BASIS CRSP
Seventh
Annual Report

Activities
2002-2003

Workplans
2003-2004

and

Outreach

October 2003

BASIS CRSP

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READER'S GUIDE

The first section of this report, "From Research to Policy: The Impact of BASIS CRSP Findings," which also appears separately as a *BASIS Brief*, offers examples of the research findings coming out of the BASIS CRSP projects. This section also includes an overview of the ways in which BASIS helps turn these findings into policies that facilitate broadly based and sustainable growth.

The second section, "Project Portfolio," covers the activities and workplans of the eight projects that constitute the BASIS CRSP research program. The third section, "Outreach," summarizes the workshops and conferences that took place in 2003 and outlines those to be held in 2004, including the first *BASIS CRSP Policy Conference*.

Our thanks go to all who participate in the BASIS CRSP for helping make this document possible. Comments on this report and BASIS's work are encouraged. Please visit the BASIS website for more information about the projects, contact information, and upcoming events: http://www.basis.wisc.edu.

FROM RESEARCH TO POLICY: THE IMPACT OF BASIS CRSP FINDINGS

BASIS Research: A Foundation for Solutions

BASIS CRSP RESEARCH TARGETS three constraints that globally impede broadly based and sustainable growth: (1) ineffective agricultural resource use in post-reform economies, (2) unsustainable use of environmentally-sensitive resources, and (3) poverty and food insecurity traps. BASIS also has begun studying rural financial markets to determine how innovations in those markets can play a role in overcoming the constraints to growth.

The BASIS portfolio of eight carefully-selected research projects is designed to create knowledge about the constraints *and* deliver innovative policy solutions that will remove, relax, or sidestep them. Through its comprehensive research projects, BASIS produces cutting-edge findings and lasting contributions to scholarship, education, and training. This knowledge lays the foundation for innovative, effective policies that can facilitate broadly based, sustainable growth. Below are recent examples of findings in Africa, Asia, and Latin America; examples of policy outreach based on the research is in the section following.

Land redistribution on the rise in KwaZulu-Natal. Census surveys of land transactions show that 3.5% of commercial farmland available for redistribution was transferred to previously disadvantaged South Africans from 1997-2002. While the average annual rate of redistribution falls short of the government's target, the launch of the "Land Redistribution for Agricultural Development" program in 2001 had a dramatic impact on redistribution. In KwaZulu-Natal, the rate of redistribution doubled in 2002, and for the first time transactions financed solely from government grants redistributed more land than did privately financed transactions. In addition, 14 farms were financed with a *combination* of grants and mortgage loans, representing a new mode of redistribution. BASIS found that these farms, on average, were larger and of better agricultural quality than those purchased privately; half were purchased by women as sole owners or as married co-owners.

Unequal benefits from irrigation schemes in Malawi. Many countries in southern Africa are decentralizing management of resources. In Malawi, decision-making regarding transfer of irrigation schemes is concentrated in the hands of a small group of better-off farmers. Most are owners of more than the average number of plots and are long-time participants in scheme management under government direction. BASIS found that these farmers tend to oppose redistribution of plots and may be better positioned to comply with strict rules regulating crop varieties planted, cropping calendars, and joint marketing ventures. Meanwhile, many poorer households show a growing dependence on "informal" irrigation along streambeds and in wetlands for both food and income.

Education helps families avoid poverty traps. Where farm or herd sizes are shrinking due to land scarcity, people need an alternate pathway to livelihood security. In northern Kenya, educational attainment is strongly correlated with the level and stability of expenditures. Nonfarm employment enabled by education provides steady cash income that can be invested in agriculture. It also provides alternatives for households lacking sufficient land or livestock to fully employ their household's labor. BASIS developed a theoretical model to explain how spatial inequality in infrastructure that affects labor productivity can induce rural-to-urban migration that restricts the educational attainment of children from poor families because migration can foreclose options to borrowing. This model was motivated by observations in northern Kenya showing that lending and transfers in support of educational investments were—surprisingly and contrary to popular rhetoric—nearly nonexistent.

Pathways to food security. The effect of food aid is to equalize food availability, measured by food production plus food aid, yet BASIS data show evidence of food inequality and inadequate targeting of food aid in the South Wello region of Ethiopia. Well-off households secure food availability with abundant entitlements

derived from own-production and food purchases. Poorer households achieve minimal levels of food security through purchases. While food-giving to neighbors and kin is evident, it is significant only for well-off households and is a small contributor to food security. Ownership of land and animal assets have a strong positive effect on food security, and BASIS research shows that labor is an important determinant of food security status through the ability to generate off-farm income. Head of household characteristics, such as gender and age, have no significant effect on household food security.

BASIS Briefs in 2003

No. 14. "Education, Nonfarm Income, and Farm Investment in Land-scarce Western Kenya," by Paswel Phiri Marenya, Willis Oluoch-Kosura, Frank Place, and Christopher B. Barrett. February. *http://www.basis.wisc.edu/live/basbrief14.pdf*

No. 15. "The Unfinished Business of Liberalization: Making Markets Work for All," by Steve Boucher, Brad Barham, and Michael R. Carter. April. *http://www.basis.wisc.edu/live/basbrief15.pdf*

No. 16. "Up the Lending Ladder: Extending Financial Services for the Rural Poor through Credit-Reporting Bureaus," by Alain de Janvry, Elisabeth Sadoulet, Craig McIntosh, Bruce Wydick, and Martin Valdivia; in cooperation with Alvaro Trigueros, Gustavo Gordillo, and Dean Karlan. April. *http://www.basis.wisc.edu/live/basbrief16.pdf*

No. 17. "Looking for Long-term Wellbeing: Access to Credit and the Impact on Rural Households," by Agnes R. Quisumbing and Linda Montillo-Burton. November. *http://www.basis.wisc.edu/live/basbrief17.pdf*

No. 18. "Meeting the Needs of the Rural Poor through Post-reform Financial Markets," by Stephen R. Boucher, J. Edward Taylor, Carolina Trivelli Avila, Antonio Yunez Naude, and Javier Escobal D'Angelo. November. *http://www.basis.wisc.edu/live/basbrief18.pdf*

Innovations shown by vulnerable female-headed households. Female-headed households constitute about 24% of households in the Ethiopia study region and tend to be poorer than male-headed households. However, female-headed households show greater non-farm innovations, earning more cash than males do in activities like petty trade, brewing, crafts, and remittances. While their average asset holdings are often meager, they show greater capacity to recover from external shocks like drought. During the post-drought period of 2000-2002, BASIS found that herds owned by female-headed households increased 73%. The herds of male-headed households grew by 30%.

Client training vital to the success of credit bureaus. There are strong reasons to think that a bureau's ability to mitigate moral hazard will not occur if clients are imperfectly informed, and yet in Latin America many bureaus are initiated without client training. This reinforces the paternalistic, top-down approach that the microfinance movement was supposed to avoid. Yet, organizations tend to fear the higher-level lenders being able to observe their clients' behavior. The use of a bureau to check clients is purely to the benefit of MFIs, while adding data into the bureau has few advantages for lenders and many risks. Database systems used in microfinance bureaus tend to severely limit how much one lender is able to observe about client behavior in another lender. BASIS is attempting to discover if disincentives to share are so strong as to lead to suboptimal outcomes and require government legislation on the degree of sharing.

Rural households gaining greater access to financial services. By resurveying respondents and their children from a sample of agricultural households in the Mindanao region of the Philippines first surveyed 20 years ago, BASIS finds that access to financial services has become easier, though smallfarmers still have some difficulty. Devolution of governance and financing to local communities had a greater positive impact on households than did the shift from subsistence corn cultivation to sugarcane cash cropping that many families made in order to raise their income.

Scholarship, education, and training

BASIS findings appear in leading peer-reviewed journals. Equally importantly, BASIS builds capacity in its study regions by supporting Ph.D. and post-doctoral training activities for graduate students and faculty, creating educational modules for universities, supporting local publication efforts, and funding participation in international meetings and writing projects by national and regional collaborators.

Water resource management module. The Malawi project helped produce modules on the social and environmental aspects of water resource management for the regional masters program in Integrated Water Resources Management taught at the University of Dar-es-Salaam in Tanzania and Zimbabwe.

Bioeconomic modeling course. The project in Kenya and Madagascar offered a course on training methods for analyzing the coupled dynamics of human and natural systems. Key country staff are trained in systems dynamics methods and software that underpin the project's new bioeconomic modeling tool.

Analytical and empirical tools for poverty research. BASIS researchers conducted a workshop for practitioners and researchers in developing countries to familiarize them with state-of-the-art methods and theories of poverty analysis. More than 110 participants from more than 20 countries attended, including economists, poverty researchers, program managers, and personnel from government ministries and international organizations. The program was seen as so valuable that the International Association of Agricultural Economics is considering replicating the event biennially in developing regions around the world.

Best institutional practices for farmworker and community equity-sharing schemes. An MA thesis on this topic was completed at the University of Natal. The case studies and results of a cluster analysis of institutional, empowerment, management, and performance indicators observed at each equity-sharing enterprise were used in two journal articles.

Important datasets created. In addition to workshops, courses, and other training activities, many BASIS researchers and collaborators are making their data available at *www.basis.wisc.edu/data.html.*

BASIS Outreach: Turning Research into Policy

BASIS outreach activities help translate its research findings into policies that promote rural prosperity. One of the most effective methods of outreach results from relationships the projects build with key policy-makers in the regions. This leads to direct policy involvement, as evidenced by the following examples.

Agrarian policy, tax policy, and eligibility for social benefits in the Kyrgyz Republic. The Ministry of Agriculture, Water Resources and Processing Industry established a working group that includes a BASIS researcher invited to participate because of his involvement in the BASIS farm management survey. He participates in the "farm development" subgroup, through which he channels empirical results of the survey and case studies. The Kyrgyz government intends for the new land tax rates to help equalize taxation of rural residents (who pay the land tax) and urban residents (who pay a personal income tax). To make tax payments comparable, BASIS supplied information on mean values and variation in farm returns per hectare and per worker. Results of the analysis were reported to parliament and presented to the business community. In addition, current methods in the Kyrgyz Republic for determining eligibility for social benefits in rural areas do not account for income received by farmers from subsistence farming and livestock rearing, which often make up a large share of total household income. BASIS data proved useful in estimating income from these sources disaggregated by region. The Ministry of Labor and Social Protection plans to incorporate the results into a new law on social benefits for the poor.

Agri-food sector in the Russian Federation. The head of the Department of Agrarian Policy stated that BASIS's work will result in political recommendations to strengthen the organizational, economic, and legal base of the agri-food sector. BASIS has organized several major conferences in Russia that deliver information and analysis directly to participants from ministries, farm groups, agribusiness, and academies.

Poverty reduction strategies in Kenya and Madagascar. In Kenya, a workshop on economic growth and poverty reduction presented key issues in agriculture and rural development for consideration by the government-led economic recovery strategy. In Madagascar, a national level stakeholder meeting drew praise from the Minister of Agriculture and President Ravalomanana. They requested the full proceedings and background maps and sent BASIS a message of thanks.

Rural finance in Latin America. In Guatemala, BASIS is helping design and conduct a training program for clients of Genesis Empresarial, a leading microfinance institution with a client base of over 40,000. In Peru, BASIS collaborated with the Ministry of Agriculture in designing a risk module for the Ministry's annual producer survey. The Ministry seeks to identify and analyze the frequency of production shocks affecting different crops and regions. Information gathered will be used in the government's plan to design new crop insurance products.

Local policy committee formed in Ethiopia. With members drawn from local administration, rural development departments, NGOs, and Addis Ababa University, this BASIS committee provides research findings and policy recommendations directly to Concern International, Save the Children-UK, and World Vision International.

New business models for delivery of rural financial services in southern Africa. BASIS is contributing to progress in the microfinance sector by analyzing innovations and delivery services in the region. Results were presented to USAID, and a proposal for a pilot rural trade finance program is forthcoming.

Policy conferences and workshops

In addition to direct involvement in policy dialogue, BASIS organizes conferences and workshops, often solicited by USAID, to deliver policy information on topics of project expertise to a wide range of audiences. Many of these outreach fora occurred in 2003, with more scheduled for 2004.

