

IMPROVING PASTORAL RISK MANAGEMENT ON EAST AFRICAN RANGELANDS

NARRATIVE SUMMARY

This was the fifth year of work for the pastoral risk management (PARIMA) project. The overall goal of our project is the discovery and application of knowledge pertaining to improving risk management—and thus enhancing livelihoods—for pastoral and agro-pastoral people in northern Kenya and southern Ethiopia. Foundation concepts include the exploration of opportunities to better diversify incomes and assets and how to improve the use and delivery of information and various public services. The year is best characterized by the following achievements: (1) a quarterly repeated survey for 11 communities throughout our study area over two years was successfully completed; (2) research projects for nine graduate students—including Kenyan, Ethiopian, and American nationals—are either virtually completed or well underway; (3) 31 research and outreach publications were produced for technical and popular audiences, with another eight manuscripts in the process of final revision and submission; (4) over 100 people participated in workshops, a short-course, and educational tours intended to strengthen linkages and transfer information among researchers, pastoralists, traders, and local decision makers from southern Ethiopia and northern Kenya; (5) five community-based pilot intervention projects involving hundreds of beneficiaries are underway in southern Ethiopia; and (6) the PARIMA project received a favorable review from the External Evaluation Panel (EEP)

representing USAID Global Bureau. We have remained true to our original problem model. Workplans and outputs in Year 5 are almost exactly on track with what we outlined in the original project proposal. Team members have been very productive and creative with resources provided by the GL-CRSP.

RESEARCH

Activity 1: Research on Risk at the Individual, Household, and Community Level, led by Drs. Christopher Barrett, Peter Little, and John McPeak with participation from Drs. Getachew Gebru, Cheryl Doss, and other team members.

Problem Statement and Approach. One of the core issues investigated by the PARIMA project is the extent to which pastoralists share a common perception and experience of risk. The common assumption is that most risk experiences are common to most pastoralists. This assumption has important implications for the way that interventions are structured. When risk is broadly shared across a population, external resources are essential to enable recovery from shocks and rural financial, marketing, and social insurance systems are prone to failure. When the risk experience is highly variable (idiosyncratic) within a population, local systems have greater capacity to manage risk internally so long as a basic physical and institutional infrastructure

is in place. So one of the project's first research activities has been to explore intra-regional variability in risk exposure and risk perceptions. Two different research efforts have contributed to this activity. We started with a participatory risk-mapping activity documented in GL-CRSP Annual Reports for 1999 and 2000. This was followed by a more detailed, repeated survey implemented for 330 households in 11 communities (six in Kenya and five in Ethiopia) using a cluster sampling approach. Five of these communities are Boran, with one each from the Rendille, Ariaal, Il Chamus, Gabra, Samburu, and Guji. The survey was launched during March 2000 and was intended to be repeated on a quarterly basis over the next two years. Survey work has been devoted to: (1) delineating sources of risk affecting individuals, households, and communities; (2) understanding the effectiveness of various indigenous tactics for reducing risk exposure such as livestock accumulation, livestock mobility, and social insurance systems; and (3) understanding the effectiveness of various introduced tactics for reducing risk exposure such as livestock marketing, access to rural financial networks, economic diversification, and use of relief as well as other forms of external assistance. Communities have been stratified and purposely chosen so as to capture important differences in agro-ecology, access to towns and infrastructure, and ethnicity. Individual-level surveys have not only been fielded to household heads, but also to randomly selected junior male and female adults from each household in order to illuminate gender and generation differences that condition risk exposure and response. The survey instruments capture information on household structure, asset holdings, activities, consumption, mobility, livestock transactions, experience with raiding, risk assessments, past

risk exposure, etc. Effort has been made to capture actual behaviors as well as risk perceptions.

Progress. The quarterly repeated survey was completed in June 2002, with data processing occurring through September. In this progress report we add detail and new insights pertaining to previously reported findings. We have tracked the 330 households beginning at the end of a drought phase in 2000 through two subsequent years of herd recovery. In general, we have observed that livestock accumulation in anticipation of calamity is an effective but costly means of promoting a viable future herd size. It is costly because, in general, for every six animals that entered the last drought in the late 1990s, one survives. Despite such losses, overall it appears that the higher the livestock number going into a drought, the higher the number coming out. This form of self-insurance seems rational in light of a lack of alternative investments. Few pastoralists use formal savings accounts, and alternative business ventures are scarce. Opportunities for income diversification appear to be limited to the proximity of urban settlements. We have also noted that communities can vary in terms of the degree that drought impacts their livestock. Local variation appears to be related, at least in part, to differences in resource endowments and livestock mobility. Communities in Kenya that are hemmed in by neighboring ethnic groups—or otherwise lacking access to a diversity of watering and grazing areas—appeared to lose the highest proportions of stock. Within communities households can vary with respect to drought-related livestock losses. While local access to resources may play a role, we suspect that differences imparted by wealth are important. Very large herds held by the wealthiest pastoralists in

Ethiopia can actually experience high rates of losses, and we suspect that the ability to secure resources and effectively manage larger numbers of stock contributes to this observation. At the other end of the spectrum, the small herds of the poorest pastoralists may also suffer disproportionate losses. High rates of milk off-take to support people from fewer lactating animals per capita, and inability to purchase livestock health inputs, may play a role in this phenomenon. These observations contribute to the notion that while some degree of drought-related asset loss is covariate—or widely shared—among pastoral households and communities, there is a substantial degree of idiosyncratic variation that is related to attributes of individual communities and households. Ineffective indigenous reciprocity networks, noted in the GL-CRSP Annual Report 2001, contribute to the general problem of a lack of social safety nets. The ranks of the peri-urban poor swell because once a household's herds dip below a dozen animals, the prospects for recovery are slim. Such households may slide into a "poverty trap" and thereafter be confined to a precarious existence involved in petty trade or small-scale cultivation in the vicinity of towns and villages. The lure of food aid probably contributes to this issue of sedentarization. Throughout our Kenya sites food aid is the most ubiquitous form of public service in our area.

Our survey work suggests two forms of intervention have some effect on mitigating effects of drought on livestock management and household welfare: market infrastructure and formal education. As noted in the 2001 GL-CRSP Annual Report, those pastoral households in our study area fortunate enough to have access to a livestock market served by an all-weather road were able to sell more stock in response to a drought shock—and buy

more animals for restocking—compared to those households with the typical lack of access to such opportunities. Although returns to formal education are anticipated to be variable over space and time, preliminary evidence from some study sites in northern Kenya indicates that households with educated members are able to reduce risk of income variability due to drought. This is because educated family members are more likely to find wage employment and provide remittances back home. Variability in rates of school enrollment for northern Kenya varied from 15% (North Horr) to 90% (Ngambo). In general, the more remote the study site, the lower the rate of school enrollment. Variability in total income over a sample three-month period for the Kenya sites also varies widely. Values range from KSh 2,200 per household (North Horr) to KSh 5,200 per household (Ngambo) and KSh 9,500 per household (Logologo). Increased total income is associated with increases in non-pastoral income, and this illustrates the role of non-pastoral activity diversification for boosting income where employment opportunities occur. Although the Ethiopia data have yet to be analyzed to the same degree as the Kenya data, the Ethiopian situation is generally much less favorable than the Kenyan situation. Enrollment in formal education is uniformly very low in Ethiopia (<5%) and evidence for non-pastoral income diversification is very limited compared to Kenya.

