



# RUMINATIONS

NEWSLETTER OF THE GLOBAL LIVESTOCK COLLABORATIVE RESEARCH SUPPORT PROGRAM

## Divergent vs. Convergent Problems:

### New Approaches to Sustainable Agricultural Development

*By Timothy Moermond, Principal Investigator, Project PLAN, University of Wisconsin-Madison*

The goal of Project PLAN is to foster local farm community planning for sustainable land use within the mountainous watersheds of Bolivia, Ecuador, and Mexico (Fig.1). The small, resource poor farms within these forested watersheds comprise cattle, a diversity of minor livestock, crops, pastures, orchards, and gardens. Within these watersheds, what is sustainable agriculture development? How can one use the land—its soil, water, and forests—to produce the foods, water, medicines, fiber, fuel, and other materials needed for survival—in such a way that it retains its capacity to continue to provide? This is a complex problem and requires a deep understanding of the bio-physical nature of the system including all its components and processes. Ecologists, hydrologists, foresters, agronomists, and animal scientists would need to pool their knowledge to provide possible solutions. Those of us with a bio-physical background are more apt to see this problem as a “*people—thing*” problem, with our emphasis on the “*thing*”—the agro-ecosystem. Seen in this way, this type of problem may be seen as a “convergent” problem (after Schumacher, 1977), a problem to which many lines of scientific inquiry converge, approaching the technical solution. The “convergence” is focused on the “*thing*” the land and its elements and processes. What about the “*people*” half of this problem?

In “Facilitating Sustainable Agriculture,” Röling and Wagemakers (1998, p. 12), propose that

the “problems we are faced with have less to do with instrumental problems, i.e., *people—thing* problems, and increasingly to do with *people—people* relationships, i.e., social problems.” They emphasize the implications this has for agricultural science “which has so far profiled itself as a bio-physical and technical

*(continued on page 12)*



*Over the past decade, pastoral women's groups in northern Kenya have made remarkable progress in terms of risk management activities. The Outreach Unit of the PARIMA project recently arranged for pastoral women's groups from northern Kenya and southern Ethiopia to meet and share ideas. The field tour, which was documented by Ethiopian Television, brought fifteen pastoral women leaders and five development workers from southern Ethiopia to northern Kenya to see for themselves what the Kenya pastoral women's groups have achieved. The field tour was part of a series of cross-border workshops and exchanges that the PARIMA Outreach Unit has facilitated in the past year. To read more about the cross-border activities, turn to page 4.*

## 9/11: Linking National Security and Development Assistance

*By Dr. Montague W. Demment, Director, Global Livestock CRSP*

*(The following article is reprinted from the Foreword to the GL-CRSP 2001 Annual Report).*

One can not comment on our year's activities without discussing the implications of the events of September 11 for the country's international perspective especially with regard to development assistance. While Americans as a people have benefited almost unconsciously from the economics of globalization, we now have suffered quite deliberately from the globalization of terrorism. The country is now focused internationally as it has not been since the collapse of the Soviet Union.

Let me state up front that in my discussion of these issues I am in no way attempting to justify or rationalize terrorist acts but wish to understand their causes as a means to make our world more secure and just. The first reactions and discussions that have permeated our lives over these months have been focused on direct action against Al Qaeda. However with time, more fundamental issues are being raised about the nature of US interactions with the developing world. Universities are seeing remarkable increases in enrollment in courses related

to Islam and the Middle East. The press is scouring our institutions for scant capacity in expertise related to events of 9/11. In this short period Americans are beginning to realize how little they understand of that part of the world and how poorly connected we are to events in the region.

In the last decade as the world leader, the US has neglected its responsibility to uplift the poor. We have diminished or abandoned much of our positive foreign engagement that addresses the global issues of the poor. Our foreign assistance budget is small (35th among nations as a proportion of GDP, less than France in absolute terms, less than 0.25% of our overall federal budget). Foreign assistance was supported politically in the past as a means of staving off the Soviet influence but with the breakup there has been little political will for foreign affairs. Our attention span for development has been short and fragmented in a process that is long-term and integrated. In effect we have practiced the politics of disengagement. Nowhere is this more obvious than in Afghanistan. We backed the "freedom fighters" in

and supported the Mujahideen with military training and weapons. When the Russians left we pulled out our support and disengaged from the situation. Disengagement has had its costs. The situation in Afghanistan is in part a result of a lack of positive foreign engagement on our part. America was not there to present an alternative view of the world for Afghanistan that might have assisted them to develop a stable, economical viable society.

I know people whose views are similar to those who caused this horror although I think none of them would carry out such acts. I believe they started life as human beings just like all of us but their lives became so desperate and convoluted that they think that we are the evil in the world. They think this because of distortions of reality but they believe these distortions in part because they have so little contact with the truth and in part because there is some truth even in the distortions.

