:

"Pastoralism, with its strong emphasis on family and clan loyalties, and on common, rather than individual, ownership of land and forests, throws down a profound challenge to many of the assumptions that underlie 'modern' governance. Whether such visions can co-exist is a test of the ability of governments and societies to recognise and encourage pluralism, rather than uniformity."

This will involve adapting procedures to cope with the drylands and building capacities across government ministries. For example, although it is laudable that the Kenyan Ministry of Foreign Affairs sent round the newly signed AU Pastoral Policy Framework to all ministries instructing them to institutionalise it, it is unlikely that such directives will result in action unless there is an understanding of dryland issues and capacities within each ministry. Similarly, 'the right to information' by all citizens has been provided for in the 2010 Constitution[17], although what information and how this will be disseminated is still unclear.

The increasing number of government partnerships with researchers, NGOs and the private sector offers much potential to improve knowledge management. The partnerships between the former Ministry of Northern Kenya, NGOs and the private sector in the Northern Kenya Investment Fund led to an increased understanding of the constraints to private sector investment in the region (REGLAP 2012).

The Ethiopian Government, with its stronger co-ordination mechanisms, has made some significant achievements in generating knowledge and promoting its use in dryland areas in partnership with other organizations. The National Livestock Policy Forum in Ethiopia, under the Ministry of Agriculture and Rural Development and with support from the Pastoral Livelihood Initiative and Tufts University, developed and promoted the National Guidelines for Livestock Relief interventions in pastoral areas of Ethiopia. The Agricultural Task Force, under the Disaster Risk Management and Food Security Sector (DRM FSS), is continuing similar work in Ethiopia, through promoting the use of crisis calendars to determine appropriate interventions in the drylands.

Building the capacity of local governments, agencies and communities to implement programs effectively and engage in productive knowledge management is an area poised for improvement. Local government offices in remote parts of the drylands are often poorly staffed and resourced and staff may not be from the areas where they work[18].

Attracting and retaining staff with good knowledge management skills is difficult. Furthermore, local government offices are technologically ill equipped to undertake significant data collection, management and analysis. Consequently, locally collected data is often sent for analysis or verification at a national level, as was the case with the Drought Early Warning System (DEWS) data in Uganda[19]. Improving local stakeholders' abilities to better manage local information and knowledge can

[16] See http://www.northernkenya.go.ke/

[17] See http://www.kenyaembassy.com/pdfs/The%20Constitution%20of%20Kenya.pdf

[18] 70% of government staff in North eastern Kenya are from outside the area, Government of Kenya, Vision 2030 Annex.

[19] See *The Early warning stage classification: a tool to enhance the efficiency of the Karamoja Drought Early Warning System*, in REGLAP Journal 2012:3

significantly improve analysis and decision-making. Thus an important area of research is determining the minimum structures and core capacities needed for a local government to run effectively, particularly given decentralization and the resilience agenda's requisite of streamlined, multiple planning processes for disaster risk reduction (DRR), climate change adaptation (CCA) and development actions.

Practitioners and policy influencers

Practitioners and policy influencers include a wide range of non-governmental organizations, civil society groups, donors, and UN agencies. Their capacities for knowledge management both internally and externally vary widely, although often capacity development for local organizations is weak in the region. In addition, there is a lack of attention to building institutional knowledge systems to ensure that learning is not lost either due to staff turnover or when projects and programs phase out.

Donors are therefore increasingly promoting consortiums for knowledge sharing and management, made up of a number of partners and partnerships between agencies, although these do not necessarily lead to improved inter-agency knowledge management unless the time and resources are put in place (Fowler, et al. 2010). Increasingly, UN agencies compete with NGOs for implementation and advocacy funding, even though their comparative advantages are different - UN agencies are often better placed for government capacity development and soft influencing, while NGOs are better at more direct advocacy and public awareness raising. Instead, organizations should play to their strengths and pro-actively complement one another's roles, rather than compete with one another.

Regional organizations

Regional organizations have the potential to share regional knowledge and promote the management thereof, although increased clarity is needed on what should be tackled at a regional level, rather than at national and local level.

There are a number of knowledge management platforms led by regional organizations that should be reviewed for their impact and lessons learnt, such as the Livestock Policy Initiative (LPI) and African Union/New Partnership for Africa's Development (AU/NEPAD. From LPI, it was felt that information dissemination alone was not enough to change policies and, in future, more practical, context-specific information needs to be fed to key decision-makers in strategic ways in order to have influence[20].

The development of the AU Pastoral Policy Framework involved many organizations and much reflection on evidence and good practice. The process of development and consultation with many experts and community representatives took over 3 years. However, once passed, there was no dissemination or roll out and, nearly two years after the ratification of the Framework by national governments, virtually no impact has been seen (REGLAP 2012).