As noted in the GL-CRSP Annual Report 2001, these findings point to the idea that technical interventions and policies should attempt to support—not undermine—the traditional means for pastoralists to manage risk. These include efforts to promote herd mobility, livestock accumulation especially for mid-sized holdings, and providing the means for opportunistic marketing. Investment in

security should help reduce risks associated with access to key resources and hence favor some restoration of herd mobility. Investment in primary education is important because it can help give people the skills to augment pastoral livelihoods with salaried incomes. Investment in marketing infrastructure and institutions is important, and particularly so for populations residing in remote locations with poor market access. The potential for sustainable financial systems needs to be re-evaluated once market activity and income opportunities expand. Finally, one could promote investment in non-pastoral economic activities to widen the range of desirable employment and investment opportunities. This would especially be useful for providing income-generating opportunities for the peri-urban poor.

In summary, we are very pleased with the quarterly repeated survey. Results are consistent in many respects with our expectations and have reinforced our confidence in our original problem model. We have two years of solid data that will generate possibly dozens of important publications. We have only touched on a small part of the work here. Further elaboration must wait for a very large effort in data analysis and interpretation to be completed. We hope, in a subsequent project phase, to continue the survey on an annual basis. This would allow us to capture the dynamics related to the entire drought recovery cycle. The next regional livestock crash is anticipated to occur no earlier than 2005.

**Activity 2: Thematic Investigations
Dealing with Marketing, Rural Finance,
Natural Resource Management,
Indigenous Use of Climate Forecasts,
Social Change, Natural Resource Tenure
and Conflict, and the Origin and Fate of**

Pastoral Refugees, led by Drs. Chris Barrett, Peter Little, Abdillahi Aboud, John McPeak, Getachew Gebru, and Cheryl Doss with participation by other team members.

Problem Statement and Approach. The regional perspective of pastoral risk management as generated from the repeated quarterly survey is being supplemented with local case studies. Such work is particularly appropriate as training projects for graduate students. Each case study has a unique character that reflects local issues as well as priority interests of students and their supervisors. Work carried out in Year 5 variously examined risk as related to enabling systems, production system change, conflict, coping strategies, and resource tenure dynamics. Approaches are generally based on survey methods.

Progress. This activity encompasses the work of nine graduate students that are listed in the degree-training section below. The breakdown of the students by nationality is six Kenyans, two Ethiopians, and one American. Six are master's students and three are doctoral candidates. Progress for each project is noted below:

Mr. Moses Esilaba, a Kenyan seeking an MS degree from Egerton, has studied conflict resolution among the Samburu. Some of his work was noted in the GL-CRSP Annual Report 1999. He ended the year awaiting the final corrections on his thesis.

Mr. Clement Lenachuru, a Kenyan seeking an MS degree from Egerton, has studied the influence of formal education on economic diversification among the Il Chamus. Some of his work was noted in the GL-CRSP Annual Report 1999. He ended the year awaiting the final corrections on his thesis.

Mr. John Tanguis, a Kenyan seeking an MS degree from Egerton, has studied the influence of economic diversification on risk management among the Samburu. Some of his work was noted in the GL-CRSP Annual Report 1999. He ended the year awaiting the final corrections on his thesis.

Mr. Waktole Tiki Uma, an Ethiopian seeking an MS degree from Egerton, has studied the influence of traditional leadership among the Boran on natural resource management. His final results have recently been drafted and are not ready to report here. He ended the year having submitted his draft thesis to his supervisory committee. His work will be described in future GL-CRSP Annual Reports.

Mr. Godfrey Nato, a Kenyan seeking an MS degree from Egerton, has studied Turkana refugees in peri-urban conditions in Baringo, Kenya. Nato wanted to learn how they became refugees and how they have coped with refugee life—in some cases for many years. He recently completed his field data collection and ended the year writing his draft thesis. No results are available for reporting at this time. His work will be described in future GL-CRSP Annual Reports.

Mr. Abdullahi Dima Jillo, a Kenyan seeking a PhD degree from Egerton, has studied natural resource tenure and conflict among the Boran in northern Kenya. He has spent the past year involved in data collection. No results are available for reporting at this time. His work will be described in future GL-CRSP Annual Reports.

Ms. Sharon Osterloh, an American seeking an M.S. degree from Cornell, has studied the performance of rural financial associations in northern Kenya. Her work was reported extensively in the GL-CRSP Annual Report 2001. She is currently finalizing her thesis in the USA.

Mr. Hussein Mahmoud, a Kenyan seeking a PhD degree from the University of Kentucky, has studied the attributes of livestock trader networks in northern Kenya and southern Ethiopia. His work was reported extensively in the GL-CRSP Annual Report 2001. He is currently writing his dissertation in the USA.

Mr. Amare Teklu, an Ethiopian seeking a PhD from Cornell, has studied land use change among the Ethiopian Boran. He is currently back in the USA and is analyzing his data. His work will be described in future GL-CRSP Annual Reports.

Our progress has been excellent in this activity. It is merely a coincidence that new results are not ready for this particular Annual Report due to student schedules. Work from these projects has not led us to alter our original problem model, which we feel is on track.

Activity 3: Collaboration between PARIMA and LEWS, led by Drs. Chris Barrett, Jerry Stuth, and Peter Little.

Problem Statement and Approach. One of the goals of the Livestock Early Warning System (LEWS) project of the GL-CRSP is the prediction of livestock supply to market during times of drought. The LEWS project has sought to refine predictive models for climate patterns and livestock performance so that they could be applied as tools for providing decision support to stimulate animal off-take during early stages of a drought. For example, climate predictions from regional forecasting centers can be used to convey the likelihood of inadequate seasonal rainfall in our study region. If this information could be adequately conveyed to pastoral producers, it is thought that producers could take preemptive action by de-stocking in anticipation of a failure of a rainy season. Early de-stocking could allow households to take advantage of

more favorable pre-drought prices, reduce drought-related mortality losses, and relieve pressure on natural resources. Other tools to aid this decision-making process include models that predict forage production as a result of precipitation and those that predict livestock nutritional status as a function of the quantity and quality of forage. Given insights into anticipated patterns of forage yield and livestock production, pastoralists and traders could be further compelled to engage in pre-emptive de-stocking and other related adjustments. Work of the PARIMA project complements these objectives in several respects. First, the PARIMA project is interested in the actual factors that influence how pastoralists make decisions to sell animals. For example, favorable prices may be a key determinant, as could the need to buy non-pastoral food. Conversely, if pastoralists have few alternatives to storing wealth as livestock, it is rational for them to hold all of their animals and hope that providence spares them and they will survive a drought unscathed. This logical traditional rationale may be becoming harder to justify as fallback resources dwindle, human populations increase, and local resource degradation intensifies. In addition, if market infrastructure is lacking, there may not be opportunities for many pastoralists to sell stock in anticipation of drought even if they wanted to (see Activity 1).