In the Middle East, perhaps understandably, the US has gone through cycles of engagement, sometimes intense

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## LEWS Analysis to be Part of United Nations Monthly Bulletins

LEWS analysis will be part of the monthly bulletin produced by the United Nations Office for Coordination of Human Affairs. The monthly humanitarian update bulletin for Kenya is distributed to all UN agencies, donors, NGOs, and national governments in East Africa. During a meeting between Dr. Jerry Stuth, Texas A&M University and LEWS Lead Principal Investigator, Ms. Tracy Vaughan, Information Officer and Fernando Larrauri, Humanitarian Affairs Officer-Head of Office, both of the United Nations Office for Coordination of Human Affairs, the LEWS team discussed the importance of the type of analysis LEWS provides for other UN agencies and NGOs. Ms. Vaughan and Mr. Larrauri stressed the need for LEWS to cover the Kenya-Somalia region and the Ethiopia-Somalia region as well as the Sudan-Uganda regions as these represent cross-border issues where humanitarian issues are expressed strongly.

Dr. Stuth demonstrated how they can access much of the LEWS analysis from the internet in their offices. The interesting aspect of the LEWS approach is the high degree of hard systems analysis providing decision makers with quantitative answers of emerging trends, comparisons with responses last year and with the LEWS new 90-day probability

projections. The household portal sites (<http://cnrit.tamu.edu/aflews>) and LEWS weather site (<http://cnrit.tamu.edu/rsg/rainfall/rainfall.cgi>) have been developed on the web to provide information very quickly as to where, for instance, it has started raining in UN food distribution areas or routes that impact their delivery of the food. The first analysis was provided to the United Nations Office for Coordination of Human Affairs in November. ☞

## CRSPs at Food and Agricultural Science Exhibition

The Collaborative Research Support Program (CRSP) Council will present a display at the Fifth Annual Food and Agricultural Science Exhibition and Reception on Capitol Hill, March 5, 2002. The Exhibit is entitled "Forty States in a Global Development Alliance with Fifty-six Developing Countries -- the CRSPs" and will showcase all nine of the Collaborative Research Support Programs: BASIS, Bean/Cowpea, Global Livestock, Integrated Pest Management, Peanut, Pond Dynamics/Aquaculture, SANREM, Soil Management and Sorghum/Millet CRSPs.

The event aims to increase Congressional awareness of the latest in research and education.

### IN THIS ISSUE

**PARIMA Cross-border Collaboration .....4**

**LEWS Stakeholder Workshop.....8**

**Early Warning Newsletter Partnership .....9**

**International Nutrition Conference in DC .....10**

**Call for Posters.....10**

Last year, the event featured 40 exhibits on a variety of topics ranging from nutritional genomics to food safety and consumer education -- with the interactive exhibits being the most effective. Microscopes, interactive computer programs, and interactive demonstrations helped to make this event a memorable experience for the members of Congress and their staffs. More than 700 people, including nearly 40 members of Congress, circulated through the exhibits and enjoyed the friendly reception atmosphere.

The CRSP Exhibit will show how, through the CRSP programs, USAID accesses the world's largest agriculture and food research extension and education resource. ☞

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# Linking Ethiopian and Kenyan Pastoralists & Strengthening Cross-Border Collaboration

*By Dr. Solomon Desta, GL-CRSP PARIMA Outreach Coordinator and Dr. Layne Coppock, Lead PI PARIMA*

Opportunities and challenges in the pastoral production systems of northern Kenya and southern Ethiopia are laced with cross-border issues. Any measure that hinders free movement of people and livestock across the common border will limit access to grazing and water. This situation can reduce the mobility of pastoral herds. Because of the high spatial and temporal variability in rainfall and hence forage production and the recharge of water points, mobility is essential for pastoralists. Constraints on mobility increase the incidence of conflict among pastoralists who live along the common border as they resort to violent competition rather than cooperation to access scarce resources. In addition to movement restrictions, the imposition of various trade barriers makes cross-border livestock commerce more difficult. This constraint can have negative effects on pastoral livelihoods, especially for those primarily dependent on cross-border trade. Because of growing human populations, pastoralists in the PARIMA study area increasingly require well-functioning markets for their survival.

The Outreach Unit of the Pastoral Risk Management (PARIMA) project of the GL-CRSP is involved in dissemination of research information and facilitation of cross-border dialogue among pastoralists, traders,



*Kenyan workshop participants visiting Dubluk water wells.*

development agents, and policy makers in northern Kenya and southern Ethiopia. The goal, using a bottom-up approach, is to help identify practical means to overcome common problems that improve pastoral risk management and human welfare. The Outreach Unit facilitates cross-border meetings that improve relations between northern Kenya and southern Ethiopia at the grass-roots level. It also has helped organize cross-border field tours that link Ethiopian and Kenyan women's groups as well as provide opportunities for development workers to explore common problems and transfer community-based solutions from one country to another. One of the biggest obstacles for PARIMA and partners to overcome has been obtaining permission for workshop and study tour participants from one country to visit the other given the lack of formal passport documentation. After much effort, we are happy to say that emigration officials on both sides of the border have agreed to regularly facilitate this flow of people and information.