It is important to ensure that such processes are not wasted and that implementation of existing policy frameworks is followed through, as well as ensuring that there dryland issues are mainstreamed into other relevant processes and fora (e.g. AU inter-ministerial meetings etc.).

Research institutions

There is a wide range of national and international research bodies operating in the Horn of Africa that are focused on different issues relating to the drylands, although not all specialise in the drylands nor have a comprehensive understanding of those issues[21].

Local universities undertake research and may partner with international universities elsewhere, although many international organizations continue to carry out research in the region directly. With the exception of the few practice- and policy-oriented research institutions (such as Tufts University, Overseas Development Institute (ODI), International Institute for Environmental Development (IIED), and Institute of Development Studies (IDS)), the universities tend to be knowledge-generation

[20] As per an interview by the author with ex LPI staff member.

[21] Through the Consultative Group on International Agricultural Research, a new CGIAR Research Program (CRP 1.1) focused on Dryland Systems has been developed.

focused and could benefit from more partnerships with communities, practitioners and advocacy organizations.

The private sector

There is wide recognition that knowledge management is key to maintaining a critical edge within the private sector; as such, there is likely to be limited interest within the sector for wider knowledge sharing. However, there is very little understanding of how to engage with the drylands' private sector in knowledge management, with regards to what information they have and are willing to provide and what information they need.

One exception is the preparatory work for the Northern Kenya Investment Fund, carried out in conjunction with the former Ministry of Northern Kenya and other Arid Lands (MNKoAL) with support from ELMT and FSD. A scoping study on the constraints to investment in northern Kenya included interviews with major financial institutions to explore their views on investment in the region[22]. The findings were revealing: many of the constraints identified related to myths, misconceptions and a lack of information, rather than real barriers. For example, one person interviewed knew "nothing about that region".

Clearly information on regional opportunities for investment is key, although more needs to be understood on the potential of socially beneficial models to inform private sector investment.

In the design of the Northern Kenya Investment Fund, one of the key constraints to setting up business was the lack of information on permits required. The system within Kenya is so unclear that it was decided that having a Unit within the former MNKOAL to provide information and clarity on the issuing of permits was necessary for the investment fund to be viable.

The costs of collecting information in dryland areas are relative high; this may be an area in need of subsidy, in order to promote new investment as well as an understanding ex ante the likely social and environmental impacts before and after investments.

With increased interest in private sector by NGOs, learning from the past and identifying and evaluating models that work need to be further assessed. An example are shared risk models to promoting investment in dryland areas, such as Vétérinaires Sans Frontières (VSF) Suisse's encouragement of private vet drug suppliers to supply dryland areas (VSF-S 2010).

The new interest in contracting out knowledge management services to private sector companies (such as the use of KIMERICA in USAID's new Pastoralist Areas Resilience Improvement and Market Expansion (PRIME) program) will provide an opportunity to learn whether their specialization as a knowledge management facilitator outweighs the potential disadvantages of being neither an implementing agency nor an advocacy or research organization.

Communities

Communities (and particularly the most vulnerable within them) lack the education, information and capacities to access and use external knowledge. Despite this, there is evidence that they are extremely adept at using their existing resources, social networks and organizations, for generating and passing information (e.g. scouts collecting information on rangeland condition) and adapting to new opportunities (e.g. by extensive use of mobile phones for passing information)[23]. Much more attention needs to be paid to having community organizations and networks central to knowledge management efforts.

[22] See Pipal and Reform Consultants. 2010. *Expanding investment finance to Northern Kenya and other Arid Lands: Market assessment, Task 1/phase III*.

[23] See *Strengthening information dissemination at community level: A Disaster Risk Reducation and Early Warning Information perspective*. A report to the Kenya Rural development Program/ASAL PM. 2012.

Key regional experiences in Drylands knowledge management and research

The following is a summary of some significant regional initiatives relating to the drylands in the Horn of Africa, that are worth drawing on for lessons learnt in the development of an effective knowledge management program. The initiatives mostly incorporate more than one element of knowledge management and promote partnerships with different types of organizations, although very few explicitly develop knowledge management capacity for communities or local government. It would be advisable to carry out a fuller review of lessons learnt from these initiatives and the capacities of the organizations involved to strengthen, link and broaden initiatives. Country-specific experiences should also be systematically reviewed for their regional lessons learnt and potential to strengthen national and local knowledge management. Good practice examples of developing community and local government capacity should be identified and shared.

The Livestock Emergency Guidelines and Standards (LEGS) [24]

From early 2000, various agencies and individuals involved in livestock relief work began to question the quality and professionalism of their interventions (LEGS, 2013). This led to a process of bringing practitioners, researchers and experts together to define good practice based on rigorous impact assessments resulting in a single set of international standards and guidelines for livestock emergency interventions, linked to the "Sphere Standards"[25]. The guidelines were first published in 2009 and were followed by the development and roll-out of a training program for practitioners and trainers, and the establishment of a network of interested practitioners who continue to reflect on the guidelines and feedback to the LEGS project.