Paving the Way Forward: An International Conference on Best Practices in Rural Finance. Held in Washington DC, June 2003, this event brought together 400 academics, donors, practitioners, and development professionals from 50 countries to discuss successes and failures from past involvement in rural finance. A synthesis report was produced that identifies five strategic programming areas to address constraints to economic growth in the agricultural sector and rural areas: (1) Mitigating Risk, (2) Improving Information Access and Management, (3) Diversifying Products and Services, (4) Strengthening the Legal Environment, and (5) Enhancing Value-chain Financing. These programming areas should help open the way to greater entry and sustainability of private financial institutions, as well as providing the foundation for more effective rural microfinance institutions that serve the needs of low-wealth households.

Workshop on Land Policy, Administration and Management in the English-speaking Caribbean. Held in Trinidad & Tobago, March 2003, the workshop attracted 78 participants from 13 Caribbean countries and many international organizations. A Caribbean Land Policy Network was established and a volume of country diagnostic studies produced.

Enhancing Land Access to Broaden the Base of Economic Growth: An International Conference for Central America and Mexico. Based on new primary research on land access and land policies in Central America and Mexico, this conference will bring together leading academics and key policymakers in an effort to forge a regional consensus about best practice policies to enhance land access and the impact of growth on poor households.

Combating Persistent Poverty in Africa. Beginning in 2004, BASIS will take research findings and lessons learned directly to the international policymaking community through the *BASIS CRSP Policy Conferences*. These major conferences will bring together leading researchers, key development professionals and policymakers in order to design well-grounded policy and programming recommendations. By synthesizing knowledge generated by the research projects, the first conference will help reveal reasons many households are caught in a trap of persistent structural poverty. BASIS is identifying minimum asset thresholds below which households do not have the capacity to take advantage of market liberalization or new technologies. The conference will allow proactive steps to be taken by communities, local governments and donors to combat persistent poverty in Africa.

BASIS CRSP conference outputs

"Land in the Caribbean: Issues of Policy, Administration and Management in the English-speaking Caribbean," edited by Allan N. Williams.

"Paving the Way Forward for Rural Finance: Synthesis Paper and Conference Proceedings," by the World Council of Credit Unions and BASIS.

"Delivering Land and Securing Rural Livelihoods: Post-independence Land Reform and Resettlement in Zimbabwe," edited by Michael Roth and Francis Gonese.

Upcoming conferences

2004:

"Combating Persistent Poverty in Sub-Saharan Africa"
www. basis.wisc.edu/persistentpoverty.html

"Enhancing Land Access to Broaden the Base of Economic Growth: An International Conference for Central America and Mexico"

2005:

"Agricultural Policy Reform for Transition Economies"

Project Portfolio: Activities and Workplans

PROFILE

Seeking rural prosperity through innovative research, BASIS CRSP is a cutting edge and responsive applied research program with a goal of making markets work for all. With the addition in 2003 of three new projects designed to add to knowledge about rural finance and its linkage to other factor markets, BASIS now has eight projects in its research portfolio that deliver innovative and policy-relevant impact.

Each project focuses on a region or regions where constraints to broadly based and sustainable economic growth have particular salience, yet each also seeks lessons and policy innovations that will inform efforts to overcome the constraints in other regions. This section details the projects' activities and workplans, along with key findings, outputs, and dissemination activities.

- "Input Market Constraints upon the Growth of Russian Agriculture"
- "Institutional Innovations to Improve Equity Sharing under Privatization and Farm Restructuring"
- "Institutional Dimensions of Water Policy Reform in Southern Africa"
- "Rural Markets, Natural Capital, and Dynamic Poverty Traps in East Africa"
- "Assets, Cycles, and Livelihoods"
- "Credit-reporting Bureaus and the Deepening of Financial Services for the Rural Poor in Latin America"
- "Structure and Performance of Rural Financial Markets and the Welfare of the Rural Poor"
- "Long-term Effects of Access to Financial Services on Asset Accumulation, Economic Mobility, and the Evolution of Wellbeing"

Acronyms

ADD	Agricultural Development Districts
ARARI	Amhara Regional Agricultural Research Institute
BASIS	Broadening Access and Strengthening Input Market Systems
CASE	Center for Social and Economic Research
CIS	Cash Income Security
CGIAR	Consultative Group on International Agricultural Research
CLASSES	Crop, Livestock and Soils in Smallholder Economic Systems
CMA	Catchment Management Authorities
CRSP	Collaborative Research Support Program
CU	Concern Universal
DFID	Department for International Development
DLA	Department of Land Affairs
EU	European Union
FSS	Food Self-sufficiency
GIS	Geographic Information System
IAAE	International Association of Agricultural Economics
ICRAF	International Centre for Research in Agroforestry
IDIES	Instituto de Investigaciones Economicas y Sociales
IDR	Institute for Development Research
IFAD	International Fund for Agricultural Development
IFPRI	International Food Policy Research Institute
KARI	Kenya Agricultural Research Institute
KRDS	Kenya Rural Development Strategy
LDI	Landscapes Development Initiative
LRAD	Land Redistribution for Agricultural Development
MINITERRE	Ministry of Lands, Environment, Forests, Waters and Natural Resources (Rwanda)
MFI	microfinance institution
NGO	nongovernmental organization
NSF	National Science Foundation
OSSREA	Organization for Social Science Research in Eastern and Southern Africa
PARIMA	Pastoral Risk Management Project, Global Livestock CRSP
PETT	Special Project on Land Titling (Peru)
PRSP	Poverty Reduction Strategy Paper
RIMCU	Research Institute for Mindanao Culture
SAGA	Strategies and Analyses for Growth with Access
TIP	Temporary Inputs Program
TLU	tropical livestock units
USAID	United States Agency for International Development
WUA	Water User Association

INPUT MARKET CONSTRAINTS UPON THE GROWTH OF RUSSIAN AGRICULTURE:

Land, Labor, Capital, and other Inputs under Alternative Economic Reform Policies

Global Constraint 1*: Ineffective Agricultural Resource Use in Post-Reform Economies*

Sharing information at Golitsyno III
(Photo by BASIS)

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University of Maryland, USA: Howard Leathers, Leonid Polishchuk

Georgia Southern University, USA: Greg Brock

Economic Research Service, Department of Agriculture, USA: Bill Liefert, Stefan Osborne

Rural Development Institute, USA: Leonard Rolfes

Iowa State University, USA: Bob Jolly

University of Minnesota, USA: Glenn Pederson

http://www.basis.wisc.edu/russia.html

PROJECT PROFILE

Despite initial hopes and promise in the early 1990s, reforms of the former Soviet economy in agriculture remain disappointing. Many former collective farms remain in business despite financial losses to the point that they would be bankrupt if Western commercial rules applied. The Russian legislature passed a landownership law in 2002, yet it remains in doubt whether it will appreciably improve long-term incentives for placing farmland in the hands of people best able to use it efficiently.

Nonetheless, significant changes have occurred, though limited to particular regions. Output increases have been noted on household subsidiary plots, which have been enlarged and play an important role, especially where former collective farms are weakest. New arrangements are springing up in which input suppliers or other businesses related to agriculture are establishing vertically integrated or other contractual arrangements with agricultural producers. These arrangements are managing to supply much-needed fertilizer, chemical, and energy inputs in ways more promising than the barter arrangements that characterized the dealings of many former collective farms and the ad hoc and unpriced ways in which owner-employees of these farms often acquire inputs for their own farming enterprises on private plots. Even without fully developed landownership rights, it appears that rental transactions under which new operators may acquire the use of increased acreage are beginning to be economically important.

There have been few systematic research efforts to survey, analyze, and make recommendations on the post-1991 economic development of Russian agriculture. Reviews and studies undertaken to date indicate how difficult it is to draw conclusions about the extent, effectiveness, and consequences of even quite well documented and widely implemented reforms. For example, there remains substantial disagreement about how far Russia has gone in establishing a functioning market economy in retail food commodities. With respect to factor markets, the informational and statistical base is less well developed. Indeed much of the anecdotal evidence pertains to barter transactions that suggest a lack of functioning factor markets.

BASIS research will attempt to quantify the extent to which factor market constraints impair the ability of Russian agriculture to function efficiently and profitably, establish which constraints are most damaging in both the short and long run, and provide the analytical knowledge needed to formulate policies to remedy the constraints.

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Support

BASIS CRSP core funding.

Outputs

Analysis of Input Markets in Russian Agriculture. 2003. Proceedings from Golitsyno IV, 24-25 October. Papers mentioned in this chapter:

- "Survey Methodology, Database Description, and Results of Production Function and DEA Analyses," by M. Grazdaninova.
- "Allocative Efficiency in Russian Agriculture: The Case of Fertilizer and Grain," by B. Liefert, B. Gardner, and E. Serova.
- "Organizational Innovation in Russian Agriculture: The Emergence and Consequence of the New Agricultural Operators," by D. Rylko and B. Jolly.
- "Land Market: Ways and Trends of Land Transfer from Owners to Users," by N. Shagaida.

Grazdaninova, M., and A. Usoltzev. Forthcoming. "Estimates of the Production Functions and Allocative Efficiency of Inputs Use in Russia's Agriculture: Selected Products." In *Some Issues of Russia's Agriculture*. Moscow: Higher School of Economics.

Grazdaninova, M. and G. Brock. Forthcoming. "Grain and Sunflower Crops on Russian Farms in 2001: How Efficient is Crop Production?" Post-Communist Economies 16(3).

Liefert, William, Bruce Gardner, and Eugenia Serova. 2003. "Allocative Efficiency in Russian Agriculture: The Case of Fertilizer and Grain." *American Journal of Agricultural Economics* 85: 1228-1233.

Subbotin, A. Forthcoming. "Problems of Credit Accessibility for Russia's Farms." In *Some Issues of Russia's Agriculture*. Moscow: Higher School of Economics.

Survey database of farm input availability on various types of farms.

I. ACTIVITIES 2002-03

A. Accomplishments

The year's work began with a full-scale survey in November-December 2002. Early spring was devoted to data preparation and editing, followed by intensive preliminary econometric analyses using estimated production functions and stochastic frontier analysis. The results were discussed at Golitsyno III in April 2003, as was the development of future analytical work. We developed material for case studies and acquired secondary data from both national and selected regional government agencies.

The substantive outputs to date are the papers presented at Golitsyno IV, 24-25 October 2003, and the information and analysis directly presented to about 40 Russians from Ministries, international agencies, farm groups, agribusiness, and academies.

B. Findings

The impact of the findings so far is mainly on Russians who heard and debated the presentations at Golitsyno IV. There is a notable change in the reaction to the BASIS work from the time of Golitsyno I in 1999. Then the Russians tended to be highly skeptical of what was presented, believing that Western economic analysis had little to offer. Today, the Russian audience is much more willing to enter into constructive dialogue on economic issues in agriculture. This paves the way for policy discussion that will occur at the next Golitsyno conference.

1. Land Market

Findings highlight the great number of leasing transactions, and some sale transactions, even in the absence of full property rights, as documented by Shagaida. Rolfes presented comparisons with the experience of Ukraine, where the land law and land market appear to be more fully developed. There is debate on how much of an obstacle the absence of full property rights in land (e.g., the lack of a right to transfer it to third parties and hence to use it as collateral for loans) will hinder the economic development of Russian agriculture.

2. Labor Market

Findings are quite preliminary, with data on payments received by farm workers but little on the opportunity costs of farm work. There is some evidence that the value of the marginal product of labor on farms is not far from the wage rate, arguing against a large excess supply of labor in agriculture.

Zvi Lerman presents BASIS survey evidence on functioning markets for farm services. Conferences to discuss findings and plan analytical work are a regular feature of the Russia project. (*Photo by BASIS.*)

3. Capital Inputs

Credit is still dominated by State debt of large former collective farms, which are not in any sense commercial loans that finance investment. Some commercial credit to individual farmers is developing but remains limited. The lack of capital is a major impetus to form joint enterprises between processors and other agribusinesses and farm enterprises.

4. Fertilizer

The output by Liefert, Gardner, and Serova reveals that when assessed with respect to domestic prices, Russia in both 1990 and 2000 underused mineral fertilizer in the production of grain, from the point of view of both allocative efficiency and farms'

profit maximization. Using the most credible values for marginal productivity from the available empirical evidence, the authors estimate that from the point of view of trade prices, Russia in 1990 was overusing fertilizer, and in 2000 was very close to its optimal level of use. These results help explain why Russian use of fertilizer has plummeted while the country has exported the bulk of its output.