Work by PARIMA scientists reported in the GL-CRSP Annual Report 2001 indicates that assumptions about the demand for information among pastoralists by the research and development community may be erroneous in some respects. For example, some pastoralists in Kenya have access to official drought forecasts via radio or newspaper reports, but it appears that they would rather rely on indigenous means to predict rainfall. They tend to use eyewitness scouting reports

to gauge forage conditions and the opportunities for moving animals to evade unfavorable circumstances. This suggests that official early warning broadcasts may have many obstacles that would impede their utility for pastoral people.

One goal for the joint PARIMA-LEWS activity, started in 2001, is to clarify decision-making processes regarding livestock sales behavior. This is to be determined using household level surveys that test a series of alternative hypotheses as to what most motivates households to dispose of animals. Another goal is to collaborate on geo-referencing households and market infrastructure from both the PARIMA and LEWS data sets for northern Kenya and southern Ethiopia. It is thought that once decision rules are better understood and the extent to which marketing features influence the flow of stock to terminal markets is clarified, spatial explicit predictive models can be developed. These models would then attempt to predict the supply of animals to market given extant environmental and economic conditions. The models can be parameterized to account for how flows of animals might change in response to changes in information access, price structures, and infrastructure improvements. This would permit sectoral-level analyses whereby the costs of pastoral marketing and information investments could be compared with the benefits of increased sales, pastoral household well being, and other ripple effects in the regional livestock economy.

Progress. PARIMA has launched household-level surveys on decision-making as it pertains to livestock sales across the 330 households at our 11 study sites. In addition, PARIMA has conducted market-level surveys in northern Kenya at Marsabit, Marigat, North

Horr, and Suguta Mar Mar to provide data on livestock price and features of livestock supply in these locations. A similar market-level survey has been prepared for Ethiopia before the end of Year 5 and it will be launched early in Year 6. The LEWS project has taken the lead in mapping our households with respect to agro-ecological zone and proximity to markets using geo-referenced data. Both survey and mapping components are on going. We have made good progress in this activity. Data are being processed and preliminary results are not available for this report.

Activity 4: Project Regionalization, led by Drs. Layne Coppock and Solomon Desta.

Problem Statement and Approach.

From its inception, the PARIMA project has focused on a study area in northern Kenya and southern Ethiopia. Although research findings from this large and diverse area are applicable to a wide range of similar situations in the Greater Horn of Africa, it is desirable to extend the influence of the project more broadly. The main objective of this activity is thus to disseminate PARIMA research, outreach, and training concepts more widely in East Africa. The mechanisms for doing this are diverse. One means has involved PARIMA Biennial Workshops, held in Addis Ababa (1999) and Njoro (2001). These meetings in total attracted over 160 participants, with at least a dozen representing East African countries other than Ethiopia and Kenya. A second means has involved the dissemination of information via electronic and hard copy options, both for formal research publications, GL-CRSP research briefs, and the PARIMA UPDATE Newsletter. This occurs through our network of some 50 research and development organizations and on a request basis. The third and most intensive approach involves linking

PARIMA to research institutes through formal agreements elsewhere in East Africa. One motive for the Second Biennial Workshop at Njoro in 2001 was to establish links to scientists in Uganda and Tanzania. Representatives from Uganda [Dr. Sarah Ossiya of the Serere Research Institute (SRI) near Kampala] and Tanzania [Mr. Ezekiel Goromella of the Livestock Production Research Institute (LPRI) in Mpwapwa] gave overview papers of how risk management themes developed on PARIMA pertained to the work of their institutions. Indeed, the PARIMA themes were very relevant. The idea was to then provide small grants to Ossiya and Goromella to initiate community-based, action research initiatives along the lines of the PARIMA Outreach and Action Research in southern Ethiopia, founded on Participatory Rural Appraisal (PRA). This is outlined under Activity 5 below.

Progress. Because this report concerns an alternate year where no Biennial Workshop was held, no progress was made in terms of convening research and development professionals per se. A Third Biennial Workshop is planned for 2003, however, and that approach will continue then. In terms of information dissemination, we have been successful in distributing hundreds of copies of research papers, research briefs, and newsletters. In terms of institutional linkages with Uganda and Tanzania, the activity has stalled. This is primarily because a re-assessment of funding has convinced us that unless we are able to secure leveraged resources, we are unable to offer firm and sustainable interactions elsewhere. The Ugandan connection has also suffered due to a reassignment of Dr. Ossiya to a new job unrelated to her former employment. For the future our main plan is to continue to upgrade

and expand information dissemination via electronic means through the ASARECA network. We feel that this approach is most consistent and sustainable with respect to our capabilities and resource constraints.

Activity 5: Action Research in Support of Pilot Risk Management Interventions in Ethiopia, led by Drs. Solomon Desta, Layne Coppock, and Getachew Gebru with Participation from Local Development Partners and Personnel from the Southern Tier Initiative of the USAID Mission to Ethiopia.

Problem Statement and Approach. In the GL-CRSP Annual Report 2000, the Outreach Unit of the PARIMA project was described. The overall goal of the Outreach Unit is to increase awareness and build capacity among project beneficiaries, development partners, and policy makers for the effective implementation of risk management interventions. This involves traditional activities such as hosting workshops, organizing short courses and field tours, and disseminating research and extension publications. PARIMA Outreach serves a multi-purpose catalytic role in southern Ethiopia and the northern Kenya borderlands as a facilitator, donor, educator, and research agent. See the sections on Outreach, Non-Degree Training, and Gender elsewhere in this Annual Report for details on these and related activities. Outreach operating costs are covered by the USAID Mission to Ethiopia.

One non-traditional component of PARIMA Outreach has been an “action research” function. This occurs when PARIMA works with local research and development partners in monitoring outcomes from pilot risk-management interventions

among pastoral communities and various forms of cross-border interaction. Action research involves a rapid analysis of step-wise constraints encountered after pilot interventions have been implemented. Remedial efforts are then recommended to overcome constraints and help make interventions successful. Funds to support pilot interventions have been provided under the auspices of the Southern Tier Initiative (STI) of the USAID Mission to Ethiopia. As described in the GL-CRSP Annual Report 2001, pastoral communities volunteer to be engaged in a process of Participatory Rural Appraisal (PRA) with a local development agent (GO or NGO). The PARIMA Outreach Unit oversees the process that leads from the PRA to production of a co-authored Community Action Plan (CAP) between the community and the development agent. The CAP is submitted to a 10-member Outreach Review Panel (ORP) for review and modification. If approved, the CAP is funded by PARIMA using resources provided by the USAID Mission to Ethiopia. Then PARIMA partners with the development agent to monitor the initiative and observe where things go right or wrong. The product is a situation where everyone should benefit. The community is empowered to initiate change, development agents are trained in PRA and monitoring, and PARIMA documents outcomes as applied research contributions. In addition, the PARIMA project has a strong interest in discovering innovative, indigenous risk-management behaviors within our study area, and where appropriate, sharing such findings with local communities and their development agents and then monitoring outcomes accordingly.