One of key factors in the success of LEGS was the process of engaging a wide range of actors both in the multi-agency steering group and in the development of the content. The steering group consists of practitioners, researchers, donors and policy influencers (FAO, International Committee of the Red Cross (ICRC), VSF, Tufts University, DfID and the AU) and is not owned by a single institution. The consultations among a range of other actors in the development of the guidelines led to its enrichment and ownership at an early stage.

Organizations not involved in the development of the guidelines are encouraged to send staff for training during half-day awareness raising sessions with managers and head quarters staff, while the 6-day training of trainers selects people that are likely to train others and focuses on the practical application of the guide.

Challenges have included obtaining rigorous impact information, particularly outside the HoA region, and resisting requests to make the guidelines broader, both sectorally and for the development phases of the disaster cycle.

The guide has been widely disseminated and adopted by practitioners and policy makers. It has been promoted by a range of donors including FAO and ECHO and has been adopted and promoted by governments including the Government of Ethiopia,

[24] Information additionally sourced from an interview with a LEGS co-ordinator

[25] The Sphere Project is a Humanitarian Charter and set of minimum standards of humanitarian response. See http://www.sphereproject.org/

who contextualized the guide by developing its own 'livestock in emergency' guidelines with the support of Tufts University and PLI.

LEGS is an appropriate model to address the need for more practical and evidence based guidance, however it is suggested that it would be simpler to focus these guidelines (at least initially) solely on the Horn of Africa, because of the similarities therein in terms of livelihoods and policy environment.

The Livestock Policy Initiative (LPI) [26, 27]

The IGAD Livestock Policy Initiative (LPI) was operated through the Food and Agriculture Organization (FAO), with the financial support of the European Commission from 2005 to 2011. The overall objective of the IGAD LPI was to enhance the contribution of the livestock sector to sustainable food security and poverty reduction in the IGAD region. Its purpose was to strengthen the capacity in IGAD, its member states and other regional organizations and stakeholders, to formulate and implement livestock sector and related policies that sustainably reduce food insecurity and poverty.

The LPI had a Program Management Unit (PMU) based in Addis, which oversaw the process and contracted a number of high quality studies, provided technical advice, trained staff in synthesising information for policy makers and organized high level workshops.

Livestock policy hubs were created in each of the member states, which were multi-disciplinary groups including researchers, private sector, senior policy makers and NGOs. The hubs focused on two issues:

1. Ensuring livestock issues were appropriately represented in national poverty reduction strategies, which later became various national development plans; and
2. Developing country positions to feed into the regional policy on animal health and trade, which was eventually adopted by IGAD member states.

The hubs also created national information nodes in order to screen and summarise policy-relevant information from studies and upload it onto a regional website, run by the Program Management Unit (PMU).

The program was absorbed by IGAD in 2011 as part of the IGAD Centre for Pastoral Areas and Livestock Development (ICPALD).

To date, there has not been a formal evaluation or joint reflection on lessons learnt from the initiative. Such a review would be of great value to subsequent initiatives. It became clear through the process that policies are not always based on evidence and there is a need to actively feed information to policy makers who have little time to read even synthesised summaries, and this requires strong staff who can engage effectively with high-level decision makers.

The AU Pastoral Policy Framework [28]

The AU Policy Framework for Pastoralism was developed over a 3-year period with extensive consultation with experts, governments, RECs and pastoralists themselves (REGLAP 2012a). It was overseen by a technical committee made up of key experts on pastoralism from throughout the continent. It was eventually approved by Head of States in January 2011 and represents a comprehensive and well-researched document that holistically addresses the many challenges confronting African pastoral communities.

Despite the time and resources put into the process, there has been little progress on the roll out or monitoring of the document's implementation, with little evidence of adoption and integration into national policies.

[26] See http://www.disasterriskreduction.net/fileadmin/user_upload/drought/docs/IGAD%20LPI%20Project%20Commn%20FSTP%20Abdi%20Jama%20(3).pdf

[27] This information was also sourced from an interview with a former LPI staff member

[28] See http://rea.au.int/en/sites/default/files/Policy%20Framework%20for%20Pastoralism.pdf

During 21-22 August 2012, the AU's Department of Rural Economy and Agriculture (the frameworks current custodian) organized a stakeholder meeting to present the proposed Pastoralist Policy Implementation framework and a mechanism for stakeholder participation; and to validate the draft Institutional and Resource Mobilization Strategy Framework. However, little has happened to date.