*Nura Dida, a pastoralist and workshop participant from Ethiopia explaining the importance of harmonizing cross border animal health activity.*

Two cross-border workshops were organized for pastoralists, development agents, livestock traders, and local government officials from Ethiopia and Kenya. The first workshop was held during May 2001 in Moyale, Kenya. There were 18 participants from southern Ethiopia and 35 from





*Kenyan workshop participants after visiting the livestock market at Dubluk discussing with Hussien Galgelo, Borana Zone, Deputy Administrator, the need to liberalize cross border livestock trade.*

northern Kenya. The second cross-border workshop was conducted in Yabello, Ethiopia during September 2001. It was attended by 110 participants (102 male and 8 female), of which 30 (3 female and 27 male) came from northern Kenya. Two of the Kenyan women participants are members of the dynamic Umoja and Borole Women's Groups from Sololo. Both women made a presentation on their group experiences over the past decade, and received a standing ovation in the plenary session. The two workshops directed the attention of the pastoralists, traders, development agents, and government officials to common local problems and then work towards mutual solutions. The workshops have had value in terms of transferring skills and knowledge from one side of the border to the other. The workshops have also

created a feeling of hope. In both of the workshops participants focused on major problems such as drought and cross-border access to grazing and water, marketing, animal health, and conflict in which they can work together for mutual benefit. As a result four "cross-border committees" were formed around the four themes i.e., drought and natural resource management, livestock marketing, animal health, and peace building. A steering committee was also formed to maintain and strengthen interaction across the border and oversee and assist the four working committees in their efforts to achieve their objectives. The workshops also created an opportunity for the entire group to begin to think about lobbying on policy-related matters. Participants at the workshops demonstrated considerable enthusiasm to strengthen their collaboration to deal with their common problems.

The cross-border steering committee, which consists of members from pastoral representatives, local administration, policy makers, GOs, and NGOs in northern Kenya and southern Ethiopia had its first meeting on December 10, 2001. The steering committee assessed impacts of the two previous workshops on cross-border interaction between the Ethiopians and Kenyans. It was indicated that a growing sense of trust is developing between the two peoples. The livestock market in Moyale is functioning smoothly. Cooperation between pastoralists in both regions is growing and it helped to facilitate peaceful movement of livestock across

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*Participants at the Second Cross Border workshop held in September, 2001, in Yabello.*

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the border for water and grazing. Another cross-border livestock market center is in the process of opening up in Sololo, Kenya, and pastoralists from as far away as Mega in Ethiopia are safely traveling to conduct business transactions.

The two workshops and the steering committee meeting were co-hosted by PARIMA and CIFA (Community Initiatives Facilitation and Assistance) of Kenya. Vital roles have also been played on the Ethiopian side by the Borana Zonal Administration, the Oromia Agricultural Development Bureau, the Borana Zonal



*Steering committee members (standing) elected from among the pastoralists and livestock traders to coordinate the cross border initiatives.*

Agricultural Development Department, and the Southern Rangelands Development Unit. For the Kenyan side, the Moyale District Commissioner, the Arid Lands Resource Management Project, and the Moyale District Agriculture and Livestock Extension Office (DALEO) have played critical roles in organizing and facilitating activities.

Many pastoral women's groups in northern Kenya have made fairly remarkable achievements over the past decade in terms of wealth accumulation, economic diversification, and provision of community social services. We first became aware of these groups in 2000 when on routine field tours in the region. These women's groups could serve as development models for similar situations in Ethiopia. We see linking Ethiopian women with these Kenyan women's groups as a vital step to build awareness of possible risk management activities among the Ethiopians. A one-week field



*The tour participants at Gerbi women's group.*

tour was carried out in late December 2001 that took 15 pastoral women leaders and five development workers from southern Ethiopia to northern Kenya. Two journalists from Ethiopian Television (ETV) traveled with the group and recorded and documented the tour. The members were taken on a tour of Moyale, Sololo, Marsabit, Bada Hurri, and Kalicha in northern Kenya to see what the Kenyan pastoral women have achieved over the past decade by primarily using their own resources combined with visionary efforts. The tour group visited various development initiatives including financial service associations, education centers for pastoral children, a pastoral health insurance scheme, and other integrated programs. This activity was a milestone to link Ethiopian and Kenyan women on this tour, and the Ethiopians were amazed. The ETV journalists



*The tour participants at Badahuri hills attending presentation by the women group in Badahurri.*