C. Outline of Activities

October-December 2002

- Data collection for case studies of emerging enterprise forms. See output by Rylko and Jolly.
- Literature review prepared in draft form.
- Major survey of 144 large-scale producers, averaging 3,351 hectares and 109 employees; 425 individual farms (192 household plot operations, averaging 1 hectare, and 233 commercial operations, averaging 271 hectares). These farms were sampled in three *oblasts* that varied in policy regime: Ivanovo, Nizhni Novgorod, and Rostov. See output by Grazdaninova.
- Preparation and editing of data computerization methodology.
- Choice of analytical methods for data collected.
- Preliminary determination of required secondary data.

January-March 2003

- Preliminary check of collected survey data. Fieldwork to correct missed or dubious data. Computerization and preliminary analyses.
- Analyses of data from case studies.
- Preparation of preliminary results from the field studies for presentation at the conference.
- Consultations on methodological issues.
- Final determination of required secondary data.
- Organization of Golitsyno III.
- Preparation of report on survey and case studies to be presented on the conference.
- Revision of literature review.
- Preliminary analyses of secondary data and their connections with field data collected.

April-June 2003

- Golitsyno III to assess progress and plan further work.
- Follow up of the discussion initiated by the conference, including communication with conference participants, collection of their comments, critiques and interpretation.
- Revision of survey and case study analyses on the basis of the conference results, including analyses of revised field data. Analyses of secondary data (from Goskomstat).
- Generalized field and secondary data analyses.
- Working out methodology for additional surveys.
- Verification and correction of survey database.

July-September 2003

- Analyses of factor markets and agricultural performance.
- Analysis of farm productivity impacts on rural wellbeing.
- Design of additional surveys.
- Round 2 analyses to be based on verified common survey database.
- Application of new methods to survey database analyses.
- Preparation of papers and organization of Golitsyno IV.

II. WORKPLAN 2003-04

A. Research Plan

In the third year of the project we will continue to develop and analyze findings, with a view toward identifying policy interventions.

1. Data

In October-November 2003, we plan to carry out and analyze our additional survey work to fill gaps found in the preliminary analysis of the survey data.

2. Analysis

Analytical work will assess the consequences of observed differences across farms, regions, and over time in product prices, input availability, and other constraints upon output and productivity of farming. We will use several well established approaches from production economics, both parametric production function estimation and nonparametric data envelopment analysis, utilizing the experience and expertise of Liefert's team at USDA's Economic Research Service.

Much of the work to date with the US collaborators has been involved with designing survey questions that would lend themselves well to subsequent analytical work (notably measuring productivity and shadow prices of constrained inputs—land, labor, and material inputs for which markets are not fully operational).

It is a particular problem that enterprises have a collective aspect (in which the efforts of many people are pooled) that is intertwined with individual enterprises within that collective. One would like to make judgments about the efficiency, income generation, and salience of factor market constraints for *both* types of economic activity, yet sorting out the data for this purpose is difficult. We were helped immensely in this by the prior experience of Lerman, Brock, and Jolly in agricultural surveys in the former Soviet Union.

Now we will proceed to the more aggregated level, using factor supply and demand models widely applied in the literature. We will examine whether the outflow of agricultural labor by region is correlated with the difference between the wages paid to agricultural and nonagricultural workers. A key empirical challenge will be measuring the *real wage* of agricultural workers, which can include monetary payments, in-kind payment of agricultural output, and the social-welfare services collective farms provide (health, education, housing, and entertainment).

We will test the hypothesis that, because of continued surplus labor on collective farms, the farms pay their workers a real wage higher than the value of their marginal product. We will then determine how far any gap between wages and the value of marginal product of labor goes to explain the current unprofitability widely reported for former collective farms, as well as measured efficiency and other farm performance indicators.

On a related matter we will attempt to determine whether that part of the real wage consisting of social-welfare services is the dominant element in the gap, and therefore the dominant explanatory variable with respect to the identified performance indicators. This will test the commonly made assertion that collective farms suffer strongly from the burden of providing for their workers' social welfare needs.

We will empirically estimate the connections between farm productivity, control over land, labor market conditions, and other variables on measures of economic wellbeing of rural people. For example, to what extent have off-farm employment opportunities or on-farm non-agricultural activities on former collective farms enabled people to improve or maintain their standard of living even when agriculture remains stagnant and unprofitable?

Specifically, various members of our team will undertake elements of the above tasks as they apply to particular constraints and problems in factor markets, as follows.

Land market. Shagaida will review land leasing contracts, both short- and long-term, in the study areas but also for a broader range of regions of Russia. She will assess the means and timing of payments, rights and responsibilities conveyed, and accompanying credit or other promissory provisions. Her main US counterpart will be Rolfes, who will provide relevant comparisons of land contracting elsewhere in the world.

Labor market. Serova will spearhead the work and integrate it with the research on purchased inputs.

From our survey data we will obtain information on labor use on both former collective farms and private farms. We are particularly interested in contrasting labor use on large farms that have gone through significant restructuring with those that have not.

The data to be analyzed are not only overall workers and time committed to crop and livestock activities, but also the division of work effort between whole-farm activities and those on private household plots. Separately from the land market study, we will examine the consequences of differing allocations of land between whole-farm and household enterprises.

Input markets. Problems in the markets for fuels and energy, fertilizers, seeds, and purchased feeds will be investigated by Serova, with the collaboration of Liefert and Gardner. We will investigate the demand for these inputs and attempt to quantify constraints that exist on the supply side. We will use factor quantities to estimate, via empirically estimated production functions, the marginal products of these inputs, and through comparison with input price and supply data attempt to assess efficiency losses attributable to shortages or, possibly, surpluses of these inputs (most likely for labor, which we will also include in the production function and factor demand estimation).

Farm finance and capital market. Constraints and policy will be analyzed by Yastrebova, with the collaboration of Pederson and Brock. This work will proceed on two fronts. First, we will use the survey data to quantify the sources and terms associated with credit that has been advanced to the farm operations sampled, and to assess the extent and importance of credit rationing. Second, we will use *oblast*- and *rayon*-level official data to document financial flows to and from agricultural enterprises in the areas surveyed, including credits, coverage of arrears in payments for taxes and inputs, and taxes actually paid.

Farm structure. Overall issues of farm enterprise management, including the division of output produced and inputs allocated between large former collective farm enterprises and individual households living on those farms, will be addressed by Uzun in collaboration with Lerman. They will attempt to identify components of output and input use attributable to smaller production units within the farms, and the efficiency gains or losses that result from alternative ways of organizing input use and production decisions.

Case studies. The operation and financial arrangement of newly established integrated farm/marketing enterprises is the subject of case studies being undertaken by Rylko, with the assistance of Jolly. These case studies will be descriptive to a larger extent than the preceding components of the research plan. They are collecting data that will enable us to treat these new enterprises comparably with other former collective and private farms (as added observations in the data set for at least some of the econometric work). The goal is to obtain information on the efficiency gains attributable to the capabilities of these new arrangements to avoid input market constraints other farms face.

B. Capacity Building and Policy Impact

We plan to quantify the gains in productivity, output growth, and farm income that could be attained through improved input market performance. The main policy consequence of identifying the least substitutable inputs is that priority should be given to tackling deficiencies and impediments in markets for these inputs. Findings on regional input market integration will allow estimation of welfare losses to constraints on factor movement and trade. This allows us to quantify the benefits that can be obtained through removal of these barriers.

We are planning a March or April 2004 conference at which Russian policymakers, researchers, and other interested parties will have an opportunity to review our survey research and test-case results. As descriptive and analytical results emerge, working papers and *BASIS Briefs* will be widely circulated to interested parties and posted on a website at participating Russian and US institutions (in Russian and English as applicable).

In addition to published materials, we will conduct public events and government briefings. Our Russian principal investigator is well connected with policymakers in both the Duma and the executive branch of the government. The 2004 conference will be addressed to social science professionals in Russia (both Russians and foreigners working or visiting Russia) as well as

policymakers. The idea is to keep the research community abreast of our ideas and progress and to obtain feedback on research and policy ideas.

While the majority of the work time will be contributed by Russians in Russia, the US collaborators will make special-purpose trips to Russia. Most of our intellectual and practical interchanges, however, will continue to be through email.

C. Schedule of Activities

Researchers will continue working on these research topics: Rylko—vertical integration; Uzun—organizational forms; Shagaida—land market; Yastrebova—finance, credit and investment; Bogdanovskij—labor market; Serova—purchased inputs, general organization and coordination of survey.

October-December 2003

- Data collection for case studies.
- Case studies data processing and analyses.
- Processing and preliminary analyses of individual survey.
- Choice of methods of analysis of data collected.
- Technical arrangements and finalization of papers for Golitsyno IV.
- Presentation of papers during Golitsyno IV.
- Follow up of the discussion initiated by Golitsyno IV.
- Communication with conference participants, collection of comments, critiques and thoughts on presented papers.
- Data/related policy information collection at macro and regional level.
- Verification/correction of policy implications.
- Additional survey.
- Purchase and analyses of Goskomstat data.

January-March 2004

- Processing of survey data on small farms' access to credit.
- Elaboration of a case study on observed differences in regional credit/investment policies and implication for farms' actual access to credit and finance.
- Preparation and editing of data for analyses.
- Preliminary analyses of data.
- Processing of Goskomstat data.
- Analyses of additional survey data.
- Analyses of case studies.
- Additional analyses of survey results.
- Revision and finalization of literature review.
- Elaboration of final report draft.

April-June 2004

- Communication with overseas counterparts, discussion of final report draft.
- Preparation of materials for publication.

July-September 2004

- Final report amendment, editing, translation into English and Russian.
- Presentation of final report to scientists and policymakers.

D. Anticipated Outputs

- Literature review of Russian and other literature on structure and innovation in agriculture.
- Case studies on new contracting forms, land use, and credit.
- Additional surveys on machinery producers and rural households and labor.
- Survey of farm input availability on various types of farms.
- Analyses of factor markets and agriculture performance, farm productivity changes and rural wellbeing.
- Databases of surveys carried out.
- Final reports on all topics.

INSTITUTIONAL INNOVATIONS TO IMPROVE EQUITY SHARING UNDER PRIVATIZATION AND FARM RESTRUCTURING:

Helping Land Reform Beneficiaries Gain Access to Land and Financial Resources in Central Asia and Southern Africa

Global Constraint 1*: Ineffective Agricultural Resource Use in Post-Reform Economies*

Equity share schemes could allow farmworkers to receive land and housing (*Photo by Mike Lyne*)

Principal Investigators

Michael Lyne: University of Natal-Pietermaritzburg, South Africa

Michael Roth: University of Wisconsin-Madison, USA

Collaborating Institutions and Researchers

Center for Social and Economic Research, Kyrgyz Republic: Meergul Bobukeeva, Roman Mogilevsky, Alymbek Erdolatov, Kanat Tilikeyev

University of Natal-Pietermaritzburg, South Africa: Stuart Ferrer, Bernadine Gray, Sharon Knight, Allan Semalulu, Lauren Shinns

Hamman, Schumann and Associates, Cape Town, South Africa: Johann Hamman

Institute of Natural Resources, South Africa: Jenny Mander

LIMA Rural Development Foundation, South Africa: Peter Greene, Kathy Pitout

University of Wisconsin-Madison, USA: Malcolm Childress, Susana Lastarria-Cornhiel, Kelley Cormier

Private Consultant: Renee Giovarelli

Stockowners Cooperative Ltd.: Ian Newton

Rutsch Howard Inc.: Peter Rutsch

http://www.basis.wisc.edu/institutions.html

PROJECT PROFILE

Central Asia and southern Africa are undergoing political and economic transition, the former from state and collective farm ownership to private groups and individuals, and the latter to redress the apartheid and colonial heritage of a racially biased and unequal landownership. Despite different histories and policy contexts, countries in these regions share a common problem: poor people in rural areas are unable to make productive use of their land resources. This is most acute where it has not been feasible to privatize land, water, infrastructure or movable assets to individuals. Many beneficiaries of land reform in these regions find themselves co-owning resources, often in diverse groups that lack decisive management and the ability to encourage investment.