Regional Pastoralism and Policy Training

As a partnership between IIED, Tufts University, RECONCILE and MS-TCDC, the Regional Pastoralism and Policy Training aims to bring the evidence base to policy makers and practitioners via 2-week trainings on pastoralism and policy options in East Africa. The course was given at MS-TCDC in Arusha for NGOs and governments and is being adapted in Ethiopia into a shorter course for government officials. However, it has yet to be systematically rolled out in other IGAD countries.

The course is currently under review to update its content and method of delivery in the light of the changing circumstances in policy at regional and national levels in Eastern Africa and the Horn of Africa.

The Coalition of European Lobbies on Eastern African Pastoralism (CELEP)

CELEP is an informal advocacy coalition of European organizations, groups and experts working in partnership with pastoralist organizations, groups and experts in Eastern Africa (CELEP 2013). The Members of the Coalition work together to lobby their national governments, EU bodies (Council, Parliament and Commission) as well as other policy formulating bodies/agencies in Europe (e.g. the European Headquarters of the United Nations in Geneva and the Food and Agriculture Organization in Rome) to explicitly recognise and support pastoralism and the people that practise pastoralism in the drylands of Eastern Africa.

CELEP has an extensive membership of European and local organizations, and a vibrant e-list where documents are shared by researchers, practitioners and key issues discussed by its members. The CELEP website is well developed having links to members' websites and information on specific issues. The network has shared information extensively and has carried out focused policy advocacy within the EU.

The Enhanced Livelihoods in the Mandera Triangle (ELMT/ELSE) Program

The Enhanced Livelihoods in the Mandera Triangle (ELMT) Program was the regional successor of the first phase of the Pastoral Livestock Initiative (PLI 1). It was also funded by USAID and took place in Ethiopia from 2004 to 2007 (ELMT 2013).

ELMT was implemented from 2007 to 2010 by a consortium of international NGOs and local partners in the Mandera Triangle, the cross border area between Kenya, Ethiopia and Somalia. It was the central piece of a larger program: the Regional Livelihoods in Pastoral Areas program (RELPA) which supported the CAADP process and Tufts University to promote livestock and pastoralist issues within the CAADP process.

A significant amount of information was generated based on the knowledge and experiences of both indigenous communities, NGOs and government partners, including assessments of activities, the consolidation of lessons learnt, the testing of new approaches and processes, and the development of solutions or recommendations. Use of its information products were posted on a website, including newsletters, monthly e-bulletins, technical briefs and good practice bibliographies. Its website was handed over to the RECONCILE-led Horn of Africa Pastoral Network (HoAPN) which is now defunct, although discussions on regional CSO networking and advocacy are still led by RECONCILE.

The project promoted sharing of information as well as partnerships between practitioners and research organizations (e.g. VSF Suisse and KARI on fodder production and camel health and husbandry) and links between the Government and private sector (such as the scoping studies for the Northern Kenya Investment Fund) as well as consultations with pastoral representatives regarding the former Ministry of Northern Kenya's mandate, and a region wide-livestock marketing symposium that brought together over 200 stakeholders from Government,

the private sector, practitioners and research organizations (Nicholson et al. 2010).

Regional Learning and Advocacy Program (REGLAP) on vulnerable dryland communities

REGLAP (previously the Regional Pastoral Livelihoods Advocacy Project) is funded by ECHO and aims to reduce the vulnerability of pastoral communities through policy and practice change in the Horn and East Africa (REGLAP 2013b). It is a consortium currently consisting of CARE, Cordaid, Dan Church Aid, Oxfam, Save the Children and International Union for the Conservation of Nature (IUCN); in the past, it has also partnered with RECONCILE, VSF Belgium, ODI, IIED and national CSO networks.

REGLAP produces a number of good practice technical briefs and principles from various ECHO funded partners in the region, in order to disseminate good practice and learning from program implementation. Along with a webpage, it also produces a bi-annual journal that brings in external good practices as well as summaries of key documents, on-going research and key statistics.

REGLAP has recently established regional learning groups led by individual consortium members, focusing on community-based approaches to DRR, water development for DRR, and strengthening evidence base for DRR advocacy. REGLAP regional learning groups also carry out advocacy on key resilience issues via country advocacy groups.

REGLAP has also carried out some widely quoted studies and briefs, and advocates for more rigorous impact assessment and evaluations among partners. However, as part of an ECHO funded program that operates in 18-month phases and supports a number of international NGOs to carry out short term DRR interventions, REGLAP is limited in its scope and reach (REGLAP 2012b, 2013a).

ILC/IFAD Learning Initiative: Making Rangelands Secure [29]

This regional learning initiative aims to improve understanding on how rangelands can be better protected for local rangeland users, including pastoralists; and how such security can better contribute to development processes under the influence of increasing and new challenges. It runs from 2010 to 2013 supported by the International Land Coalition (ILC), and its partners include IFAD, Procasur, RECONCILE and WISP.