*Women participants at the Yabelo workshop. The four on the left are Borana pastoralists from Ethiopia. The two in long black dress, on the right, are from Kenya and they are members of the pastoral women's group in Sololo. A representative from each of the two groups made presentations at the workshop about the experience of their respective women groups.*



have recorded and documented the whole tour and it is being aired on the ETV Oromifa language program. Special acknowledgements are due to Ato Seyoum Tezera, PARIMA Outreach Field Supervisor, who led the tour. The partners of

serves the pilot projects as a facilitator, monitor, and donor conduit. An Outreach Review Panel consisting of Ethiopian and Kenyan development professionals approves pilot project concepts. The PARIMA project will continue to stimulate new thinking and interaction in the region at the grass-roots level. Dissemination of high-quality research results as briefs and news notes, both in English and local languages, will strengthen the flow of critical information to pastoral communities, development agents, and policy makers alike. 📺



*For more information, please contact Dr. Layne Coppock, Utah State University, Dept. of Rangeland Resources, 210 Natural Resource Bldg., Logan, UT 84322-5230. Email: LCoppock@cc.usu.edu*

**All photos by Seyoum Tezera,  
PARIMA Outreach Field Assistant**

PARIMA in northern Kenya, CIFA, ALRMP, and DALEO participated in the organization and facilitation of the tour. Mr. Mollu Dika from ALRMP and Mr. Adan Wako from CIFA accompanied the tour group as well.

Once the Ethiopian women have returned to their homes across the Borana Plateau they become the seeds of vision, hope, and leadership for their local communities. Their energies will be effectively channeled as part of pilot intervention activities being carried out by various governmental and non-governmental partners that are funded by the USAID Mission to Ethiopia. The PARIMA project



*Tour participants attending presentation by Umoja women group in Sololo.*



## LEWS Holds Two-Day Stakeholder Workshop in Kenya

The GL-CRSP Livestock Early Warning System project (LEWS) held a two day Kenya Stakeholder Workshop, October 31 – November 1 2001, in Nairobi. Over 70 people representing ministries, NGO, donors, extension personnel and pastoral organizations attended the workshop.

Dr. Jean Ndikumana, LEWS Regional Coordinator and ASARECA – Animal Agriculture Research Network (AARNET) Chair, opened the workshop. Dr. Henry K. Cheruiyot, Deputy Director,



*Jean Ndikumana, LEWS Regional Coordinator and ASARECA - AARNET Chair. File Photo.*

KARI provided the keynote address for KARI. An overview of the Global Livestock CRSP program and how LEWS currently is organized and functions in the region was given by Dr. Jerry Stuth, LEWS Lead Principal Investigator.

Mr. Saalim Shabani of the Arid Lands Resource Management Program (ALRMP) in the Office of the President in Kenya provided an overview of the

community-based monitoring and early warning system they have in place in Northern Kenya. Dr. Solomon Desta, GL-CRSP-PARIMA project, provided an overview on pastoral risk management strategies and role of early warning systems. Two of the Laikipia community liaison officers and a representatives of the SARDEP in Kaijado provided their experiences in community-based management of drought.

Mr. Roger Kamidi, ASARECA AARNET data analyst, provided the results of their recent study on traditional indicators of impending crisis among pastoralist communities of the Greater Horn of Africa and the strategies and resources used for mitigation. In the afternoon, technical aspects of the PHYGROW forage production model, the CERES maize model, the NIRS/ NUTBAL PRO nutrition management system and field protocols for establishing monitoring sites were presented by LEWS team members.

An overview of the GIS tools and geostatistical techniques used to map forage resources across the entire Inter-Governmental Authority on Development (IGAD) region in



*LEWS Team member, Raphael Marambii, is shown demonstrating WorldSpace Radio Technology. File Photo by Jay Angerer*

East Africa was given by Dr. Robert Kaitho. The goal of these technical overviews was to demonstrate to our stakeholders that we are using sophisticated techniques to generate the results rather than the normal “soft systems” approach to many other early warning systems in the region.



*Jerry Stuth, LEWS Lead Principal Investigator and Texas A&M Professor. File Photo.*

Many of the NGO’s, donors and government organizations are calling for more objective quantitative methods such as those used by LEWS. There were then a series of examples of results of the field personnel involved in the Southern and Northern Kenya LEWS

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monitoring zones provided by on-ground personnel from the Ministry of Agriculture and Egerton University.

A joint presentation was made by Rapheal Marambii (ASARECA Crisis Mitigation Office) and James Nguo (Arid Lands Information Network [ALIN]) to focus on application of the WorldSpace satellite radios within the context of delivery of LEWS information to remote pastoral regions of East Africa.

Mr. A.O. Esmail, Deputy Director Range Department of Ministry of Agriculture, provided his guidance on how LEWS can be incorporated into the fabric of the Ministry of Agriculture in a manner that leads to institutionalization of LEWs in a sustainable manner.