Progress. As reported in the GL-CRSP Annual Report 2001, the ORP received eight

CAP proposals for funding consideration. These came from communities in the vicinity of the towns of Yabelo, Negelle, and Moyale. All CAPs were based on a full or partial PRA conducted by development agents recently trained by the Egerton University PRA team and that also have participated in the PARIMA Outreach Network since 1998. Most of the CAPs were modified and approved for funding. Here we report on an example of preliminary outcomes for some CAPs approved during 2001.

Two CAPs involve the Dida Hara community, a group of semi-settled pastoralists located about 50-km southeast of Yabello town. The development partner is Action for Development (AFD), an Ethiopian NGO based in Yabello. A full PRA revealed that the people wanted some means to improve their income through small-scale economic diversification. Given high rates of illiteracy (>90%) and no means to facilitate access to savings and credit opportunities, the PRA process revealed that possible solutions would be found in improved access to education and rural finance. The CAP thus advocated establishing non-formal education centers and savings-led credit associations. A non-formal rural education center was initiated to ultimately serve 660 men, women, and children. Two centers were built in the sub-communities of Dembi and Harawatu. Five savings and credit associations were established for 175 pastoralists (57% women). The general design of interventions followed AFD protocols. A monitoring system was set up by PARIMA in collaboration with AFD. Male and female community leaders in Dida Hara were subsequently selected to participate in short courses offered by the Furra Institute (see Non-Degree Training). Female leaders were selected to participate in a cross-border tour to visit successful women's groups in northern Kenya (discussed below).

In terms of non-formal education, an average of 38 children and 53 adults have been enrolled per quarter over the past year at the two centers. Significant progress has been made, particularly in basic numeracy. In terms of rural finance, as of September 2002, the five savings and credit groups at Dida Hara have saved about Ethiopian Birr 25,000 (or USD 3,125.00). Records of savings are kept in individual passbooks that the people are now capable of keeping records in because of their participation in the non-formal education activity. Ninety participants (46% of them women) received six-month loans averaging Ethiopian Birr (or USD 82.50). People eligible to receive loans were those that had been successful in achieving a savings target. Given the early stages of the program, loans were also augmented with additional funds from AFD coffers to increase the base capital and spur incentives for beneficiaries to be responsible participants. The first six-month loaning period ended in August. Loan repayment was 100% with five percent interest. Seventeen recipients used their loan for investment in petty trade. The other 73 used their loan to purchase a bovine or small ruminant to grow out and sell. A second group of 85 received their six-month loan in September. Performance of pilot projects at Dida Hara and other locations continues on a quarterly basis.

Successful women's groups were discovered in northern Kenya by PARIMA in 1999 during routine outreach surveys. Perhaps dozens of such groups exist. A Boran women's group at Kulamawe (near Isiolo) appears typical of successful innovators. Formed over 15 years ago, the initial membership of the Kulamawe group was comprised of destitute, illiterate women. Group leaders formulated a development plan based on a system of regular, pooled savings. Once certain amounts of

money were saved, the group then began to invest in improving their homes, starting small business ventures, and sending their children to school. Capital accumulated over time and now the group at Kulamawe manages a significant array of small enterprises. The group provides financial support for local schools, infrastructure, and health care. Similar groups have been contacted in Sololo, Badahuri, Gerbi, and Kalicha. These groups are typically Boran. The groups are also engaged in helping other women organize themselves into sustainable development groups. After reviewing this situation, we decided to put Ethiopian pastoral women in contact with the Kenyans and observe what happens.

The fifteen Ethiopian women selected for the Kenya tour had emerged as natural leaders in their respective communities of Dida Hara, Negelle, and Moyale. Of these 15, only one had had any previous experience with community group formation, that being an affiliation with an OADB-sponsored smallholder dairy cooperative. The 15 women thus were chosen to strategically represent three sub-locations on the Borana Plateau. Each sub-location had submitted CAPs that were approved for funding by the ORP, and these women were seen as innovators and leaders in the context of these projects as well. None of the 15 women had been out of their sub-locations previously, let alone traveled outside of the country. The Ethiopian women appeared to be fundamentally transformed by the visit with the Kenyan women's groups. They were impressed with the vision, independence, and drive of the Kenyans. The tour appeared to give the Ethiopian women hope and determination to succeed in lifting themselves out of poverty.

The result of this simple tour has been extraordinary in the past year. Roughly 16

women's groups have been formed in southern Ethiopia during the past nine months, with nearly 450 members. Demand for group formation is now pervasive. The groups model their activities after what they saw in Kenya. Typically, a group erects a meeting center. Efforts to improve their living standards include purchase of mattresses, mudding of walls, improvements in personal hygiene, and increased enrollment of children in schools. Savings clubs are at the core of the activities. In the vast majority of cases, the men are supportive of the women's new activities. Groups are being monitored quarterly.

This process of documenting induced change is research. It informs us as to what risk management interventions are feasible and lets communities and individuals better control their destiny. Some preliminary observations include the following: (1) engaging communities in a true participatory development framework unleashes tremendous energy for positive change; (2) there is evidence of indigenous solutions for poverty mitigation; (3) risk management—focused on education, diversification, and sharing of information—is a prominent spectrum of priority interventions; (4) women and women's organizations—even among pastoralists—can offer major opportunities and entry points for positive change; and (5) national borders can be relatively impermeable to the simple transfer of information and experiences, even within the same ethnic group.

GENDER

Gender dimensions of the PARIMA project are reflected in terms of: (1) how our team is organized; (2) research questions and issues being pursued; (3) how training benefits are allocated; and (4) types of people

participating in our outreach. For example, we have one female scientist on our core team, Dr. Cheryl Doss of Yale University. She is an economist. We are studying how risk affects female pastoralists differently from males (see Activity 1). It is well known that perturbations in our study region often result in female-headed households being re-established nearer to towns and settlements. These are often the poorest households with few assets. These female heads of households are often forced to diversify their income-generating activities to survive. These women are a major focus of our research and outreach efforts. We have given various forms of support to female trainees in our project. For degree training, we supported a Kenyan woman named Winnie Luseno in her doctoral program at Cornell. An American woman named Sharon Osterloh, also at Cornell, was supported as she began to write-up her master's thesis. For non-degree training we have focused a large component of our outreach on women's groups (see Activity 5 and the Training section that follows). In our outreach network we have included roughly 52 organizations, with 25 in Ethiopia and 27 in Kenya. Senior women represent nine of these organizations. We initiated a 10-member Outreach Review Panel (ORP) in 1999 that helps guide outreach. There are currently nine members (pending replacement of one member who has retired), and one third of the ORP members are currently senior women. These include Ms. Miriam Cherogony, a Kenyan specialist in rural finance, Ms. Felekech Lemecha, an official with the Oromia Agricultural Research Institute in Ethiopia, and Ms. Allyce Kureiya, a Kenyan pastoral development specialist working with an NGO in Isiolo.