The main learning components are:

- **Learning routes** to communities or organizations that have different experiences on securing rights to rangelands. The participants are drawn from governments, development agencies and CSOs largely from the East Africa region, who are selected for the potential to use the experiences and lessons gathered from the learning route in their work and organizations.
- **Influencing 'soft' advocacy and building of a 'critical mass'.** The initiative focuses mainly on three countries – Kenya, Ethiopia and Tanzania (though activities in other countries will also be supported). Through the different activities/components of the learning initiative, this critical mass is growing - reflected by a mailing list of over 400 individuals from governments and NGO/CSOs, among others.
- **Cross-organizational learning.** This includes supporting a learning visit for NGO/government staff from Ethiopia, Somaliland and Uganda to Niger; documenting and resource support to Oxfam Ethiopia for a series of meetings on land issues for government staff; providing resources and research support to RECONCILE for documenting experiences on securing rights to rangelands in order to influence Kenya's Community Land Bill; and supporting a pilot activity for mapping livestock corridors in Tanzania with the Ministry of Livestock Development and Fisheries.

[29] Based on information provided by technical advisor to the project.

- **Documentation.** The learning initiative is producing a series of publications that share experiences and lessons learned in different formats including input from those who have participated in the learning routes and other program activities.

The learning initiative has an Advisory Committee of around 15 members from different organizations working on land issues in rangelands. This includes members from the AU (African Union), research-oriented organizations, development agencies and NGO/CSOs. The involvement of these individuals (targeted for their position in organizations of influence and their expertise/experience) is also seen as an entry point to some of the member organizations. The initiative is in its early stages and will need further monitoring and evaluation to assess impact and lessons learnt.

Key research and knowledge management gaps identified in the other IDDRSI technical briefs

A summary of the recommendations from the other IDDRSI sectoral Technical Briefs for knowledge management and research is provided below. The summary focuses predominantly on research gaps; there is a need for further prioritisation and discussion on how these fit within a broader knowledge management agenda. This agenda also needs to be developed with input from communities, member states, IGAD and development actors so that it is owned and acted upon in future. REGLAP's prioritisation of research gaps (see Annex 2) could be used as a discussion document with a range of actors to promote consensus and the filling of key research gaps.

Livelihoods and basic services

- More clarity and agreement between all relevant actors, governments, NGOs researchers on appropriate models for basic service provision - especially around education and livestock health where there is an insistence by government of adherence to national standards, but no provision of these standards in dryland areas.
- Frameworks that promote clearer evidence-based priorities for development in dryland areas and holistic approaches that address vastly differing dryland environments, drawing from innovation and including information on non-traditional actors such as the private sector.
- Overall, M&E is required to identify the aspects of integrated programs that are working and those that are in need of revision for the overall success of development efforts.

Markets and trade

Land use research to help make informed decisions about land use management plans, as well as local knowledge about livestock trekking routes, animal grazing and watering paths, cultivation zones and market access routes.

NRM

- A full resource inventory of rangelands and natural resources as a basis for making strategic and participatory decisions on land use planning, management and development, and how pastoralism can best be supported and integrated.
- Research and knowledge-sharing on technologies that increase or maintain productivity and enhance the natural resource base, and on ecological services provided by agriculture systems.
- An agreed system for both assessing and taking into account the value of environmental goods and services and the associated opportunity costs, to be better incorporated in investment decision-making.
- Promotion of available technologies and institutional co-ordinated arrangements to overcome water shortages.

Disaster management

- Initiatives to promote understanding and use of early warning information.
- Promote better and more specific response

analysis, together with early warning information

- Ensure that decision-makers and households in the affected areas have access to early warning information.
- Promote preparedness and action, well before the emergency unfolds.

Conflict

- Comprehensive conflict analysis with rigorous evidence that accounts for governance institutions and policy, divisive political processes relating to valuable economic resources such as land, and the citizen–state contract.
- More in-depth research and analysis on how states and traditional institutions can better cooperate and work toward a common vision in the pastoral areas of the region.

Towards a regional Drylands management program

Any new program for knowledge management needs to include a more systematic review of the impact and lessons learnt of past initiatives, as well as the assessment of available capacities - particularly in relation to communities and governments. The level at which different interventions are best carried out should be further explored, as interventions are primarily needed at local, then national and only sometimes regional level. Sustained support should address all aspects of knowledge management, with a particular focus on the weaker areas. It is unlikely that one program will address all these issues; preferably, different initiatives should emerge with a common understanding of knowledge management and the vision and strategies required to strengthen and link the various aspects.