Group ownership is emerging as an important model in South Africa and Kyrgyzstan. Organizational inefficiency, free- and forced-riding, weak legal frameworks and moral hazard constrain the willingness and ability of groups to finance investments. Land reform beneficiaries need help determining the type of legal entity to choose, organizational structure to adopt, and strategies to finance investment and acquire business training.

While group ownership brings forth images of the dismal performance of farming cooperatives and collectives, particularly in Central America and the former Soviet Union, recent literature on "New-Generation Cooperatives" helps identify important institutional and organizational reasons for the poor performance of joint ventures that operate like traditional cooperatives. A notable exception to the general failure of group land reform efforts is the success of some farm worker equity schemes in South Africa's Western Cape province. Many of these schemes have redistributed commercial farmland and wealth, and some are improving agricultural performance.

An equity scheme is a private company in which financial equity is owned by workers, managers and other investors in the form of tradable shares that define their individual rights to vote for directors and to benefit from the profits and capital gains generated by the company. This is quite distinct from a cooperative or collective farming enterprise where voting and benefit rights are egalitarian and non-marketable, resulting in free- and forced-rider problems that undermine incentives to invest time and money in the enterprise. Many equity schemes are financed by commercial banks, attesting to their creditworthiness.

In order to identify and resolve the underlying causes of management and financial problems associated with group ownership in the Kyrgyz Republic and South Africa, BASIS researchers will conduct in-depth case studies of approximately 10 transformed enterprises in each country. These case studies will yield a set of "best institutional practices." In brief, this project endeavors to:

- identify institutional and organizational practices that constrain the success of group enterprises created by privatization and land reform programs, depriving the poor of current income, capital gains and new livelihood opportunities
- determine best institutional practices that broaden and deepen beneficiaries' access to resources and encourage their productive use
- apply these best practices to the design or redesign of one or two equity-sharing enterprises that will be facilitated in each country
- assess how these organizational and institutional innovations can improve project performance, where performance is measured in terms of financial health, environmental sustainability, and the empowerment of beneficiaries, especially women.

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Support

BASIS CRSP core funding.

Outputs

Bobukeeva, M. 2003. Legal background papers http://www.basis.wisc.edu/institutions.html#pubs:
1. "Bankruptcy in Kyrgyzstan."

2. "Legal Organizational Structures in the Kyrgyz Republic (agribusiness enterprises and other legal entities)"
3. "Taxes and other Payments of Agricultural Entities"
4. "The Investment Climate in the Kyrgyz Republic"
5. "Legal Framework Regulating Credit Relations in Kyrgyzstan"
6. "Legal Regulation of Contract Relations in Kyrgyzstan"

Childress, M., R. Mogilevsky, A. Kalpakova, and K. Kadyrov. 2002. *Resources and Profitability of Agricultural Enterprises in Kyrgyzstan*. BASIS/CASE Research Report No. 1/2002.

Database for baseline census survey of 46 prospective land reform beneficiaries at Sherwood and Clavelshay, with observations on household characteristics and poverty indicators.

Database of all commercial farmland acquired by previously disadvantaged people in KwaZulu-Natal from 1997-2002, broken down by mode of transfer (market, non-market and government-assisted transactions), method of financing (cash, mortgage loan) and status of entrants (gender, individuals or groups, companies or trusts).

Erdolatov, A., M. Childress and R. Mogilevsky. 2003. "Financing Agricultural Restructuring in the Kyrgyz Republic: Can Donor Capital and New Credit Institutions Fill the Investment Gap?" Legal background paper. http://www.basis.wisc.edu/institutions.html#pubs

Ferrer, S.R.D. and A.K. Semalulu. 2003. *Land Redistribution in KwaZulu-Natal: An Analysis of Farmland Transactions from 1997 until 2002*. BASIS: Department of Applied and Agricultural Economics, University of Wisconsin-Madison, Wisconsin, USA. http://www.basis.wisc.edu/live/institutions/KwaZulu-Natal%20land%20transactions.pdf

Giovarelli, Renee. 2003. "Are Rural Women Disadvantaged in Asset Ownership and Business Relations in the Kyrgyz Republic?" Draft research paper, September.

Knight, S. and M. Lyne. 2002. "Perceptions of Farmworker Equity-share Schemes in South Africa." *Agrekon* 41(4): 356-374.

Knight, S., M. Lyne, and M. Roth. 2003. "Best Institutional Arrangements for Farmworker Equity-share Schemes in South Africa." *Agrekon* 42(3): 228-251.

Knight, Sharon. *Best Institutional Practices for Farm-worker and Community Equity-sharing Schemes*". MA thesis, School of Agricultural Sciences and Agribusiness, University of Natal.

Lyne, M. 2003. "Research Aims to Help Land Reform Beneficiaries." *Partners in Development* 13(2). University of Natal Development Foundation.

Lyne, M. and M. Darroch. 2003. **"**Land Redistribution in KwaZulu-Natal, South Africa: Five Census Surveys of Farmland Transactions." Presented at Land Reform Conference *Delivering Land and Securing Rural Livelihoods: Post-Independence Land Reform and Resettlement in Zimbabwe*, co-hosted by the Land Tenure Center and the Centre for Applied Social Sciences in Nyanga, Zimbabwe, 26-28 March 2003.

____. 2003. "Land Redistribution in South Africa: Past Performance and Future Policy." In *The Challenge of Change: Agriculture, Land and the South African Economy*, edited by L. Nieuwoudt and J. Groenewald. University of Natal Press.

Lyne, M and M. Roth. 2003. "Making Co-ownership Work." *Focus Interactive* 14(1): 32-33. University of Natal.

Roth, Michael and Mike Lyne. 2003. "Institutional Innovations to Improve the Viability of Equity Sharing: Review of Literature and Conceptual Framework for BASIS CRSP Research." http://www.basis.wisc.edu/live/lit%20review%20revised%209-03.pdf.

Rutsch, P, M. Lyne, and P. Greene. 2003. "Deed of Trust: The Umlambomunye Community Trust." Unpublished Trust Deed, Rutsch Howard Incorporated, Durban.

____. 2003. "Land Lease." Unpublished land rental contract for Sherwood , Rutsch Howard Incorporated, Durban.

____. 2003. "Sheep Lease." Unpublished livestock rental contract for Sherwood, Rutsch Howard Incorporated, Durban.

____. 2003. "Amafolosi Partnership Agreement." Unpublished partnership agreement for Sherwood farm, Rutsch Howard Incorporated, Durban.

Shinns, L. and M. Lyne. 2003. "Symptoms of Poverty within a Group of Land Reform Beneficiaries in the Midlands of KwaZulu-Natal: Analysis and Policy Recommendations." Presented at symposium hosted by the School of Agricultural Sciences and Agribusiness, University of Natal, 30 January 2003, Pietermaritzburg.

I. ACTIVITIES 2002-03

A. Kyrgyzstan

1. Background Papers

Bobukeeva, Childress, Mogilevsky

The project completed seven background papers related to business and farm enterprise management and performance. All appear in Russian on the CASE website. (See under Bobukeeva in outputs above for English versions on the BASIS website.)

2. Case Studies

Childress, Erdolatov, Giovarelli

Six case study enterprises were re-interviewed in an ongoing effort to monitor changes in structure, organization and performance. An additional four case studies were carried out, bringing the total number of case studies completed to ten (table 1).

The case studies reveal a mixed picture of large member-owned enterprises adapting to market conditions with widely varying success that hinges on type of commodity produced. Owner equity continues to be the primary source of capital for long-term assets as outside investors or long-term creditors continue to perceive these ventures as risky and unstable. The new enterprises tend to be owned and operated by a small number of partners (1-4). The most successful large-scale enterprise under study (Tameki Tobacco Cooperative) was in the process of dividing into small corporate units during the year. The other large-scale farm (Kalinina Farm) was on the verge of break-up. One vertically integrated fortified wine-producer (Adis) was operating with some success with a corporate ownership model but was seeking to de-couple grape production from wine production.

Management of smaller agribusiness enterprises typically depended on the skill and charisma of one key owner-operator and the acquisition or rehabilitation of key pieces of machinery. These results suggest two different pathways of equity accumulation now under way in Kyrgyzstan:

1. Successful maintenance of Soviet-era production and processing capacity under a new ownership structure (Tameki and Adis) based on favorable price climate for their specialties (tobacco and wine).

2. Leading entrepreneurs who are able to rehabilitate aging physical plant and equipment, negotiate with buyers, provide a market for raw material suppliers, and manage the official and semi-official requirements of local institutions (Bakit, EcoProduct, PAKS, Nur Kozho, Zhirbek Zholu).

The highly successful "new cooperative" Ail Charba represents a third pathway with significant international support, but it is unique in our sample.

Table 1. Case study enterprises

Name	Scale in assets	Type
1. Adis	Large	Vertically integrated wine producer
2. Ail Charba	Medium	Women-managed milk cooperative
3. Bakit	Small	Family-owned and operated dairy enterprise
4. EcoProduct	Medium	Limited liability company with four shareholders
5. Kalinina Farm	Large	Worker-owner cooperative farm
6. Nur Kozho	Medium	Family-owned machinery service provider
7. PAKS	Medium	Limited liability company with two shareholders
8. Tameki Tobacco Cooperative	Large	Worker-owner cooperative farm
9. Water User Association Ashir Tani	Large	Water User Association—shared ownership of irrigation system
10. Zhirbek Zholu Farm (Cotton Purchasing Agent)	Small	Family farm network of cotton purchases from 1000 smallfarmers

The existence of these different pathways indicates that there is no "one size fits all" policy prescription for strengthening member-owned agricultural enterprises. Tax credits on machinery rehabilitation and employment creation, re-evaluation of assets,

longer-term equipment loans and technical assistance in packaging technology are measures that could build on these sources of dynamism.

Case studies revealed that government intervention in agribusiness is counter-productive and predatory. A lack of trust in voluntary compliance with contracts and in the court system limits the scope for widespread pooling of assets. Nevertheless, each of the successful small/medium enterprises (Bakit, EcoProduct, PAKS, Nur Kozho, Zhirbek Zholu) are succeeding in collecting raw material from and/or providing services to many individual small farms on a basis of cash transactions or short-term credit.

3. Synthesis

Childress, Giovarelli

The project is producing synthesis papers on research findings from the case studies and background papers. The first of these integrates and synthesizes gender findings. A draft has been completed. (See under Giovarelli in outputs above.)

4. Farm Management Survey

Childress, Cormier, Mogilevsky, Roth

A very large percentage of farming enterprises (123 out of 468 in the 1999 survey) could not be relocated for re-interview in the 2001 survey. Efforts were made to locate and interview the management of 40 of these "lost" enterprises using a two-page open-ended questionnaire to identify reasons for exiting farming. Five out of forty enterprises dissolved for reasons of bankruptcy, while the vast majority (30 out of 40) dissolved voluntarily for diverse reasons, usually to increase profitability, for individual incentives, or because of conflict among members.

Researchers completed the statistical analysis of 2001 survey data and published a report that was distributed to roughly 50 agencies, including principle donors, research institutes and government agencies. (See under Childress, Mogilevsky, Kalpakova, and Kadyrov in outputs above.)

Work continued on the comparative (dynamic) analysis of the 1999 and 2001 farm management survey data. Roth and Childress took the lead in working with Cormier (University of Wisconsin Ph.D. in Development Program) to undertake a comparative analysis of the panel of 321 enterprises surveyed in both 1999 and 2001 in order to identify trends in agrarian structure and examine characteristics of enterprises with different growth trajectories ranging from stagnant to outstanding performers.

For the 321 enterprises captured in both farm performance surveys, figure 1 illustrates that the cumulative distribution of net returns per hectare has shifted upwards (suggesting that net returns in constant *soms* are improving), particularly for enterprises at the far right-hand side of the distribution. However, once these enterprises are decomposed into clusters according to their relative improvement or regress, four clusters become evident (see figure 2) as described below.

Superlative: Those located in the highest two quartiles (I3 and I4) in both 1999 and 2001. This group has the highest revenue, cash expenditures and net income per enterprise in 2001, as well as the highest net income per hectare. The average farm size of this group remained fairly static between 1999 and 2001, although the average number of workers declined while net returns per unit of land and per unit of labor increased. Most of these farms are located in Osh and Jalal-Abad *oblasts* (vegetable and fruit tree growing regions where land reform has advanced most quickly).