POLICY

We have two main goals regarding policy. The first is to build a general awareness of our existence among key policy makers and institutions. The second is to engage key policy makers in project activities. To achieve the first goal we have continued to widely distribute copies of project publications, including technical papers, research briefs, and the PARIMA UPDATE Newsletter. To achieve the second goal we have invited key individuals to workshops, field tours, and training opportunities—and they have responded. Policy makers have attended our workshops and given presentations, and have even participated in short-courses. A one-week field tour was sponsored by PARIMA in southern Ethiopia during August 2002 and some 10 key Ethiopian policy makers in the Oromia State participated. Our challenge remains to better involve Kenyan policy makers. Overall, we feel this process of gradual engagement of policy makers with the PARIMA project is working well.

OUTREACH

The Outreach Unit of the PARIMA project has been previously introduced in the GL-CRSP Annual Reports for 2000 and 2001. Operating funds for outreach are provided by the USAID Mission to Ethiopia. Current outreach activities under the banner of action research have been mentioned under Activity 5 in this report. The objectives of PARIMA Outreach are to build awareness and capacity of front-line development personnel and pastoral communities to conceive and adopt risk-management interventions and to identify some best-bet approaches to improve pastoral risk management based on results from pilot interventions. Achievements during Year 5

prominently include: (1) distribution of PARIMA publications within the region, including over 1,000 copies of the first issue of the project newsletter PARIMA UPDATE in English, Kiswahili, and Oromifa; (2) successful initial networking of Boran women's groups from Ethiopia and Kenya (see sections on Publications, Training, and Gender); and (3) successful initiation of five community-based pilot intervention projects among Boran pastoralists at Dida Hara, Negelle, and Moyale in the southern Ethiopian rangelands. The PARIMA Outreach Unit in Ethiopia largely functions as a facilitator and catalyst for positive change. The community pilot projects are dominated by requests to establish rural savings and credit associations to facilitate small-scale economic diversification. Another major intervention is the creation of non-formal education centers for children and adults. Pilot projects are conceived and designed by communities through a process of interactive community needs assessment such as Participatory Rural Appraisal (PRA). Community leaders of the five pilot projects include men and women. Pilot projects are implemented by communities and local GO and NGO partners that submit community-based proposals for funding consideration by PARIMA. Quarterly progress reports are posted at the PARIMA web site (www.cnr.usu.edu/research/crsp). We are meeting our goals in this activity. The leaders of this activity have been Drs. Solomon Desta and Layne Coppock, with assistance provided by Mr. Seyoum Tezera, Dr. Getachew Gebru, and numerous project collaborators.

DEVELOPMENT IMPACT

Perspectives on development impact are the same as in previous GL-CRSP Annual Reports. These are summarized as follows.

Environment. The benefits of our project to the environment are indirect rather than direct, and medium- and longer-term rather than short-term. Our basic position is that improved risk management will mitigate asset loss and poverty among pastoralists and agro-pastoralists. When poverty is mitigated, risk to the environment will lessen. For example, one tenet of our approach is that pastoralists need to make more pre-emptive moves to mitigate crisis induced by drought and growing human populations. One tactic is to sell some animals before a crisis occurs, and use the funds received as household-level savings and community investments. The success of this depends on well-functioning markets, credit union formation, education, etc. The idea is that if such a tactic can be successfully used across a society, the rate of growth in stocking rates would be mitigated. This would reduce the specter of heavy stocking rates on the land during years of lower-than-average rainfall, which is the key window when range vegetation can be degraded. The "boom and bust" in the cattle cycle would also be dampened as a result. The build up in non-livestock capital and investment would then permit societies to diversify their economies. This diversification could spur growth of urban job opportunities and mitigate the incidence of poverty among pastoral and agro-pastoral households. Mitigating poverty would then reduce the specter of poor people being engaged in destructive activities such as charcoal making, harvesting of green fuel wood, and opportunistic cultivation.

Agricultural Sustainability. A sustainable agriculture is one where interventions are: (1) beneficial—or at least neutral—for the environment; (2) socially acceptable; and (3) economically profitable. The premise behind our project is that, left to

their own devices, traditional pastoral or agro-pastoral production systems in our study region are unsustainable. For example, there is a loss of land to population growth and environmental degradation. There is an unraveling of the traditional social order in some cases, which can often be traced to competition for limited resources. There is abundant evidence that whether due to poor demand, bad infrastructure, and/or inadequate marketing strategies of producers, pastoralism in the region is typically unprofitable. Evidence of unsustainability includes things like the chronic need to feed tens of thousands of people in the region each year, the relocation of poor households nearer to towns and settlements where they engage themselves in petty trade to stay alive, and the increasing poverty and declining living standards of pastoralists in general. By coming up with risk management tools, which in part should allow pastoralists and agro-pastoralists to save and invest outside of their traditional sphere, the resulting investment surge for education and entrepreneurial activity in towns and settlements should primary lead to growth of local economies with benefits for the environment, social order, and pastoral economy. As outlined immediately above, our risk management interventions range from neutral to positive for the environment, which conforms to the first criterion of sustainable agriculture. Accumulation of wealth and efforts to mitigate social conflicts should allow the social fabric to heal—poverty is bad for the maintenance of traditional cultures. This fits the second criterion. The third criterion is dealt with by several economic outcomes that vary in terms of the relevant time scale. Short-term benefits would include an expansion of local markets for pastoral products. Longer-term benefits would include allowing more pastoralists to emigrate out of the traditional

sector due economic diversification and increased employment opportunities in towns and settlements. Facilitation of emigration is the ultimate humanitarian solution to the risk-management dilemma for pastoralists. This is because population growth reduces resources per capita and therefore increases vulnerability of populations to endogenous and exogenous shocks.

Contributions to United States Agriculture.

The main contribution of this project to United States agriculture is primarily in terms of providing a “wake-up call” for research and extension professionals to the importance of risk management for the small to average-sized livestock producer. As will be noted below, the need for risk management by American producers may be increasing as profit margins get slimmer and the social and economic complexity of agriculture increases. It is fair to say that a commodity perspective has been pre-eminent in agricultural research and outreach in the United States. This has contributed to a lack of a relevant systems approach that could better integrate academic disciplines and deal more effectively with real-world problems. Risk management can be an important contribution in this regard. Risk management is simultaneously economic, social, and ecological. The ability to better manage risks is an important attribute of successful farmers and ranchers. While livestock producers in the United States are under no imminent threat of starvation or extreme destitution comparable to pastoralists in northern Kenya or southern Ethiopia, there are commonalities in terms of how risks are conceptualized and interact to cause problems. For example, it has been forwarded by Holechek et al. that beef producers in New Mexico should diversify their assets and investments to mitigate economic downturns

that repeatedly result from cyclic fluctuations in beef prices. This is exactly the same concept that we have for East African pastoralists. Education and access to investments are the main constraints for New Mexico ranchers—similar to prominent implementation constraints for East African pastoralists. The predictability of drought cycles and the possible influence on precipitation regimes of phenomena like El Niño are core issues of agricultural debate in the United States as well as East Africa. Global trade affects the United States beef producer and the East African pastoralist. The advent of the North American Free Trade Agreement (NAFTA) could serve to dampen peak prices received by American cow-calf operators because of increased importation of cheaper Mexican beef. Research remains to be done that could confirm this widely held suspicion. The specter of NAFTA, however, probably influences behavior of American producers by increasing their perceived risk on prices and possibly discouraging production investment. Currently, the cross-border flow of live cattle is officially restricted between Ethiopia and Kenya. We do not know the rationale for this restriction, nor its effects on household economics on either side of the border. Answers to this will be provided by the GL-CRSP's applied research, which may shed new light on the costs and benefits of free trade in general—even as applicable to agriculture in the United States. Our project will communicate such findings and influence the American research community, and hence the United States agricultural community, through a variety of research and outreach publications.