There are a number of areas that should be prioritised in such a review:

- Lessons learnt from the Livestock Policy Initiative and other IGAD/REC knowledge management programs.
- Understanding of member states' own knowledge management systems and how focal points for drylands information can relate to and build the capacity of other line ministries and local government, to respond better to dryland issues.
- Good practice in building knowledge management capacity of communities and government.

There are other areas of work that are clearly needed in strengthening knowledge management in the region, including:

Knowledge generation/collation

- Support national statistical offices' use of more appropriate methodologies to **collect reliable basic data for drylands areas**.
- Support ministries of planning to ensure that **community priorities are collected and fed into planning processes**.
- Encourage more **evaluation and impact assessment of potential good practices**, particularly any innovative approaches and those focused on community empowerment, local government capacity building and private sector engagement.
- Promote **evidence-based good practice guidance on key areas** of intervention - particularly water development, rangeland health, livestock marketing etc. This could be based on the LEGS approach, engaging different types of organizations and grounded on rigorous impact assessments. To maximize practical application, it is recommended that these guides focus on the Horn of Africa with country contextualisation where possible.
- Promote discussion and understanding around **the concept of resilience and how to measure it**. This should include open discussion on the usefulness of the concept, the relative importance of its components and cost effectiveness. Further work is likely in developing national indicators for resilience and ensuring that the national statistical offices and ministries of planning have capacities to collect and use information in planning.
- Promote **more consensus on key knowledge gaps** with all actors, and promote more action-oriented research.

- Keep a **public database of on-going research, with contact points** at national and regional level so that possibilities for addressing key gaps and collaborative research can be promoted and shared. This will ensure that research efforts are not duplicated (see Annex 1).
- **Promote learning and sharing cultures within all organizations, including NGOs and development partners**, and guarantee that honesty and critical self-reflection is rewarded.

Knowledge dissemination

- **Drylands in the Horn of Africa website.** Link the various nodes of information on drylands resilience into one website, to ensure that the information is easily accessible. This will require within the website links to other sites and effective search facilities, as well as a comprehensive good practice bibliography of key documents and key statistics on dryland areas that should be continuously reviewed and updated (see Annex 2 and 3 for examples).
- **Promote sharing of information by all organizations.** Ensure all information generated by any knowledge program is uploaded onto publically accessible websites. Promote data-sharing agreements with all institutions, including donors, and provide grants to local research organizations and governments to upload all relevant documents systematically.
- **Support governments to disseminate information to communities and regions, particularly around draft policies, processes and budgets, and encourage consultation**. Promote public information on budget allocations and plans, and strengthen transparency and accountability mechanisms for all activities in the drylands.
- **Disseminate information on the IDDRSI process.** Ensure all information about the IDDRSI processes is publically available, including draft plans, strategies and budgets for community input and monitoring.
- **Community information provision.** Increase attention to the provision of critical information to communities, and to addressing their information needs in more appropriate forms. Promote community input into knowledge generation including more marginalised groups and build capacities and opportunities to use information.

Promoting the use of knowledge

- Support the revision, contextualisation and **roll out of pastoral policy training** for all government decision makers so that it deals with changing realities and is made as context-specific as possible. Develop similar modules on the evidence base regarding good and bad practice in dryland development for practitioners.
- Carry out **update workshops with government officials** to review new evidence and identify implications for policy implementation and prioritisation.
- Support the **roll out and monitoring of the AU Pastoral Policy Framework** at regional and national levels.
- Build the **capacity of community members and champions** to understand and engage with policy process and hold duty bearers to account.

Encouraging joint decision-making

- Support stakeholders across all levels to **clarify and agree on desired outcomes**.
- Ensure knowledge management components (including evidence and experience based information, knowledge and wisdom) are available to **support transparent and informed joint decision-making processes**.
- Jointly identify decisions to be taken to achieve the desired outcomes and **test those decisions against a set of commonly agreed criteria**.
- Use **effective monitoring systems to rapidly provide feedback** on whether the decision taken is leading to more resilient outcomes.

Conclusion

Knowledge management has emerged as a new science that integrates the relevant intelligence across the data-to-wisdom continuum from available sources, resource persons and institutions and "enables individuals, teams and organizations to collectively and systematically create, share, learn and apply knowledge to better achieve their objectives"[30]. It is a structured process of learning for action and is far broader than knowledge generation or information/data management. Thus, improvements in knowledge management to increase resilience in the drylands of the Horn of Africa will require a much more synergistic, systematic and holistic approach, rather than simply an accumulation of more data, additional research, or information dissemination mechanisms.

This paper, as well as the other Technical Briefs in this series, have identified a number of significant gaps that need to be addressed within a collective and systematic approach, including such elements as census information, impact assessment mechanisms, coherent guidance on adapting good practice to specific contexts, intrinsic knowledge capture (including bad practices and past failures), and the positive and negative policy implications and outcomes of related decision-making processes, investments and budgets.