Dr. Stuth provided the final presentation on future strategies and directions of the LEWS program based on consensus discussions throughout the conference. These included:

1. Building stronger linkages of early warning systems to livestock marketing issues.
2. Improved Early Warning (EW) information delivery and communication systems at the national, district and community level.
3. Institutional capacity building for interpreting and using the information.
4. Expansion of the monitoring zones with new partners effectively at all levels.
5. Integration of the NIRS/NUTBAL system into animal health networks (para-vet programs).
6. Improved linkages with crop modeling for EWS in agro-pastoral regions.
7. Mitigation research for pastoralists to effectively react to early warnings.
8. Ecological restoration research to improve pastoral lands.
9. Improved geo-spatial and modeling tools. 🌐

## Partnership Formed to Produce IGAD Early Warning Newsletter

A working group from FEWS NET, Drought Monitoring Center (DMC), Regional Center for Mapping Resource Development (RCMRD), Kenya Met Center and UNEP have been meeting with Global Livestock CRSP-LEWS team members (Dr. Robert Kaitho and Mr. Rapheal Marambii) on a regular basis to design and produce a monthly early warning bulletin for IGAD's division of agriculture and environment. A recent meeting was held in Nairobi with Dr. Laban Ogallo, Director General of the DMC, Dr. Wilbur Otichillo (Director of RCMRD), Prof. Benson Mochoge, Director, Agriculture and Environment Division of IGAD (Intergovernmental Authority on Development) and GL-CRSP/LEWS PI Dr. Jerry Stuth to discuss the ongoing activities of LEWS in the IGAD region. This marked a media event where Dr. Stuth made the formal presentation of a new, advanced computer system and GIS software/training manuals (ARCGIS) to DMC of the newly formed collaboration on the IGAD Early Warning newsletter. The maps going into the newsletter can be viewed at <http://cnrit.tamu.edu/aflews> and select the regional maps selection item. GL-CRSP/LEWS will provide all pastoral analysis for the newsletter each month and the computer/software is to support data acquisition, production of this newsletter and help support climate related mapping. Capacity building in geo-spatial analysis for RCMRD is currently being planned for key staff in the use of ESRI's ARCGIS. 🌐

*For more information on the Livestock Early Warning System project, please contact Dr. Jerry Stuth, Dept. of Rangeland Ecology & Management, Texas A&M University, M.S. 2126, College Station, TX 77843-2126. Tel: 979-845-5548; Fax: 979-845-5548. Email: [jwstuth@cnrit.tamu.edu](mailto:jwstuth@cnrit.tamu.edu).*

*Or visit the LEWS web site at <http://cnrit.tamu.edu/lews>*

*LEWS household and mapping portal: <http://cnrit.tamu.edu/aflews>*

*LEWS African weather portal : <http://cnrit.tamu.edu/rsg/rainfall/rainfall.cgi>*

## Global Livestock CRSP to Host International Nutrition Conference in June

The Global Livestock Collaborative Research Support Program will sponsor an international conference on “**Animal Source Foods and Nutrition in Developing Countries**” to be held in Washington, D.C. on June 24-26, 2002. The principal organizers are Dr. Montague (Tag) Demment, Director of the GL-CRSP and Professor of Agronomy and Range Science, and Dr. Lindsay Allen, Professor in the Program in International Nutrition, both at the University of California, Davis. A group of internationally recognized experts has assisted them in planning the conference and recommending speakers.

Malnutrition is responsible for a large share of preventable mortality, morbidity, blindness, and poor cognitive development among children in developing countries. The cost of even mild to moderate malnutrition is high in terms of



*The importance of animal source foods in the diets of children will be discussed at the upcoming conference. Photo by Eric Bradford.*

human capital and ultimately, economic development of countries and regions. The conference will explore and highlight research being done on the role of animal source foods (ASF) including results of the GL-CRSP recent study in Embu, Kenya.

The primary goals of the Conference are to: present what is known about the importance of ASF for the nutrition, function, and economic status of populations in developing countries; to examine recently-completed efficacy trials where ASF were fed to specific groups; to review Case Studies of programs intended to increase ASF production and/or consumption; to examine constraints on ASF production and utilization and how these might be alleviated; to articulate and integrate economic, nutritional and agricultural issues; and to develop a policy and research agenda based on these discussions.

The program for the conference includes the following general topics:

- The Role of ASF in the

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### Call For Poster Sessions

The Global Livestock CRSP is sponsoring a conference on “Animal Source Foods and Nutrition in Developing Countries” June 24 – 26, 2002 in Washington D.C. The GL-CRSP welcomes participants to submit abstracts for poster presentations on case studies or relevant research on the importance of animal source foods as a source of micronutrients in developing countries. Please see related article this page for general conference topics.