Progressive: Those positioned in the lowest two quartiles (I1 and I2) in 1999 and the highest two quartiles (I3 and I4) in 2001. This group had the lowest gross revenue of the four clusters in 2001, but the second highest net income per enterprise and net income per hectare of any cluster. The cluster also has the smallest average farm size, and unlike any other cluster, average farm size declined substantially (from 119 to 70 hectares) over the two-year period. Also unlike any other cluster, the size of workforce increased slightly. As with the superlative group, net returns per unit of land and labor increased substantially. The majority of these enterprises are located in Naryn and Chui *oblasts*.

Regressive: Those located in the highest two quartiles (I3 and I4) in 1999 but the lowest two quartiles (I1 and I2) in 2001. Despite somewhat modest growth in gross revenue, net income per enterprise fell slightly between the two periods, although some improvement in net-income per hectare was observed. These enterprises on average increased average farm size slightly but appear to

have nearly halved the average size of their workforce. As a result, net returns per unit of land and labor doubled, although these average efficiency measures have not achieved the performance of either the superlative or progressive groups. The majority of these enterprises are located in Chui *oblast*.

Chronically weak: Those locked in the lowest two quartiles (I1 and I2) in both 1999 and 2001. This category has the highest average farm size but the 2nd lowest labor force. Gross revenue per farm is the 2nd highest of any category, and average enterprise net income increased substantially between 1999 and 2001. While net income/hectare is the lowest of any category, sizable improvements in net returns per unit of labor are evident due mainly to the shrinking work force. As with the regressive group, the majority of these farms are located in Chui *oblast*, the main mechanized grain growing area of Kyrgyzstan, where farm restructuring has proven to be the most problematic.

As illustrated in table 2, all clusters are undergoing sizable changes in asset ownership. For example, with regard to labor, between 49-61% of all enterprises across clusters decreased the size of their labor force between 1999 and 2001, while between 30%-39% of enterprises increased labor over the same period. Likewise for land, between 27%-46% of enterprises decreased the size of landholdings, while 30%-38% of enterprises across groups increased their farm size.

Table 2: Percentage of farms showing change in asset ownership

	+ / -	CW	PG	RG	Sup
Land	Increase	38	32	30	31
	Decrease	27	46	33	39
Labor	Increase	39	36	30	34
	Decrease	49	49	61	51
Tractors	Increase	17	33	26	35
	Decrease	13	8	26	11

The agrarian structure in Kyrgyzstan thus remains very dynamic as farms continue to adjust their resource mix to an uncertain institutional and market context. On the positive side, there is a return to profitability (albeit small) for the majority of enterprises and an improvement in average factor productivity. The third farm enterprise survey will continue monitoring these trends while seeking to identify best institutional practices and viable pathways to growth.

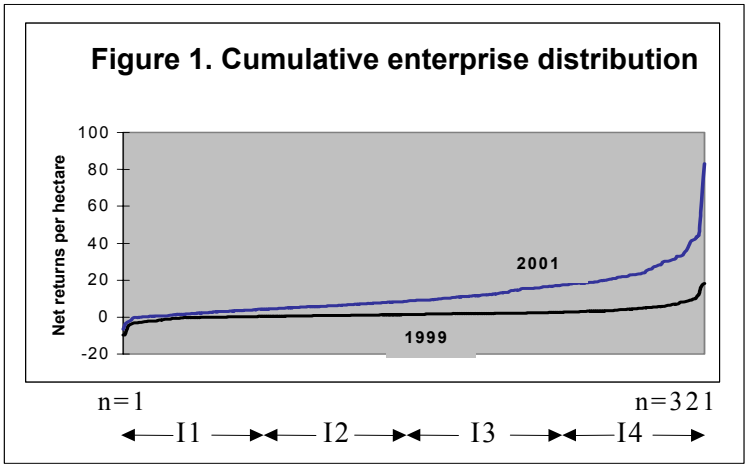
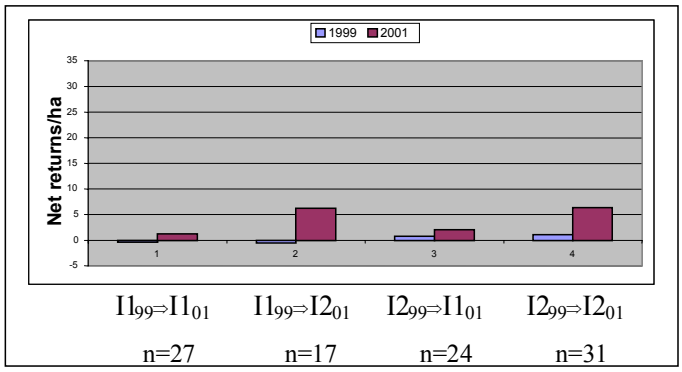


Figure 2. Income dynamics, net farm returns/ha, 1999 with 2001

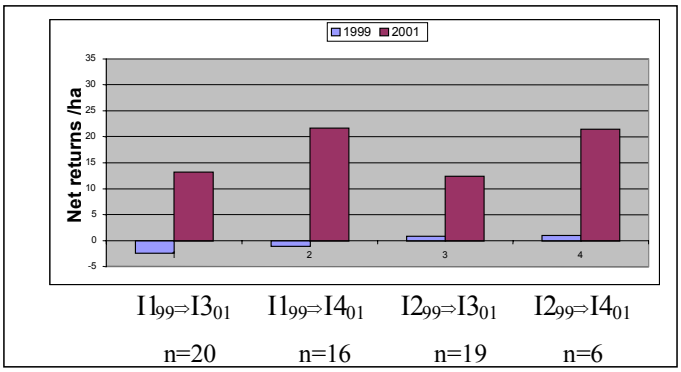
"Chronically Weak"
I



$I1_{99} \Rightarrow I1_{01}$ $I1_{99} \Rightarrow I2_{01}$ $I2_{99} \Rightarrow I1_{01}$ $I2_{99} \Rightarrow I2_{01}$

n=27 n=17 n=24 n=31

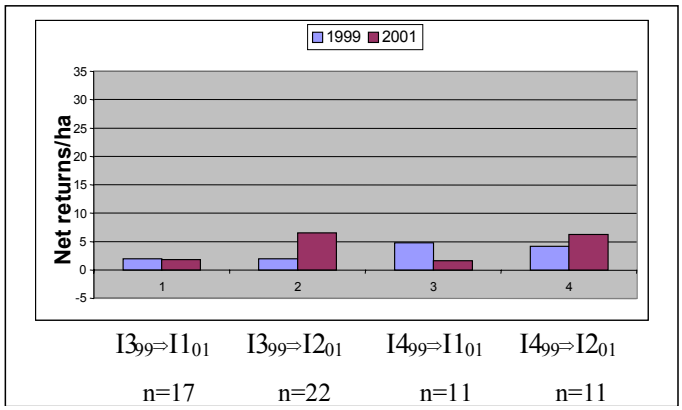
"Progressive"
II



$I1_{99} \Rightarrow I3_{01}$ $I1_{99} \Rightarrow I4_{01}$ $I2_{99} \Rightarrow I3_{01}$ $I2_{99} \Rightarrow I4_{01}$

n=20 n=16 n=19 n=6

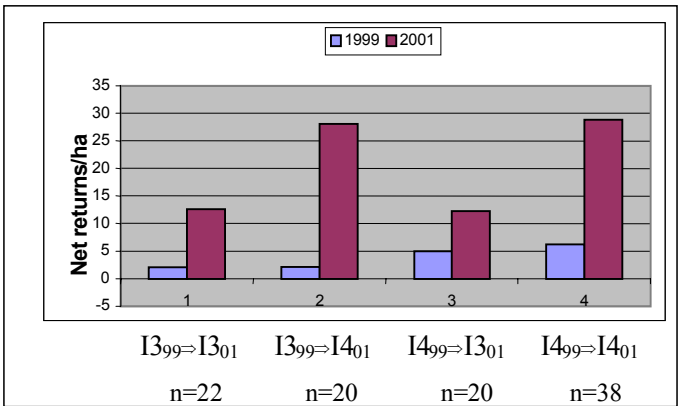
"Regressive"
III



$I3_{99} \Rightarrow I1_{01}$ $I3_{99} \Rightarrow I2_{01}$ $I4_{99} \Rightarrow I1_{01}$ $I4_{99} \Rightarrow I2_{01}$

n=17 n=22 n=11 n=11

"Superlative or Steadfast"
IV

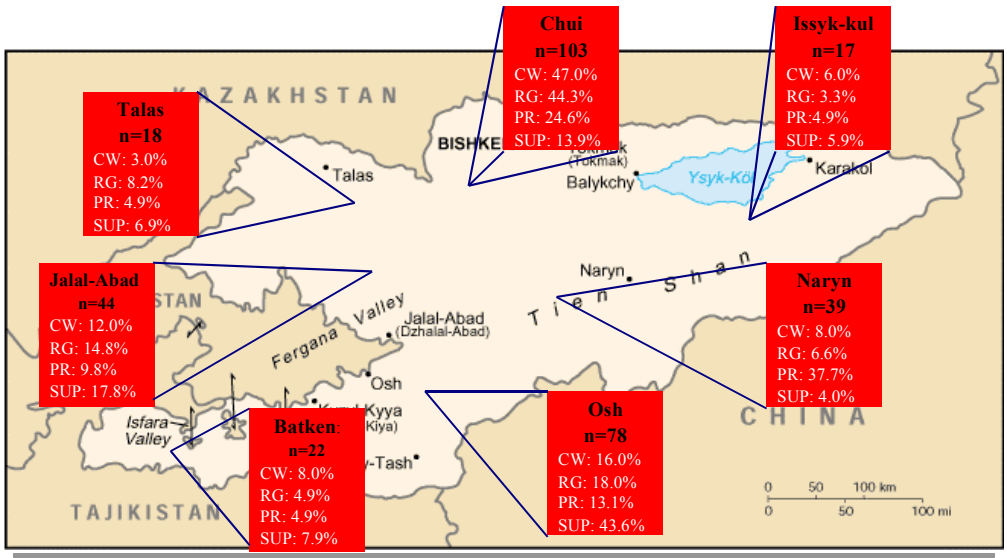


$I3_{99} \Rightarrow I3_{01}$ $I3_{99} \Rightarrow I4_{01}$ $I4_{99} \Rightarrow I3_{01}$ $I4_{99} \Rightarrow I4_{01}$

n=22 n=20 n=20 n=38

Figure 3. Enterprise strata characteristics

geographical location



CW = Chronically weak PR = Progressive RG = Regressive SUP = Superlative

B. South Africa

1. Case Studies and Papers

Knight, Lyne, Roth

Nine case studies of transformed enterprises were conducted and analyzed. The case studies and the results of a cluster analysis of institutional, empowerment, management, and performance indicators observed at each enterprise were documented in a Master's thesis and two journal articles. (See under Knight; Knight and Lyne; and Knight, Lyne and Roth in outputs above.)

Knight also presented her first paper at the Annual Conference of the Agricultural Economics Association of South Africa in September 2002. Principal Investigators, Roth and Lyne, published a summary of their paper with Knight in the popular magazine *Focus Interactive* (see outputs), which is widely distributed by the University of Natal. A more comprehensive version of this summary has been drafted by Lyne and Roth as a *BASIS Brief* to be submitted for publication in November 2003.

Knight completed her thesis and was awarded her degree in September 2003.

2. Facilitate Experimental Projects

Hamman, Ferrer, Greene, LIMA facilitators, Lyne, Newton, Pitout, Rutsch

A beef enterprise near Mount West (Sherwood) and a beef and game enterprise near Noodsberg (Clavelshay) were identified as suitable candidates for equity sharing projects. By early 2003, facilitators from LIMA Rural Development Foundation had started the process of explaining equity sharing arrangements to prospective participants. The focus was on:

- designing institutional arrangements, including the selection of appropriate, tax efficient organizational arrangements and legal entities, and formulation of "best practice" constitutions for the new entities (Lyne, Hamman, Ferrer, Greene)
- negotiating and drafting lease agreements for land and livestock (Rutsch, Greene, Lyne, Ferrer)
- training facilitators and preparing training materials (Greene, LIMA facilitators)
- identifying and training prospective shareholders and office bearers at Sherwood (Greene, LIMA facilitators)
- valuing livestock (Newton)
- refining business plans (Lyne, Greene, Ferrer)
- registering legal entities at Sherwood (Greene, Rutsch)
- negotiating loan finance for Sherwood (Greene, Lyne)
- applying for grant finance (Greene, Pitout)
- publicizing the projects and liaising with the Director of the Provincial Department of Land Affairs (Greene, Lyne).