Contributions to Host Countries.

Contributions to our host countries will mostly be felt through our outreach activities (described above) and training of host-country

nationals. Outreach will primarily have impact on project beneficiaries—pastoralists and agro-pastoralists—but it will also have impact on development professionals and their organizations that link to us directly. In the training sphere our past contributions have also included computers, books, sponsorship for people to attend international conferences, and other technical support for our main academic partner in Kenya, Egerton University.

LINKAGES AND NETWORKING

This has been previously covered in our section on Outreach.

Collaboration with IARCs and Other CRSPs. We collaborate with the International Livestock Research Institute (ILRI) in both Ethiopia and Kenya. We typically hold our workshops at ILRI conference facilities. Some administrative and logistical support for fieldwork is provided to us by ILRI. We have had a link to Dr. Simeon Ehui and the Livestock Policy Analysis Program (LPAP) based at ILRI-Ethiopia. We have been strengthening ties in the past year to the Crisis Mitigation Office (CMO), created under the auspices of ASARECA, headed by Dr. Jean Ndikumana of ILRI-Kenya. The other CRSP we link to is the BASIS CRSP. Drs. Peter Little and Christopher Barrett, American PIs on the GL-CRSP, and Prof. Abdillahi Aboud, regional PI, are also participants on the BASIS CRSP. The GL-CRSP and BASIS CRSP share an interest in policy and economic issues that deal with cross-border relations.

OTHER CONTRIBUTIONS

Support for Free Markets and Broad-Based Economic Growth. Interventions that will be advocated by our project will be in direct

support of free markets and economic growth. Some of this has been previously described. This prominently involves linkages between markets and formation of benefits-oriented cooperatives to empower pastoralists at the local level. At our recent biennial workshop in Njoro during 2001, some presentations dealt with outreach ideas to assist pastoralists to form their own cooperative associations to spur development processes—the idea being that a local association could form and pool capital resources to first organize a community savings and credit association. This would be an impetus for the group to procure production inputs and invest to improve their marketing capability to make themselves less vulnerable to trading bottlenecks. A group, for example, could purchase a large truck and independently handle livestock shipping. The outreach entity would only provide the initial training and a few select inputs to get it rolling. The success of such an endeavor would rely heavily on the availability of livestock and grain markets and their efficiency of operation. Taken together, these elements all reflect the functioning of free markets, a role for agribusiness, and developing a capability for pastoralists to empower themselves using private enterprise.

Contributions to and Compliance with USAID Mission Objectives. Our project contributes to and complies with Mission objectives in each country by dealing with food security, economic growth, the environment, and privatization issues. We have solid contacts with prominent people in USAID Missions in both Kenya and Ethiopia.

Concern for Individuals. Our project incorporates a concern for individuals in several ways. One is through technical and advanced training opportunities, with a focus on host-country nationals at the master's and

PhD level. Training details are given in a subsequent section. Other evidence is provided by the way in which we have organized our applied research and outreach. For research, we realize that improved risk management will ultimately occur at the level of the individual. For outreach, priorities like public education, conflict mitigation, and formation of benefits-oriented cooperatives are a testimony to the value we place on helping individuals improve their lives by being able to deal with risk by making more informed choices.

Support for Democracy. Voluntary, benefits-oriented producer cooperatives are one form of grass-roots democracy in action. We have also been asked by our outreach partners to help pastoralists in pilot projects to better communicate their needs and desires to local politicians.

Humanitarian Assistance. Our program of applied research and outreach is the embodiment of humanitarian assistance. Outreach will, in large measure, help set an agenda to guide more research as well as outreach. Research will therefore be very relevant to solving problems related to the “human condition” in the study region.

LEVERAGED FUNDS AND LINKED PROJECTS

During 2001-02 Egerton University has again contributed about USD 7,200 in salary support for PARIMA team members Aboud and Lusenaka, tuition waivers, and stipend support for PARIMA students. Our project is linked to several other groups dealing with outreach and research, but it is difficult to place a monetary value on these relationships. For outreach, we have linkages with a variety of local, grass-roots development efforts. Prominent organizations in the Ethiopian

network include the OADB (Oromia Agricultural Development Bureau), OCPB (Oromia Cooperative Promotion Bureau), and SCF/USA (Save the Children). In Kenya we link to CIFA (Community Initiatives Facilitation and Assistance), the Moyale District Agriculture and Livestock Extension Office (DALEO), and the ALRMP (Arid Land Resource Management Project). For research, our project has a link to several projects. Prof. Abdillahi Aboud and Drs. Peter Little and Chris Barrett, all project co-leaders on PARIMA, also work with the BASIS CRSP as previously described. The PARIMA project is also linked to an effort at Utah State University funded by the Utah Agricultural Experiment Station and led by Dr. Layne Coppock since 1995. This involves identification of prominent threats to the sustainability of Utah ranching operations. The need that Utah producers have for improved risk management is a major issue emerging from this work, and provides an important conceptual bridge between livestock production in the western United States and East Africa.

TRAINING

Degree, In Progress:

Moses Esilaba, MS, 2002, Natural Resource Social Science. Egerton University, Njoro, Kenya.

Clement Lenachuru, MS, 2002, Natural Resource Social Science. Egerton University, Njoro, Kenya.

John Tangus, MS, 2002, Natural Resource Social Science. Egerton University, Njoro, Kenya.

Waktole Tiki Uma, MS, 2002, Natural Resource Social Science. Egerton University, Njoro, Kenya.

Sharon Osterloh, MS, 2003, Agricultural Economics. Cornell University, Ithaca, New York, USA.

Abdullahi Dima Jillo, MS, 2003, Natural Resource Social Science. Egerton University, Njoro, Kenya.

Godfrey Nyongesa Nato, MS, 2003, Natural Resource Social Science. Egerton University, Njoro, Kenya.

Hussein Mahmoud, PhD, 2003, Development Anthropology. University of Kentucky, Lexington, Kentucky, USA.

Amare Teklu, PhD, 2004, Natural Resource Science. Cornell University, Ithaca, New York, USA.