To encourage student participation at the conference, the Management Entity of the Global Livestock CRSP will offer a select number of travel grants to students submitting poster sessions. To compete for the travel grants, students should send their request for a poster session by **April 15, 2002**. To request information on how to request a poster session, please write or email the Global Livestock CRSP, University of California – Davis, 258 Hunt Hall, Davis, CA 95616. Fax (530) 752-7523, Email: [glcrsp@ucdavis.edu](mailto:glcrsp@ucdavis.edu). Additional information can also be found on the GL-CRSP web site: <http://glcrsp.ucdavis.edu>. ☎

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*Members of the GL-CRSP Child Nutrition Project Team present goats to families in the intervention study who participated in the control group. Presentations on lessons learned and the results of the GL-CRSP Child Nutrition Project data analysis will figure prominently on the agenda at the June conference. Team members pictured from left to right, Ms. Minnie Kamore (Field Nutritionist), Mr. Z. Akula (Project Administrator) and Ms. Emmy Nyaga (Nutritionist, Ministry of Health).*

- Evolution of Humans
- The Contribution of ASF to Dietary Diversity
- Global Consumption of ASF
- Nutritional Importance of ASF
- Benefits of ASF for Human Function
- The Kenya GL-CRSP; An Efficacy Trial of Effects of ASF on Nutritional Status and Function
- Case Studies: Effectiveness of Programs to Improve ASF Production and Consumption
- Constraints on ASF Production and Utilization
- Policy Implications
- Economic Issues: Integrating Economic, Nutrition and Agricultural Benefits and Constraints
- Potential for ASF to Improve Nutrition in Marginal Environments

- Plan of Action: Programs and Research

The audience will include major figures in the development community, nutrition scientists and program implementers, economists, anthropologists, and agricultural production experts as well as representatives from donor agencies. Participants are invited to submit abstracts for a poster presentation on case studies or

relevant research within the general topics being addressed at the conference. (See box previous page). Students will be encouraged to attend and a competition for travel funds for the students will be implemented. Conference proceedings, in a book or journal supplement, will be published. 📖

*For additional information on the conference or to register, please visit the GL-CRSP web site at <http://glcrsp.ucdavis.edu>.*

*Analysis of data collected by the GL-CRSP Child Nutrition Project in Kenya shows a small amount of animal source foods added to the diet leads to a statistically significant improvement in cognitive function, physical activity, positive behaviors, classroom attention, physical growth and biochemical micronutrient status. The study further showed meat and milk interventions were not equivalent in effects.*



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## New approaches to Sustainable Agricultural Development

activity.” Sustainable agricultural development requires an agricultural system that is sustainable ecologically, economically, socially, culturally, and politically. The last four of these “elements” are concerned with “*people—people*” relationships.

If a farm is viewed as a *people—thing* problem; then the watershed includes multiple sets of such *people—thing* problems, all the farm households that

more evident when one considers that some of the farmers have fields and activities in neighboring watersheds, while other farmers living outside may have fields in the watershed of concern, and many of the farmers do not have secure land tenure. In addition, some of the “users” of natural resources in the watershed such as timber are neither farmers nor residents. Furthermore, these farm families are influenced by the “market” and

The value-laden, social complexities of this level of sustainable development requires a fundamentally different approach toward its solution. For that approach, we may look more closely into the nature of a “divergent” problem. Schumacher (1977) characterized all problems as being of two kinds: *convergent* and *divergent*. Convergent problems are problems for which several lines of investigation converge toward the solution. How to construct a building safe from external threats, how to cure a particular disease, or how to clean up chemical contamination in a particular river are examples of problems where scientific lines of inquiry “converge” on the solution. These are problems toward which science can be successfully applied. The “*thing*” problems of agricultural development projects such as how to improve pasture productivity or how to handle local livestock diseases are convergent problems. While solutions may be difficult to apply, few doubt that science can find solutions for such problems. Much of the perceived “progress” of civilization has been the result of solving convergent problems.

Divergent problems, however, are of an entirely different nature. A divergent problem juxtaposes two elements that are

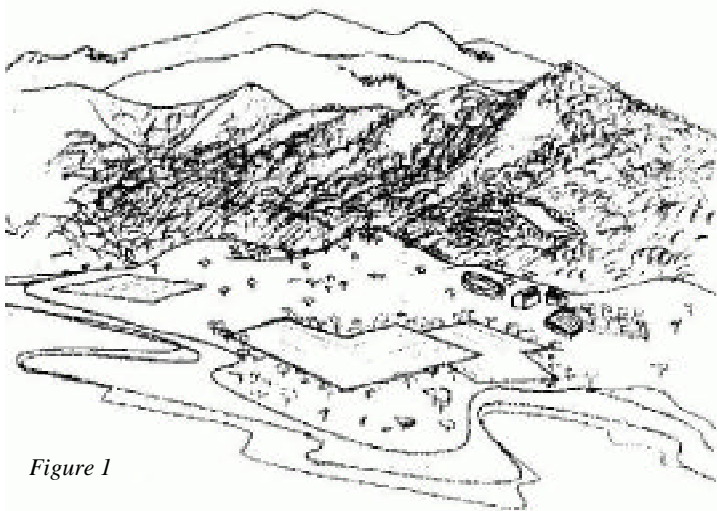


Figure 1

occupy the watershed. The ecological sustainability of one farm by itself is not possible; sustainable solutions need to be applied at the scale of the watershed. The “solution” for the watershed needs be a coordinated integration of all the *farmer—thing* units within the watershed; thus, becoming more of a “*people—people*” problem. The complexity of this perspective becomes even

the “state” in a variety of ways. The coordination of multiple farmers/users into an integrated solution for a watershed is not only a very complex “*people—people*” problem, it is a “divergent” problem—a problem requiring the integration of multiple perspectives and values with complex trade-offs where increasing some desired or essential goods, decreases others.