Alongside these, an important area within the knowledge management learning process which requires support is the increase of community capacities (and the most vulnerable within them) to access, use and add value to knowledge, to advocate to decision makers and hold duty bearers accountable for positive change. This is far more about strengthening governance than the development of further user-friendly information. Inclusive and transparent governance and decision-making is ultimately what is lacking in the drylands of the Horn of Africa. Its focus within a robust resilience agenda is critical in determining whether increased attention to the concept will be authentic and represent a new departure in long-term understanding and support of a resilient drylands program, or if it will maintain drylands vulnerability and perpetuate a lucrative aid industry.

This paper has mapped and reviewed a number of existing knowledge management components and tools that can readily be incorporated into an overall knowledge management approach for the HoA. Knowledge management in the Horn of Africa provides an ideal opportunity to bridge research, practice and policy in a coherent and co-learning way focused on achieving outcomes and taking those outcomes to scale.

The critical next activity should be to invest in a more formal mapping and expert consultation to develop a flexible, open and coherent knowledge management framework within the context of desired outcomes and priority decisions - underpinning it with those relevant existing efforts and lessons for continued improvement. This will entail integrating what has worked in the past and what may work in the future, taking advantage of new technologies for rapid knowledge exchange as they become available.

A related effort to build upon is to ensure that existing investments, in the development of the Technical Briefs and the Country Program Papers, continue to use the latest evidence and experience to inform the priorities, demands and decisions of the countries in their programming. Another immediate opportunity is to work closely with the Resilience Learning

[30] http://www.knowledge-management-online.com/what-is-Knowledge-Management.html

Project that USAID will be initiating in the HoA[31] that is expected to a) facilitate the adoption of resilience-enhancing technologies and innovations; b) develop and test models for integrating humanitarian and development assistance; c) facilitate and catalyze widespread adoption of effective models using the Collaboration, Learning, and Adaptation (CLA) approach to address development in the arid and semi-arid lands; d) strengthen the capacity of regional, national and local institutions to translate learning into programs and policies; and (e) address gender issues that are key to achieving growth and resilience across the humanitarian and development assistance continuum.

A functioning knowledge management system will require the full collaboration of the donor and investment community, public and private sector, the research community, development and humanitarian partners, male and female farmers, pastoralists and fisherfolk and their communities. The 'proof of purchase' of the Knowledge Management approach for the HoA will be demonstrated by increased resilience - positive change on the ground - that results from a synergistic integration of intrinsic knowledge and practical experience, research outputs, enhanced capacity and co-learning, changes in decision-making processes and supportive policies.

[31] The Resilience Learning Project: https://www.fbo.gov/?s=opportunity&mode=form&id=07664cb654346acdc45b95e6b8a13012&tab=core&_cview=0

References

Ackoff R. 1989. From Data to Wisdom. *Journal of Applied Systems Analysis* 16: 3-9.

Bayer W and Waters-Bayer A. 2002. *Participatory Monitoring and Evaluation (PM&E) with pastoralists: a review of experiences and annotated bibliography*. Eschborn. http://www.eldis.org/fulltext/PDFWatersmain.pdf

Béla M. 2010. *Geoinformation Management 4., Data and Information Management*. Digitalis Tankonyvtar. http://www.tankonyvtar.hu/hu/tartalom/tamop425/0027_GIM4/ch01.html, 25 July 2013

Behnke, R. 2010. *The Contribution of Livestock to the Economies of IGAD Member States: Study Findings, Application of the Methodology in Ethiopia and Recommendations for Further Work*. (02-10): 1–45.

Behnke, R. 2011. *The Contribution of Livestock to the Ethiopian Economy – Part II.* (02): 1–43.

Cutley A, Lind J and Scoones I. 2012. *Pastoralism and Development: Dynamic Change at the Margins*. Routledge.

CELEP. 2013. http://www.celep.info/

ELMT. 2013. *ELMT Documents*. http://www.elmt-relpa.org/aesito/elmt?&id_cms_doc=34

Flintan F. 2011. *Summary Brief: The causes, processes and impacts of land fragmentation in the rangelands of Ethiopia, Kenya and Uganda*. REGLAP. http://www.disasterriskreduction.net/fileadmin/user_upload/drought/docs/Summary%20brief%20land%20fragmentation_FINAL_15th%20August%202011.pdf

Fowler A and McMahon J. 2010. *Working as a consortium: benefits and challenges*. http://www.disasterriskreduction.net/fileadmin/user_upload/drought/docs/1_ELMT_Consortium_Policy_Brief-FINAL_1_.pdf

Frankenberger T, Langworthy M, Nelson S and Spangler T. 2012. *Enhancing Resilience to Food Security Shocks in Africa: A discussion paper*. http://www.fsnnetwork.org/sites/default/files/discussion_paper_usaid_dfid_wb_nov._8_2012.pdf

Green D. 2012. *From Poverty to Power (Second edition)*. Oxfam International, pp223.