By the end of FY03 Sherwood was ready for implementation pending the approval of an application lodged with the DLA for its "Land Redistribution for Agricultural Development" (LRAD) grants to finance workers' equity. Institutional and business planning was also completed at Clavelshay, but training activities were postponed while the Provincial Departments of Land Affairs and Local Government and Housing decided whether this very relevant and precedent-setting case should be considered for LRAD or housing grants. Agreement was reached after the local authority (uMshwati Municipality) responsible for public services agreed to support an application for housing grants.

Neither project has been formally launched as an equity share scheme. In the case of Sherwood, the business plan requires working capital of up to R310,000 during the first three years of operation when cash outflows exceed cash inflows. This amount could be financed with an overdraft facility from a commercial bank and/or LRAD grants awarded to eligible participants (those employed on the farm). Negotiations with banks failed to secure an overdraft facility large enough to launch Sherwood without additional collateral or the promise of grant funding. An application for LRAD funding was submitted to the Provincial Department of Land Affairs (DLA) in July 2003.

In October 2003, the Provincial Department of Land Affairs indicated that it would not support Sherwood's application for LRAD grants because the exclusion of non-employees could create conflict within the community. This highlights a major weakness in the program (see section C below). Greene is now exploring an option that

would see eligible participants at Sherwood voluntarily sharing their grants with those who are not eligible.

Sherwood is an extraordinary case as the beneficiaries come from a neighboring community, only some of whom are employed on the farm. This is quite different from equity-sharing projects elsewhere in the country where all of the beneficiaries are full-time employees. Another distinguishing feature is an organizational structure that permits the operating entity (the Amafolosi Partnership) to buy back shares held by a trust representing the interests of participants from the previously disadvantaged community. This market for shares would have been much less liquid had the operating entity been registered as a private company because prospective sellers would have been forced to find buyers from within their own community (company law prevents private companies from buying or financing the purchase of their own shares). This constraint is less of a problem in projects where there are many employee-shareholders (for example, in the labor-intensive fruit and wine enterprises of the Western Cape) but is highly restrictive in extensive enterprises such as beef and game ranching.

At Clavelshay, all of the prospective beneficiaries are employed on the farm but those workers who reside on the farm have to relocate their homes to make way for wildlife that pose a threat to humans. The owner of Clavelshay agreed to transfer, free of charge, a portion of his farm to the worker-shareholders, giving them title to their own residential sites and food plots. However, he cannot bear the full cost of building new homes for each employee and his or her family. These circumstances are common in KwaZulu-Natal, and are not covered by LRAD grants.

In a precedent-setting move, negotiations were opened with the Department of Local Government and Housing to consider an application for housing grants outside of a planned township development. Departmental officials appreciated the implications of this request but rightly insisted that the local government authority responsible for providing public services must first support the application. Meetings arranged with the uMshwati Municipality failed to materialize as its council all but collapsed following the suspension of the Municipal Manager and subsequent dismissal of the Mayor by the African National Congress. Support was eventually secured via written correspondence. The application for housing grants will be submitted once the DLA has satisfied itself that the beneficiaries will not lose any land rights they currently hold as workers.

Owing to the uncertainty surrounding housing grants, the owner of Clavelshay decided not to register legal entities designed for the equity share scheme or to proceed with any training activities that might falsely raise the hopes of prospective worker-shareholders. These activities will have been postponed until approval has been granted for the housing loans. Workers will finance their equity with cattle currently kept on Clavelshay. The original proposal provides for ongoing facilitation, after which time fieldwork shifts to monitoring and evaluation. However, if neither of the grant applications has been approved by January 2004, the focus of monitoring and evaluation will shift back to the case studies observed in the Western Cape during FY02.

3. Measuring and Constructing Benchmarks

Gray, Lyne, Shinns

Shinns applied cluster analysis to measures of income, assets, health and housing quality constructed from data gathered in a baseline survey of 38 prospective beneficiary households at Sherwood to identify different dimensions of poverty and their distribution in the community. She presented her findings at a food security symposium hosted by the University of Natal at its Pietermaritzburg campus on 30 January 2003. An extended version of this paper, co-authored by supervisor Lyne, has been accepted for publication in the journal *Agrekon*.

LIMA facilitators conducted a baseline census survey of eight prospective beneficiary households at Clavelshay in October 2002 using an extended version of the questionnaire applied at Sherwood. Gray, who joined the BASIS team in January 2003, applied Shinn's techniques to the pooled data and will test a "transition matrix" approach to monitor changes in the welfare of individual beneficiary households paneled in follow-up surveys scheduled for FY04. Gray's objective is to develop an appropriate set of variables and benchmarks to measure and monitor the financial, empowerment and poverty alleviation performance of equity share

schemes. She completed coursework requirements for her Master's degree and prepared a seminar reviewing literature dealing with appropriate performance indicators. Where possible, these indicators will be applied to Knight's original case studies to check their feasibility and merit as measures of a scheme's relative and temporal performance.

4. Survey of Farmland Transactions

Ferrer, Semalulu

Results of the census survey of farmland transactions recorded in KwaZulu-Natal during 2001 were combined with those from earlier years and reported in two publications. A paper co-authored by Lyne and BASIS I colleague Darroch was presented at the BASIS Land Reform Conference in Zimbabwe, March 2003. The same authors contributed a chapter to a book launched at the 25th triennial Congress of the International Association of Agricultural Economists in Durban, South Africa, August 2003. (See outputs.)

Semalulu was recruited in February 2003 to conduct the penultimate census survey of farmland transactions in KwaZulu-Natal and to analyze land redistribution in the province over the six-year period 1997-2002. Lyne and Ferrer jointly supervise Semalulu's Master's research. The 2002 census survey has been completed and a report presented as a departmental seminar at the University of Natal has been posted on the BASIS website (see outputs under Ferrer and Semalulu). An extended version of this report focusing on the land co-financed with private mortgage loans and government's new LRAD grants will be submitted to a peer-reviewed journal during FY04.

5. Books and Conference Papers

Principal Investigator Roth edited two books with the assistance of Kurt Brown of the Management Entity.

Michael Roth and Francis Gonese. 2003. *Delivering Land and Securing Rural Livelihoods: Post Independence Land Reform and Resettlement in Zimbabwe.* Harare: B&D Creatif Pensant Company.

This book is the outcome of the conference *Delivering Land and Securing Rural Livelihoods: Post-Independence Land Reform and Resettlement in Zimbabwe* held in Nyanga, Zimbabwe in March 2003. This activity concludes a three-year research program funded by USAID/Zimbabwe and includes the final work by Pius Nyambara and David Hughes under the BASIS I Activity—Agrarian Contracts—with Rutgers University and the Department of Economic History at the University of Zimbabwe.

Michael Roth, Sipho Sibanda and Vuyi Nxasana. 2003. *Securing Rights, Finding Solutions*. Pretoria: Lexis Nexis.

This book contains papers and presentations from the National Land Tenure Conference *Finding Solutions, Securing Rights* held in Durban, South Africa in November 2001. Vuyi Nxasana, chief director of land reform systems of the Department of Land Affairs in South Africa is Lyne and Roth's primary collaborator in national government for the BASIS research activity.

Lyne attended the Zimbabwe Conference and presented the invited paper, co-authored with Darroch, entitled "Land Redistribution in KwaZulu-Natal, South Africa: Five Census Surveys of Farmland Transactions." This forum provided the opportunity to pull in current and former BASIS researchers from the region to provide comparative perspective on land, water and agrarian reform. Other researchers included Bill Derman from Michigan State University.

C. Problems and Issues

The policy of excluding non-employees from LRAD grants in South Africa has created problems. The Provincial Department of Land Affairs indicated that it would not support Sherwood's application for LRAD grants because the exclusion of non-employees might create conflict in the community. This highlights a major weakness in the program, as there are few commercial farms in KwaZulu-Natal that do not have retrenched workers resident on the property. Unless grants can be offered to all residents (and not just employees) it is seems unlikely that the DLA will support any equity-sharing projects in the Province.

A second major problem has been the rejection of applications for LRAD grants on the grounds that the Provincial budget has been exhausted. This claim is more apparent than real as the DLA has a record of under-spending its budget for grants in KwaZulu-Natal. This anomaly has arisen because the Land Bank, which enjoys the privilege of being the only bank permitted to approve LRAD

applications, has not processed many of the deals for which it has approved grants. In financial year 2001/02, the Land Bank received R50 million from the DLA for release of LRAD grants with loan funding. In the same period, the Land Bank approved 152 LRAD applications. Of these approvals, only 14 applicants had received their loans and grants by March 2002. Consequently, grant funding allocated to the remaining 138 approvals was unavailable to other banks and remained unspent at the end of the financial year—a situation that will persist if these approved deals eventually collapse. At the national level, funding allocated to land reform grants by the Treasury declined by 23% in real terms between 1998 and 2001 owing to persistent under-spending of provincial budgets.

D. Collaboration

The Semalulu and Ferrer report was requested by the Centre for Development and Enterprise for debate by the Big Business Working Group, which reports to President Mbeki.

E. Key Findings

1. BASIS Contributes to Formation of Agrarian Policy in Kyrgyzstan

The Ministry of Agriculture, Water Resources and Processing Industry of the Kyrgyz Republic is developing a policy document entitled *Concept of Agrarian Policy of the Kyrgyz Republic until 2010*. In September 2003, the Ministry established a working group that includes representatives of the Ministry, other government bodies, international organizations (the World Bank, Asian Development Bank, USAID, EU, and Swiss Development Cooperation Agency), private sector and academia. CASE Director Mogilevsky participates in this group because of his involvement in BASIS-generated research, in particular the Farm Management Survey (carried out in collaboration with the Ministry). Mogilevsky participates in the Farm Development subgroup, through which he channels empirical results of the survey and case studies. He may also help edit the policy document because of his experience with drafting government programs. This positions BASIS at the table of a significant policymaking group where there is both need and demand for BASIS research.

2. BASIS Results used for Tax Policy and Eligibility for Social Benefits

The farm management survey in Kyrgyzstan is unique; there is no other comparable survey that monitors changes in agrarian structure and performance including detailed data on profitability and factor productivity. This database has generated two useful outcomes in the past year that further help document collaboration with other projects.

First, there is need for new land tax rates that would help equalize taxation of peasants (who pay the land tax) and urban people (who pay a personal income tax). To make tax payments comparable, information was needed on mean values and variation in farm returns per hectare and per worker, which the Farm Performance Survey supplied. The analysis was done for the EU TACIS Programme as part of a broader directive to review the tax regime in the country. Results of the analysis were reported to the parliament committee on tax issues and presented to the academic and business community in January-February 2003. The policy debate is still under discussion.

Second, there is need for alternative methods to determine eligibility for social benefits in rural areas. Current methods are deficient in the sense that they do not take into account the income received by farmers from subsistence farming and livestock rearing, and both often account for a large share of total household income. Again, BASIS-generated data from the farm performance survey proved useful in estimating income from these sources disaggregated by region. More realistic accounting for rural household income would allow for better targeting of the social protection system. This analysis completed in June 2003 was done for the World Bank and the Ministry of Labor and Social Protection; the results have been well received, and the Ministry is planning to incorporate the results into a new law on social benefits for the poor. Both reports are available on the CASE website: www.case.elcat.kg.

3. Monitoring Progress with Land Redistribution in KwaZulu-Natal

Census surveys of land transactions sponsored by BASIS show that 178,000 hectares of the Province's commercial farmland transferred to previously disadvantaged South Africans during the

period 1997-2002. This represents almost 3.5% of the farmland originally available for redistribution at the time of democratization in 1994.

The disappointingly low pace of land redistribution (averaging just 0.5% per annum) picked up to 1.0% in 2002 following the launch of LRAD (see figure 4). In addition, 3,400 hectares (14 farms) were financed with a combination of LRAD grants and private mortgage loans representing a new mode of redistribution (see figure 5). On average these 14 farms were larger and of better agricultural quality than those purchased privately.