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in opposition to each other—both of which may be seen as good or necessary, but neither of which is good all by itself. For example, while both liberty and equality are considered “good” by most societies, complete liberty does not produce equality, and

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**... projects promoting sustainable agricultural development must consider how to approach the divergent “people—people” problem...**

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complete equality is likely to be achieved only through severe restriction on individual liberties. The “good” balance between these two *diverging* goods cannot be prescribed by science, but, rather, depends on the values and will of society. The same can be said for other divergent pairs such as stability versus change, tradition versus innovation, conservation versus development, or private versus common interests. Conflicts arise out of imbalances between the elements of these pairs. The solutions for balancing the elements of these dichotomies have more to do with values than with facts and, as such, lie outside the realm of science.

Divergent problems deal with questions of life and conduct; as such they are not logical but existential questions. They are not problems to be solved as much as resolved (Orr 2001). Schumacher argues that the source of knowledge needed to resolve these problems comes not from science but from

wisdom, as “knowledge of what is true or right coupled with just judgment as to action, or insight” (Random House 1987). Wisdom may be seen as going beyond factual knowledge by adding values to facts (Yankelovich 1999). Yankelovich argues “all significant social policies call for weighing competing values against one another and playing them off against whatever factual information may be available.” Resolutions achieving an optimal balance for the common good require thinking beyond self-interest (Daly and Cobb 1994, Orr 2001). Schumacher (1977) further argues that the solutions to divergent problems of society must be sought by transcending the problems through collective wisdom through solidarity and “community.”

Thus projects promoting sustainable agricultural development must consider how to approach the divergent “*people—people*” problem whose resolution is an inescapable, inherent part of sustainability. “An effective ecosystem management regime will accurately identify social values, translate them into social goals and management objectives, then implement programs that will achieve those objectives” (Duane 1997). That scenario calls for the effective application of local collective wisdom for the solution of divergent problems. The “approach” must include a recognition that the

resolution of divergent problems implicit in community planning and collective action lies in the hands and collective wisdom of local residents and stakeholders (Chambers 1997). This recognition shifts the project approach from a search for a solution to these divergent problems to an approach to foster a favorable situation in which local residents can combine their collective wisdom to create solutions that benefit the common good and generate effective collective actions to implement those solutions.

Internal conflict, mistrust, and opportunism are common factors impeding community cooperation and collective planning and action (e.g., Putnam 1993, Duane 1997). Von Kaufman and Saleem (2000), appraising the possibilities for

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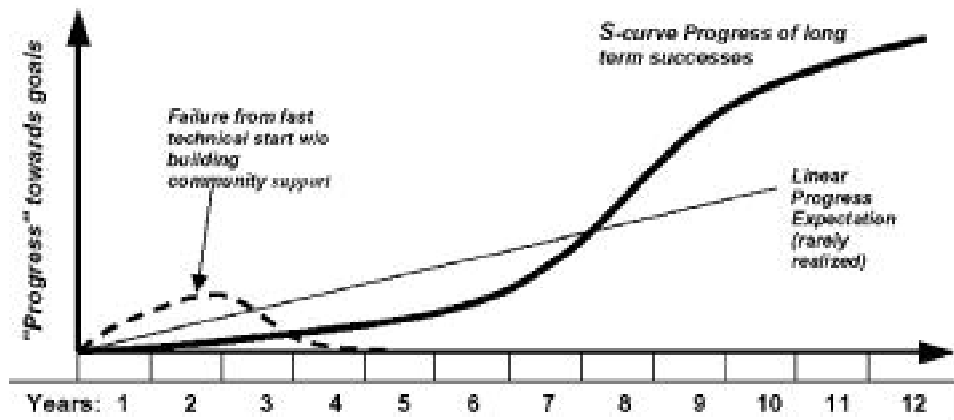
**...resolution of divergent problems implicit in community planning and collective action lies in the hands and collective wisdom of local residents and stakeholders.**

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mountain rural livestock farmers to achieve collective action for a better future, conclude “unless common and private interests are reconciled the conflict between them will be detrimental to both.” Therefore, one recognized way to facilitate local cooperation is to encourage, assist, and support processes and practices of conflict resolution, particularly

*(continued on next page)*

Figure 2



transformative resolution pathways designed to foster cooperation and strengthen relationships (e.g., Wondolleck and Yaffee 1998, Weeks, 1992, Yankelovich 1999).