IIED. 2012. *Rangeland development and management policy: A community consultative issue paper for input into the national policy.*

IGAD. 2013.http://igadlpi.wordpress.com/

IIRR, ACACIA & CordAid. 2004. *Drought Cycle Management: A toolkit for the drylands of the Greater Horn of Africa.*

Kratli S, El Dirani OH and Young H. 2013. *Standing Wealth: Pastoralist Livestock Production and Local Livelihoods in Sudan.* Nairobi, Kenya.

LEGS. 2013. http://www.livestock-emergency.net/about-legs/

Nicholson N and Desta S. 2010. *Final Evaluation: Enhanced Livelihoods in the Mandera Triangle (ELMT) and Enhanced Livelihoods in Southern Ethiopia (ELSE) Program 2007-2009*. http://www.disasterriskreduction.net/fileadmin/user_upload/drought/docs/ELMT-ELSE_Evaluation_Report_-_Formatted_1_.pdf

ODI. 2004. *Briefing paper: Bridging Research and Policy in International Development - An analytical and practical framework*. http://www.odi.org.uk/sites/odi.org.uk/files/odi-assets/publications-opinion-files/198.pdf

P-FiM. 2013. http://www.p-fim.org

Ramalingham B. 2006. *Tools for knowledge and learning: A Guide for Development and Humanitarian Organizations, Overseas Development Institute Rapid, Research and Policy in Development.* http://www.world-federation.org/NR/rdonlyres/4A22A80F-3D7D-4C20-A456-82274D7293F2/0/NGO_6_ODIToolsforlearning.pdf

Raven-Robert A and Hulufo H. (Forthcoming). *Regional Assessment of CMDRR in Ethiopia, Kenya and Uganda.*

REGLAP. 2012a. *Disaster risk reduction in the Horn of Africa: Good practice examples from ECHO DCM partners & beyond.* Edition 3. http://www.disasterriskreduction.net/fileadmin/user_upload/drought/docs/REGLAP%20Newsletter%20Edition%203%2022%20Feb%202013.pdf

REGLAP. 2012b. *REGLAP Key Achievements*. http://www.disasterriskreduction.net/fileadmin/user_upload/drought/docs/1%20Nov%202012%20REGLAP%20Key%20Achievements.pdf

REGLAP. 2013a. *Giving a voice to disaster affected communities in Turkana and East Pokot: the People First Impact Method (PfiM) in Disaster risk reduction in the drylands of the Horn of Africa*. Edition 3.

REGLAP. 2013b. *Disaster Risk Reduction: East and Central Africa.* http://www.disasterriskreduction.net/east-central-africa/reglap

TANGO. 2012. *Enhancing Resilience to Food Security Shocks in Africa – Discussion Paper.*

UNEP. 2013. *Adaptation Knowledge Platform.* http://www.unep.org/roap/Activities/ClimateChange/AdaptationKnowledgePlatform/tabid/6838/Default.aspx

UNICEF. 2008. *Bridging the gap: The role of monitoring and evaluation in Evidence-based policy making.* http://www.unicef.org/ceecis/evidence_based_policy_making.pdf

VSF-Suisse. 2010. *Animal health care delivery and disease surveillance in Northern Kenya involving the private sector: Experiences and lessons learnt from ELMT.* http://www.disasterriskreduction.net/fileadmin/user_upload/drought/docs/Technical_Brief_Privatisation_of_vet_services_Apr10.pdf

Annexes

technical consortium
Building Resilience in the Horn of Africa

The Technical Consortium for Building Resilience in the Horn of Africa provides technical support to IGAD and member states in the Horn of Africa on evidence-based planning and regional and national investment programs, for the long-term resilience of communities living in arid and semi-arid lands. It harnesses CGIAR research and other knowledge on interventions in order to inform sustainable development in the Horn of Africa. technicalconsortium.org

ILRI
INTERNATIONAL LIVESTOCK RESEARCH INSTITUTE

The International Livestock Research Institute (ILRI) works to improve food security and reduce poverty in developing countries through research for better and more sustainable use of livestock. ILRI is a member of the CGIAR Consortium, a global research partnership of 15 centres working with many partners for a food-secure future. ILRI has two main campuses in East Africa and other hubs in East, West and Southern Africa and South, Southeast and East Asia. ilri.org

CGIAR

CGIAR is a global agricultural research partnership for a food-secure future. Its science is carried out by 15 research centres that are members of the CGIAR Consortium in collaboration with hundreds of partner organizations. cgiar.org