Non-Degree Training (Post-Doctoral Associates), In Progress:

Solomon Desta, Post-doctoral Associate. 1999-present. Outreach Coordinator. Utah State University.

Getachew Gebru, Post-doctoral Associate. 2000- present. Animal production systems. Utah State University.

Completed:

John McPeak. Post-doctoral associate. 1999-2002. Economics. Cornell University.

Non-Degree Training (Workshops, Short Courses, Field Tours), Completed:

First Cross-Border Pastoral Women's Tour. Held for one week during late December. Ethiopian women were taken to meet successful women's groups in northern Kenya. Twenty participants including 15 Ethiopian pastoral women and five development agents from Yabelo, Negelle, and Moyale.

Second Cross-Border Steering Committee Meeting for Ethiopia and Kenya. Held for one

day on June 27. Meeting co-hosted by PARIMA and CIFA. The objective was to plan for the upcoming Third General Cross-Border Activity Harmonization Meeting to be held in December 2002. Twenty-four people attended the steering committee meeting, including leaders from the pastoral communities, prominent traders, and local administrators.

Second Short-Course in Small-Scale Business Management and Development. Held the first week of September at Yabelo, Ethiopia. This course was funded by PARIMA and conducted by instructors from the Furra Institute of Development Studies at Yirgalem, Ethiopia. Thirty-two trainees completed the course, and 28 were male and female pastoralists associated with the five community pilot projects sponsored by PARIMA Outreach. The other four were development agents.

The PARIMA team hosted the External Evaluation Panel (EEP) representing USAID Global Bureau. This review was held from June 18-21 and included formal presentations at ILRI Kenya followed by a field tour to southern Ethiopia and northern Kenya. About 15 people attended the ILRI portion, including 10 members of the PARIMA team, two members of the EEP, and observers from ILRI. About 50 people attended various portions of the field tour—the 38-person increment was composed of representatives from local collaborating organizations.

First Policy Makers Tour for Southern Ethiopia. Held the first week of September throughout southern Ethiopia. The purpose of the tour was to help familiarize policy makers from Oromia State—typically department heads of state government—with the development situation in the pastoral zones. The tour was led by Solomon Desta, Seyoum Tezera, and Getachew Gebru and involved about 10 policy makers overall.

COLLABORATING PERSONNEL

United States of America:

Dr. Christopher Barrett, Associate Professor, Department of Applied Economics and Management, Cornell University, Ithaca, New York.

Dr. Layne Coppock, Associate Professor, Department of Environment and Society, Utah State University, Logan, Utah.

Dr. Cheryl Doss, Director of Graduate Studies, International Relations Program, Yale University, New Haven, Connecticut.

Dr. Peter Little, Professor, Department of Anthropology, University of Kentucky, Lexington, Kentucky.

Ethiopia:

Dr. Simeon Ehui, Head, Livestock Policy Analysis Program, International Livestock Research Institute (ILRI).

Dr. Gezahegn Ayele, Research Economist, Ethiopian Agricultural Research Organization (EARO).

Ms. Darlene Cutshall, STI Coordinator, USAID Mission to Ethiopia.

Mr. Alemayehu Reda, Assistant STI Coordinator, USAID Mission to Ethiopia.

Mr. Dadhi Amosha, Technical Expert and PARIMA Liaison, Oromia Agricultural Development Bureau (OADB).

Mr. Steve McCarthy, Technical Expert, Volunteers in Cooperative Action (VOCA).

Dr. Fisseha Meketa, Senior Expert, Save the Children (SCF/USA).

Mr. Sora Adi, Senior Expert, Borana Lowlands Pastoral Development Project (BLPDP/GTZ).

Mr. Aliyu Hussen, Research Coordinator, Oromia Agricultural Development Bureau (OADB).

Ms. Feleketch Lemecha, Senior Staff Member, Oromia Agricultural Development Bureau (OADB).

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Prof. Abdillahi Aboud, Associate Professor and Dean, Faculty of Environmental Studies and Natural Resources (FESNARE), Egerton University.

Mr. Frank Lusenaka, Lecturer, Department of Natural Resources, Egerton University.

Dr. Jean Ndikumana, Team Leader, Crisis Mitigation Office (CMO), International Livestock Research Institute (ILRI).

Mr. Chachu Tadecha, Director, Community Initiatives Facilitation and Assistance (CIFA).

Ms. Miriam Cherogony, Staff Member, K-REP Development Agency.

Ms. Allyce Kureiya, Staff Member, SNV-Isiolo.

Mr. Boru Halake, Staff Member, Arid Lands Resource Management Project (ALRMP).

Mr. Godana Doyo, Staff Member, Arid Lands Resource Management Project (ALRMP).

Dr. William Shivoga, Senior Lecturer, Department of Environmental Sciences, Egerton University.

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Kenya Agricultural Research Institute (KARI), P.O. Box 57811, Nairobi; Tel: 254-2-583-301; Fax: 254-2-583-344.

Department of Livestock Production, Ministry of Agriculture and Rural Development; P.O. Box 30028, Nairobi; Tel: 254-2-721-005; Fax: 254-2-721-983.

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Livestock Policy Analysis Program, International Livestock Research Institute (ILRI), P.O. Box 5689, Addis Ababa, Ethiopia; Tel: 251-1-463-495; Fax: 251-1-461-252.

United States Agency for International Development (USAID) Mission to Ethiopia, P.O. Box 1014, Addis Ababa; Tel: 251-1-510-088; Fax: 251-1-510-043.

Oromia Agricultural Development Bureau (OADB), P.O. Box 8770, Addis Ababa; Tel: 251-1-155-303; Fax: 251-1-515-905.

Oromia Cooperative Promotion Bureau (OCPB), P.O. Box 8648, Addis Ababa; Tel: 251-1-158-737; Fax: 251-1-515-905.

Ethiopian Agricultural Research Organization (EARO); P.O. Box 2003, Addis Ababa; Tel: 251-1-612-633; Fax: 251-1-611-222.

Save the Children USA, P.O. Box 387, Addis Ababa; Tel: 251-1-164-490; Fax: 251-1-653-615.

Volunteers in Overseas Cooperative Action (VOCA), P.O. Box 548, Code 1110, Addis Ababa; Tel: 251-1-510-508; Fax: 251-1-531-530.

PUBLICATIONS

Research Briefs and Newsletters:

Coppock, D.L. 2001. Risk mapping for northern Kenya and southern Ethiopia. Research Brief 01-01-PARIMA. Global Livestock CRSP, University of California, Davis. 4 pp.

Desta, S. 2001. Cattle population dynamics in the southern Ethiopian rangelands. Research Brief 01-02-PARIMA. Global Livestock CRSP, University of California, Davis. 4 pp.

Barrett, C. 2001. Climate forecasting for pastoralists? Research Brief 01-03-PARIMA. Global Livestock CRSP, University of California, Davis. 4 pp.

McPeak, J. 2001. Pastoralists' use of markets. Research Brief 01-04-PARIMA. Global Livestock CRSP, University of California, Davis. 2 pp.