A second way to strengthen local cooperation is through support/facilitation of local groups (e.g., producer groups, women's groups) and facilitation of networking among groups to increase both human and social capital (Uphoff et al. 1998). While encouraging vertical linkages among groups is typically seen as a necessary strategy, horizontal networks appear to be even more important in the generation of social capital (Uphoff et al. 1998). "Only the horizontal networks constitute true networks of civic engagement and are therefore more likely to generate social capital and cooperation" (Duane 1997). The critical value and potential effectiveness of an approach to foster collective cooperation among these "communities" of stakeholders is supported by the conclusions of a classic 20 year

study of the development of democracy in communities in modern Italy (Putnam 1993). "Dilemmas of collective action hamper attempts to cooperate for mutual benefit. Third party enforcement is an inadequate solution to this problem. Voluntary cooperation ... depends on social capital. ... If a [community] can somehow move toward the cooperative

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**The processes of building trust, developing meaningful participation, and fostering cooperation take time.**

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solution, it will be self-reinforcing. ...Stocks of social capital, such as trust, norms, and networks, tend to be self-reinforcing and cumulative. Virtuous circles result in social equilibria with high levels of cooperation, trust, reciprocity, civic engagement, and collective well-being" (Putnam 1993). An approach to empower local communities to resolve their divergent problems bring with it important consequences with

respect to rates of progress. It may be possible to work out what appear to be appropriate solutions to the convergent problems of the local communities quickly; however, the long term adoption and integration of these solutions must move with the community's readiness and ability to work collectively. The processes of building trust, developing meaningful participation, and fostering cooperation take time. Experiences from successful rural development and community-based conservation and development projects emphasize that community institutional development evolves gradually and cannot be hurried (Uphoff et al. 1998, Gibson et al. 2000, Agrawal and Gibson 2001, Hulme and Murphree 2001). "Success has often been the result of respecting a more natural rural development process...over an extended time horizon of from 10 to 20 years ...especially for participatory planning, which is essentially an incremental process (Burkey 1993). Uphoff

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et al. (1998), distilling “what works” from an analysis of thirty successful rural development projects, state that the path of progress should be viewed as a logistic S-curve.

It may be a relatively easy step to recognize the differences between divergent and convergent problems. It is less easy to understand how to approach divergent problems and to devise fundamentally different strategies to deal with them. It is still more difficult to understand how to integrate such “divergent” strategies into one project and to appreciate the greater role that the “*people*” sides of the equation must play with respect to time lines, definition of progress, and sustainability. Einstein observed that “the problems we’ve created, we’ve created at a certain level of thinking, and they cannot be solved at the level of thinking that created them” (Senge et al. 1994). Learning to approach divergent problems as part of the “solution” to agricultural development requires a new level of thinking—rising above the usual perceptions, rising above scientific knowledge and seeking wisdom. 🌱

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(continued from page 2)

## 9/11: Linking National Security and Development Assistance

support of the peace process, and withdrawal over the seemingly endless violence and despair. Yet we have failed to exert true leadership in the Middle East. A plan for US long-term involvement, sufficiently focused, intense and balanced, has never emerged. In hindsight the resources now committed to war would likely have brought development and peace to the region yet the situation continues unresolved, fomenting violence that fuels the distortions of our national values in the eyes of the region's Muslims.

The Israelis have always taken the hard line in the cycle of violence, and the situation is

now as bad as it has been in 20 years. Violence alone is not the answer. The French after the 1986 terrorist bombings in Paris rooted out the guilty (primarily disaffected Islamic youths from Algerian resident in France) but the government also recognized the causes of the frustrations for this population and reached out to their community with a comprehensive series of social and political programs. The result is that the terror disappeared.

The US continues to be active internationally, not in a sufficiently intense way with long term goals appropriate for development, but in a reactionary way where we feed the starving or provide disaster assistance (not figuring out how to improve food systems in the first place or prevent disasters made more intense by poverty, poor land use or faulty construction) or police local conflicts that could at least be dampened by our leadership to defuse situations before they become violent (Rwanda and Somalia are a classic example of lack of leadership responsibility).

The terrorists are truly fighting a war in their eyes and we need to understand the conditions that give them their cause and remove them. I support intensive action to route out their networks and extinguish them individually. But at the same time we will never be safe

from terrorism by only constructing shields, becoming less engaged and providing good counter intelligence. Moreover there are great prices to pay in personal freedom and the quality of life for America if we only have a defensive action.

America needs to attack the disease as well as the symptoms. We need to use our resources to create the foundations for broad based economic growth that nurtures stable democratic societies and eliminates terrorism as the only avenue for action to achieve a reasonable standard of living. We must engage so we not only change the conditions but we also understand the national political, social and economic landscape well enough to be effective partners. Part of the failure of our intelligence has been that we are not sufficiently engaged in these areas to know what is happening.

So I am arguing that we can not in this globalized world just put up walls and enact a military solution. Terrorism in NYC is globalization's dark side coming back to bite us. The US should go out not only to punish, but to engage and provide a means for the poor to achieve the visions of our world that we think should be the fundamental principles of a world order. Development assistance is a principal means to that end. ☪☪

### ***Ruminations***

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