At this early stage LRAD has been much more successful at engaging financial institutions than the earlier program of settlement/land acquisition grants. It has also been more successful in targeting women. Half of the farms co-financed with LRAD grants and mortgage loans were purchased by women as sole owners or married co-owners.

In KwaZulu-Natal, the rate of land redistribution doubled and, for the first time since 1997 when the surveys commenced, transactions financed solely from government grants redistributed more land than did privately financed transactions (28,624 hectares versus 22,863 hectares).

Figure 4. Estimated cumulative and annual rates of farmland redistribution to disadvantaged owners in KwaZulu-Natal, 1997-2002

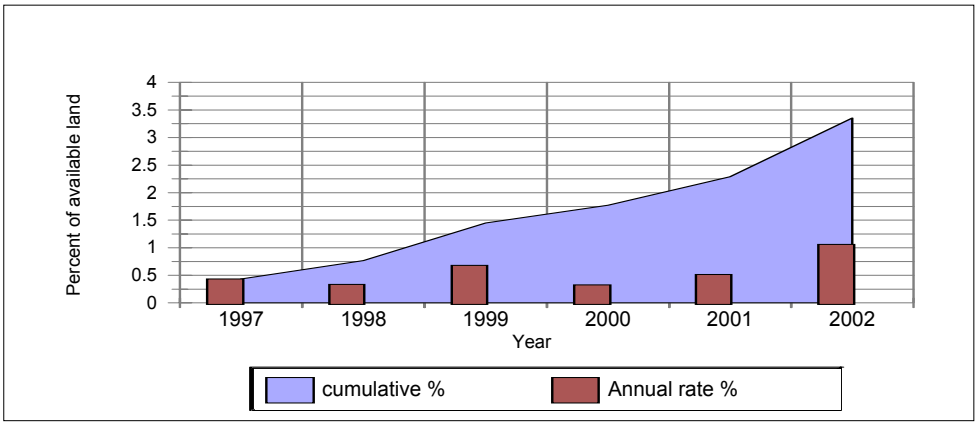
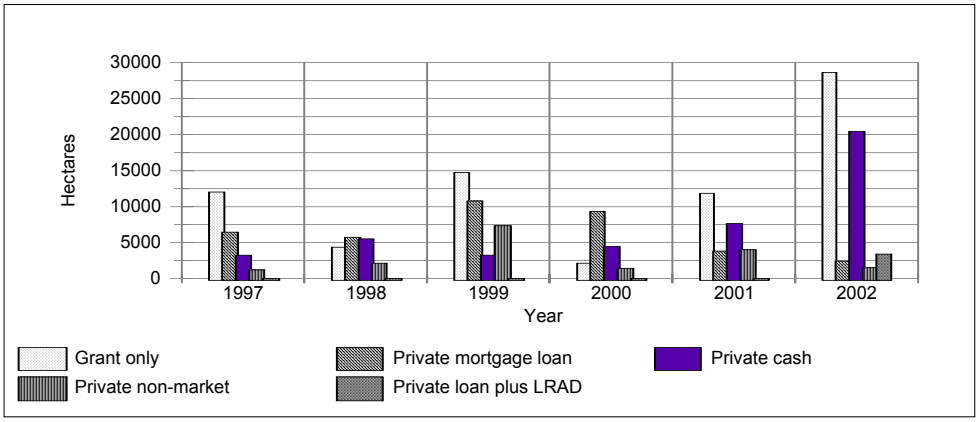


Figure 5. Annual area of land by mode of redistribution to disadvantaged owners in KwaZulu-Natal, 1997-2002



II. WORKPLAN 2003-04

A. Kyrgyzstan

Activities will continue to focus on monitoring the ten case enterprises and work will proceed with facilitating the development of one new enterprise. A study tour to South Africa will be undertaken to help inform Kyrgyz BASIS research of the experimental work being undertaken there in order to help inform the enterprise facilitation in Kyrgyzstan. Also the final survey of farm performance will be conducted.

1. Carryover Activities

Timeline: October-December 2003

There is need to consolidate the research that led to the background papers and case studies for purposes of clarifying and synthesizing the linkages between the legal and regulatory framework and practice. An encompassing review of the case study material will determine how and whether the current regulatory environment continues to constrain business activity, and how and whether the problems agribusinesses face are being dealt with in current program interventions. Data from the Farm Enterprise Survey will be integrated as appropriate.

One of the background papers will be revised by Erdolatov, Childress and Mogilevsky and submitted to *Post-Communist Economies*. A second synthesis paper entitled "Legal Foundations, Business Conduct and Performance of Case Study Enterprises," by Childress and Roth will be completed.

2. Case Studies of Equity Sharing Enterprises

Timeline: October 2003-September 2004

Based on research findings of both the Farm Enterprise Panel Survey and the Case Studies of Equity Sharing Enterprises, enterprise restructuring in Kyrgyzstan remains in a state of flux. Enterprises continue to splinter, consolidate and adopt new forms and business activity with considerable fluidity. The legal, market and macroeconomic environments remain tenuous and hostile to economic growth.

Two enterprises offer a reasonable chance of succeeding with their current resource base and set of market opportunities. One—Ail Charba milk cooperative—is one of the 10 BASIS case study enterprises. The second—Sadykov cotton operation in Aravan *rayon*, Osh *oblast*—has been visited by BASIS researchers but is not a case study site.

The remaining nine case study enterprises are in the throes of balancing and re-balancing their asset and ownership mix; the long-term viability of the majority of these is very much in doubt. It was hoped that based on these 10 enterprises, a detailed set of best practices could be identified that would help inform this phase of facilitation. However, linkages between farm enterprise performance and ownership structure are connected with problems of indebtedness, poor sectoral performance, weak demand, and outdated technology that would continue to severely hamstring the viability of most newly reorganized enterprises.

Nevertheless, there remains considerable value in continuing to monitor these enterprises over time. All are dynamic in their efforts to explore new business opportunities, rebalance their portfolios, and make new investments, in ways that are profit enhancing; all also are experiencing severe constraints to growth as they bounce around within the tight complex of policy barriers and market constraints. While researchers are doubtful that many of the 10 enterprises will succeed in any close resemblance of their current form, monitoring their conduct and performance will provide a rich and nuanced understanding of agricultural constraints that will be invaluable for policy reform in Kyrgyzstan.

With this background in mind, the following activities will be given priority.

New case studies. Based on review of case studies, researchers Childress and Roth will determine whether gaps are evident in enterprise type, and whether any of the current group of enterprises visited are suitable restructuring candidates. Based on this review, it is anticipated that 2-3 new case studies will be identified for in-depth monitoring (Erdolatov, Tilikeyev, Giovarelli, and Roth).

Ongoing monitoring of case studies. The current set of case studies are in need of synchronization to cover common points and polishing to make the English versions more readable and understandable. All 10 case studies will be re-interviewed to update case study histories (Erdolatov, Tilikeyev, and Giovarelli) and to polish case study write-ups (Giovarelli, in coordination with Roth). Based on this work, a policy brief will be prepared focused on gender constraints and opportunities in farm restructuring including both Kyrgyzstan and South Africa sites (Giovarelli and Roth).

Facilitation of one enterprise. In August 2003, the management of Ail Charba Milk Cooperative approached BASIS requesting assistance with enterprise facilitation. They specifically requested the services of BASIS researcher Tilikeyev who advised the enterprise on financial organization in the past. Researchers Tilikeyev and Mogilevsky will discuss restructuring options with management, particularly new organizational and financial arrangements. Depending on progress, facilitators will identify beneficiaries and begin negotiations with stakeholders (workers, shareholders, financiers and management) to propose and explain the new arrangements.

Based on these formal discussions, researchers will prepare a detailed business plan for the selected enterprise, but they will take care to ensure that facilitation does not proceed in advance of a supportive legal/market environment being established, an adequate understanding of institutional best practices achieved, and buy-in from the enterprise's management. Researchers have been advised to not overstate BASIS's potential to contribute, particularly in light of anticipated project closure in September 2004.

3. Study Tour

Timeline: October-December 2003

South Africa has a more accommodating legal and market environment for investment and deeper NGO capacity for facilitation to aid beneficiaries in pursuing new business arrangements. It is proving difficult for policymakers within Kyrgyzstan to appreciate the possibilities for restructuring given the localized environment. Tilikeyev and Mogilevsky will visit South Africa in late 2003 to explore institutional arrangements and the process of facilitation used there. LIMA will help facilitate the study tour within KwaZulu-Natal, exploring BASIS research sites there. BASIS has sufficient funds at present to send only the two researchers. However, we will solicit funding from the USAID mission for additional Kyrgyz policymakers.

Roth will visit Kyrgyzstan following the study tour to assist researchers with digesting their findings and extending this knowledge to the enterprise restructuring of Ail Charba.

4. Third Farm Enterprise Panel Survey

Timeline: October 2003-September 2004

The Third Farm Enterprise Panel Survey was postponed in order to give more time for analysis of the 1999 and 2001 databases, and for the unanticipated "Survey of Lost Enterprises" administered in FY03. This survey will be carried out for purposes of (a) continuing to monitor the pace of change in agrarian structure in Kyrgyzstan, (b) analyzing constraints to growth and economic viability, and (c) discerning pathways for improving the livelihoods of the poorest rural households. The findings of this survey continue to attract attention from government, donor and civil society organizations, as it is the only survey of its type in Kyrgyzstan with a rural development focus.

As before, this survey will be national in scope and will canvas all *oblasts* and *rayons*. It will seek to revisit and re-interview the same enterprises interviewed in the 2001 BASIS survey. Based on preliminary analysis of the "Survey of Lost Enterprises" implemented in FY03, it was found that many enterprises folded either for reasons of debt or they chose to dissolve the enterprise voluntarily. While some exited farming entirely, others sold off assets, further subdivided landholdings among groups of farming households, but nonetheless remained in agriculture as smaller peasant household (group) farming units. In order to replace "lost" enterprises in the 2001 survey, the decision was to select comparable enterprises in the vicinity. If indeed the agrarian structure is devolving toward greater numbers of smallholdings, with further breakup envisioned for the future, then this selection criteria over time would lead to an upward bias in size of enterprises being interviewed.

The government of Kyrgyzstan recently completed a census of farming enterprises. It is thus proposed that the Third BASIS Farm Management Survey include as many of the enterprises as can be located from the 2001 survey, but a high loss rate in enterprises is again anticipated. However, instead of filling in the ideal sample size of +/- 450 enterprises with comparable units, enterprises in the sampling frame will be selected to match the national land size distribution, hence filling in with greater numbers of smaller farming units as necessary.

The following activities are thus anticipated:

- redesign and update the 2001 survey instrument (1st quarter)
- review national census data on agrarian structure and update the sampling frame (1st quarter)
- implement the 3rd Panel Farm Management Survey (2nd and 3rd quarters)
- data entry (4th quarter)

It is unrealistic to expect any substantive headway with data analysis during the workplan period, and the projected closure of this project on 30 September 2004 is of concern. Accelerating data analysis is not a feasible option. Childress and Roth have been in communication with the USAID mission for the last two years and have solicited add-on funding to deepen and extend this work. The USAID mission finds the research findings interesting and useful, but due to prior funding commitments and the limited amount of resources budgeted for agriculture, the mission has not been able to provide financial support. A USAID assessment team is expected to assess prospects for dedicating greater resources to the agricultural sector in Kyrgyzstan, and BASIS reports have been provided to help inform and support this effort. While we are hopeful that some USAID mission funding will eventually be forthcoming, there is nonetheless risk that without financial commitment from USAID/Bishkek or the BASIS CRSP, that this survey will be undertaken without time and resources dedicated for analysis.

5. End-of-project Workshop

Timeline: July-September 2004

A regional or comparative workshop under the BASIS Policy Conference series would include this project and the BASIS Russia project. A preplanning conference may be held during the workplan period, perhaps in Kyrgyzstan or Russia. Researchers hope to finalize whether one or two workshops will be held, and their respective locations. Ideally this workshop would be held toward the end of the fiscal year, but a workshop is also scheduled in South Africa for the 4th quarter of FY04. Discussions will be held with the Management Entity to determine whether the Kyrgyz workshop might be postponed beyond 30 September 2004 through a no-cost extension to help smooth out the workload.