Barrett, C. 2001. Livestock pricing and markets performance. Research Brief 01-05-PARIMA. Global Livestock CRSP, University of California, Davis. 4 pp.

Mahmoud, H. 2001. Livestock trading and

trader networks in northern Kenya and southern Ethiopia. Research Brief 01-06-PARIMA. Global Livestock CRSP, University of California, Davis. 2 pp.

Doss, C. 2001. Pastoral social safety nets. Research Brief 01-07-PARIMA. Global Livestock CRSP, University of California, Davis. 2 pp.

Little, P.D. 2001. Income diversification among East African pastoralists. Research Brief 01-08-PARIMA. Global Livestock CRSP, University of California, Davis. 4 pp.

Osterloh, S. 2001. Microfinance in northern Kenya: The experience of K-REP Development Agency. Research Brief 01-09-PARIMA. Global Livestock CRSP, University of California, Davis. 4 pp.

Barrett, C., Luseno, W., McPeak, J., Little, P., Gebru, G., and T. Lybbert. 2002. Do pastoralists value modern climate forecast information? Ruminations Newsletter of the Global Livestock CRSP (Summer): 7-9.

Coppock, D.L., McCabe, J.T., Little, M.A., and M.B. Coughenour. 2002. [Jim Ellis and] The South Turkana Ecosystem Project. Special Edition of the Ruminations Newsletter of the Global Livestock CRSP (Spring): 4-5.

Desta, S., and D.L. Coppock. 2002. Linking Ethiopian and Kenyan pastoralists and strengthening cross-border collaboration. Ruminations Newsletter of the Global Livestock CRSP (Winter): 4-7.

Desta, S., and D.L. Coppock. 2002. PARIMA Update. Newsletter of the Pastoral Risk Management Project of the GL-CRSP. Volume 1, Number 1 (April). 6 pp.

Desta, S., and D.L. Coppock. 2002. Jarida la Habari za PARIMA. Kutolea Habari za Mradi wa Kudhibiti Athari Zinazowakumba Wafugaji Wanaohahama. Toleo la kwanza namb 1 (Mwezi April). 6 pp. (Kiswahili translation by E. Goromella, A. Aboud, and F. Lusenaka).

Desta, S., and D.L. Coppock. 2002. Daa'imtuu PARIMA. Projektii Horatee Bulaa balaa tasa dhufu irraa ofeeguu fi salphisuu. Volume 1, lakk 1 ffaa, Ebia. 6 pp. (Oromifa translation by Kan Deebise, Kedir Ruumichoo, and Dadi Amosha).

Proceedings, Proceedings Papers, and Reports:

Coppock, D.L. (ed.) 2001. Proceedings of the Second Biennial Research and Outreach Workshop for Kenya and Ethiopia, "Improving Pastoral Risk Management on East African Rangelands," held June 24 - July 3, 2001, at the ARC/CMRT Conference Center, Egerton University, Njoro. Department of Rangeland Resources, Utah State University. 156 pp.

Coppock, D.L., Aboud, A.A., Alzérreca, H., and Desta, S. 2002. Rangeland policy dialogue, formulation and implementation: Perspectives from Bolivia, Ethiopia, and Kenya. Pages 22-33 In Fernández-Giménez, M., and Kreuter, U. (eds) Proceedings of a symposium organized by the International Affairs Committee of the Society for Range Management entitled "Rangeland Professionals and Policy: Prospects for Effective Influence in the Developed and Developing World." Held February 17 at the 55th Annual Meeting of the Society for Range Management (SRM), Kansas City, Missouri. Proceedings published as an electronic volume by the International Affairs Committee of the Society for Range Management, Denver, CO. 69 pp.

Desta, S., and Tadecha, C. (eds.) 2002. Proceedings of the Second Cross-Border Activity Harmonization Workshop for Kenya and Ethiopia held September 2001 at Yabello, Ethiopia. 20 pp.

Ndikumana, J., Kamidi, R., Desta, S., Marambii, R., Abdi, A., and R. Shori. 2002.

Assessment of possible USAID/OFDA-led activities for increasing resilience of pastoral communities in the Greater Horn of Africa. Consultancy Report submitted to USAID/OFDA. 120 pp.

Peer-Reviewed Articles and Book Chapters:

Mahmoud, H., and van Willigen, J. 2002. Ethics in action. Pages 57-58 In van Willigen J. (ed.) Applied Anthropology: An Introduction. Bergin and Garvey (Greenwood Press). Westport, CT. and London U.K.

Little, P., Mahmoud, H., and P. Little. 2001. When deserts flood: risk management and climatic processes among East African pastoralists. *Climate Research* 19: 149-159.

Little, P., Smith, K., Cellarius, B., Coppock, D.L., and C. Barrett. 2001. Avoiding disaster: Diversification and risk management among East African herders. *Development and Change* 32: 401-433.

van Willigen, J., and Mahmoud, H. 2002. Participatory rural appraisal. Pages 115-128 In van Willigen J. (ed.) Applied Anthropology: An Introduction. Bergin and Garvey (Greenwood Press). Westport, CT. and London U.K.

ABSTRACTS AND PRESENTATIONS

Barrett, C.B., and W. Luseno. 2002. Price risk decomposition for livestock markets in northern Kenya. Paper presented at a Conference on Development Strategies for Less-favored Areas, held 12-13 July at Wageningen, The Netherlands. International Food Policy Research Institute (IFPRI) and Wageningen University.

Coppock, D.L., Aboud, A.A., Alzérreca, H., and S. Desta. 2002. Rangeland policy

dialogue, formulation, and implementation: Perspectives from Bolivia, Ethiopia, and Kenya. Abstract in Proceedings of the 55th Annual Meeting of the Society for Range Management, held 13-19 February, Kansas City, Missouri.

Desta, S., and D.L. Coppock. 2002. Economic diversification of pastoral women's groups in northern Kenya. Abstract in the Proceedings of the 55th Annual Meeting of the Society for Range Management, held 13-19 February, Kansas City, Missouri.

Getachew, G., Desta, S., and D.L. Coppock. 2002. Managing risk in a pastoral system: Research and outreach experience of the PARIMA project in southern Ethiopia and northern Kenya. Poster presented at the Annual Meeting of the Ethiopian Society for Animal Production, held during August in Addis Ababa.

McPeak, J. 2002 (a). Contrasting income shocks with asset shocks: livestock sales in northern Kenya. Paper presented at the Sixth Annual Conference of the Center for the Study of African Economies (theme: Understanding Poverty and Growth in sub-Saharan Africa), held 18-19 March at St. Catherine's College, Oxford University, UK.

McPeak, J. 2002 (b). Fuelwood gathering in northern Kenya. Paper presented at the Annual Meeting of the Association for Politics and Life Sciences, held 11-14 August in Montreal, Quebec, Canada.

McPeak, J., and C. Doss. 2002. Are household production decisions cooperative? Evidence on migration and milk sales from northern Kenya. Abstract in the Proceedings of the Annual Meeting of the American Agricultural Economics Association, held 26-31 July at Long Beach, California.

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