B. South Africa

The work will focus on mediation and mentoring to implement business plans prepared in FY03 and on monitoring to evaluate the performance of equity share schemes. A synthesis workshop will be held, attended by BASIS researchers from both countries and by interested land reform practitioners from South Africa. In addition, researchers will conduct the final census of farmland transactions.

1. Carryover Activities

Timeline: October-December 2003

Shinns will complete her Master's dissertation with supervision from Lyne. The dissertation analyzes symptoms and causes of poverty within the community of prospective beneficiary households at Sherwood. A paper analysing the symptoms of poverty has already been accepted for publication in *Agrekon* and a second paper identifying the underlying causes of poverty has submitted for peer review. Whereas the first paper uses a combination of Principal Component and Cluster Analysis to identify groups of households with similar poverty profiles, the second paper uses Discriminant Analysis to isolate possible causes of poverty (e.g., measures of human and social capital available to households) that distinguish groups with different poverty profiles.

Lyne and Roth will finalize their *BASIS Brief* dealing with best institutional arrangements for equity-share schemes. A report reviewing LIMA's facilitation of the experimental projects in KwaZulu-Natal will be completed when this support ends. Greene, Ferrer and Lyne will co-author this report and circulate it to both government and non-government land reform practitioners in South Africa.

2. Facilitation of Experimental Projects

Timeline: October 2003 to December 2003

Efforts to facilitate and nurture the two experimental projects will be supported. At Sherwood the assistance provided will depend upon the outcome of efforts made to raise the liquidity needed to make the project financially feasible. If grant or donor funds are approved, or additional equity investors found, Lyne and Rutsch will meet with the Receiver of Revenue to ensure that there is consensus in the treatment of tax liabilities relating to asset transfers into the Amafolosi Partnership, and to the lease of livestock not invested as equity by the current owners. These negotiations may necessitate changes to the business plan that will be submitted to Ithala bank by Greene and Lyne to finalize the conditions of a term loan that will finance the Partnership's purchase of an additional 150 breeding cows. Approval of this loan will trigger the partnership agreement brokered between a trust established to warehouse the equity invested by community participants and a close corporation representing the interest of holding the equity contributed by former owners. At this point the project is officially launched and the emphasis of facilitation will shift to

mediation and mentoring to ensure that shareholder rights and obligations are observed.

At Cavelshay, facilitation will depend upon the outcome of efforts to secure approval for housing grants to help finance new homes for prospective beneficiaries who work and live on the farm. If housing grants are approved, this project can commence without much delay as the Partnership between the current owner and employees' Trust will buy Cavelshay's existing beef herd and manage it while waiting for permission to subdivide and transfer farmland, for housing grants to be awarded, and for new homes to be constructed. The beef herd will not be replaced with game until the farmworkers and their families have all relocated. Initially, the employees will own a relatively small share of the Partnership as they are few in number (8) and have little in the way of livestock or cash savings to contribute. However, the intention is to boost their future share of the Partnership by contributing land financed with LRAD grants. Tax, capital and liquidity problems are not anticipated at Clavelshay. Facilitation will therefore focus on registering the workers' Trust, concluding the Partnership Agreement and rental contracts for land and fixed improvements, training, mediation and mentoring.

3. Monitor and Evaluate Equity Sharing Projects

Timeline: October 2003-September 2004

Assuming that the grants needed to launch Sherwood and Clavelshay are approved, Gray will conduct a panel survey of participating and non-participating households at these projects. These data will be used to measure changes in (a) mean values of the poverty indicators constructed from the baseline data, and (b) the distribution of poverty. While it is unlikely that significant changes will be observed over the short interval between surveys, the main purpose of this exercise is to establish and test methodology for monitoring and evaluating farmworker and community equity-share schemes. For example, cluster analysis of the pooled data will make possible the construction of transition matrices for each project. In addition to the panel survey, Gray will also collect baseline information for performance and empowerment indicators identified in FY03. Where possible, these will be compared with established benchmarks (for example, minimum levels recommended for liquidity and solvency ratios, and the proportion of equity owned by employees in the more successful equity-sharing schemes identified by Knight in the Western Cape).

Should grants not be approved at one or both of the experimental projects, Gray will revisit some or all of Knight's case studies to gather information on performance and empowerment indicators. In this instance, it may be possible to monitor changes in indicators for which historical information is available.

4. Census of Farmland Transactions

Timeline: February-September 2004

Ferrer will access the 2003 Deeds of Transfer for farmland in KwaZulu-Natal in February and analyze the information contained in these records, thus completing the seventh annual census survey of farmland transactions in the province. He will combine the results of the 2003 census survey with those obtained for the years 1997-2002 in a *BASIS Brief* and will also present his results at the cross-regional workshop. These outputs will compare rates and modes of land redistribution across census surveys to draw inferences about the impact of public and private land reform programs. Attention will also be given to gender representation, land quality, level of investment ("elitism") and recent incidence of reverse land transactions associated with each mode of land redistribution.

5. Regional Workshop

Timeline: July-September 2004

A workshop will be held at the University of Natal to disseminate findings to policymakers and practitioners, and to engage them in discussion of policy and its application. Presentations will be made by Ferrer (impact of settlement/land acquisition grants and LRAD on land redistribution in KwaZulu-Natal), Lyne and Roth (best institutional practices for joint ventures with farmworkers and communities), Greene (facilitation of equity sharing projects in KwaZulu-Natal) and Gray (evaluating the performance of land reform joint ventures). Circumstances permitting, the workshop will include a field trip to one of the experimental projects where delegates can pose questions to participants, including the original owner(s). Delegates will be drawn from National and Provincial Departments of Agriculture and Land Affairs, NGOs, the Land Reform Credit Facility, financial institutions and organized agriculture. A proceedings issue will be collated for distribution to delegates and for the BASIS website.

C. Anticipated Key Findings

1. Extension of Knowledge on Best Institutional Arrangements

By the end of FY04, BASIS will have published a number of briefs and papers on enterprise performance and the characteristics of successful joint ventures studied in South Africa and Kyrgyzstan. Furthermore, research activities will have identified best institutional arrangements for practitioners of land reform, including, *inter alia*, the Department of Land Affairs in South Africa, and the Ministry of Lands in Kyrgyzstan.

A policy workshop in South Africa will help extend these findings to a wide stakeholder clientele, including invited researchers from Kyrgyzstan. Data from the BASIS project are being used by USAID/Kyrgyzstan to help develop an agricultural development strategy. In South Africa, LIMA is engaged in ongoing dialogue—informed by the business plans it is developing for, and problems encountered in the facilitation of, the experimental equity sharing projects launched in KwaZulu-Natal—with key officials from the provincial Departments of Land Affairs and Housing, and with branch managers of commercial banks and Development Finance Institutions.

This project is thus a prime example of an applied research activity that links research in the field with implementation on the ground, and by experiencing constraints faced, is helping to inform policy development at national and local levels. In the course of this work, Roth has communicated frequently with USAID officers in South Africa and Kyrgyzstan.

2. Enterprise Facilitation and Implementation

By the end of FY04, BASIS will have completed or partially completed the facilitation of two enterprises in South Africa and one enterprise in Kyrgyzstan. These facilitations benefit not only the owners and farmworkers involved in the three enterprises, but in addition will serve as pilot demonstration models for helping to extend knowledge and guide the design and implementation of further land reform projects in the future.

3. Analysis of Panel Survey Data

Data on costs, debts, asset values and profitability of restructured corporate enterprises and individual holdings, gathered by the Farm Performance Survey, in Kyrgyzstan will continue to provide the Ministry of Lands with key data it is using in its farm management programs (note: enumerators in the 1999 and 2001 surveys were Ministry employees).

The rate of farmland distributions to the historically disadvantaged in KwaZulu-Natal based on census survey data (data collected in 2004 for calendar year 2003) is being used to monitor land transfers resulting from the government's LRAD program. However, unlike earlier years, the project will also study reverse transactions that transfer land from previously disadvantaged owners to white buyers in order to assess the longer-term impact of government and non-government interventions aimed at redistributing farmland in South Africa.

D. Anticipated Outputs

1. Kyrgyzstan

- Draft research paper, "Asset Ownership Inequality and Gender Discrimination" (Giovarelli)
- Draft synthesis paper, "Legal Foundations, Business Conduct, and Performance of Case Study Enterprises" (Childress)
- Business plan for new enterprise (Tilkeyev and Mogilevsky)
- Trip report on study tour to South Africa, "Relevant Lessons for Kyrgyzstan" (Tilikeyev and Mogilevsky)
- Journal article containing a dynamic comparison of farm enterprise performance and agrarian structure for 1999 and 2001 (Roth, Cormier, Mogilevsky)
- 10 updated case studies (Giovarelli) including a gender *BASIS Brief* touching upon the Kyrgyzstan and South Africa sites (Giovarelli and Roth)
- 3rd (2003) Farm Management Database (Mogilevsky)
- *BASIS Brief* on changes in agrarian structure and farm enterprise performance in Kyrgyzstan (Roth, Mogilevsky, Cormier, and Giovarelli).

2. South Africa

- Journal article analyzing causes of poverty within the community of prospective beneficiaries at Sherwood (Shinns and Lyne)
- Master's thesis, "Analyzing Poverty in a KwaZulu-Natal Land Reform Community" (Shinns)
- *BASIS Brief* and workshop paper describing best institutional practices observed in case studies of

joint farming ventures in South Africa (Lyne and Roth)

- Report and workshop paper reviewing LIMA's facilitation of the experimental equity sharing projects in KwaZulu-Natal (Greene, Ferrer and Lyne)
- Master's thesis, "Monitoring the Performance of Equity Share Schemes on Farms in South Africa"(Gray)
- Journal and workshop article evaluating the performance of equity share schemes on farms in South Africa(Gray, Lyne and Ferrer)
- *BASIS Brief* and workshop paper comparing modes of land redistribution in KwaZulu-Natal from 1997 to 2003 (Ferrer)
- Workshop proceedings (Ferrer, Lyne, Roth, Greene and Gray).

INSTITUTIONAL DIMENSIONS OF WATER POLICY REFORM IN MALAWI:

Addressing Critical Water-Land Intersections in Broadening Access to Key Factors of Production

Global Constraint 2*: Unsustainable Use of Degradable Resources*

An irrigation site in Malawi
(*Photo by Peter Walker*)

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PROJECT PROFILE

Malawi and other countries in southern Africa have enacted major reforms of their water, land, and irrigation policies and laws. The goals of these broad policy and institutional changes are to: (1) promote poverty alleviation through market liberalization, private enterprise development, demand management, and cost recovery, (2) decentralize natural resource management and increase stakeholder involvement, and (3) further sustainable and efficient use of resources.

This project examines the degree to which the new laws and policies are likely to achieve their goals, focusing on whether disadvantaged groups will gain access to land and water resources and to decision-making in the newly established resource management institutions. It evaluates the new policies to identify areas where they may need to be reconciled, as they were drafted separately from one another and from Malawi's new local government act. To study the land-water intersections, we focus on two kinds of small-scale irrigation.

Formal (government-run) smallholder schemes. Most of these were established in the 1960s and 1970s and are scheduled under the new irrigation policy and law to be transferred to farmers organized into "Water User Associations."

Informal irrigation. A major new focus of government poverty alleviation strategies involves smallholder cultivation along streambanks and in wetland areas in the dry season. The recent droughts and the serious food crisis in Malawi are an impetus for government, donors, and researchers to focus on informal irrigation.

The project focuses on the Likangala Domasi watersheds in southern Malawi, which form part of the greater Lake Chilwa Basin. The project explores the following research questions:

1. What are the implications of the disjunctions across the new water, irrigation, and land policies for improving smallholders' access to and use of irrigated lands?
2. Are newly enacted land, water, and irrigation policies broadening disadvantaged groups' access to the resources needed in formal and informal irrigation?
3. Do newly established Water User Associations on formal irrigation schemes incorporate the voices and views of poor farmers and other marginalized groups? How might research findings provide information and techniques to ensure more adequate representation of women in the formal schemes?
4. How does informal irrigation contribute to livelihoods, in comparison with formal irrigation and the dominant dryland farming?

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Support

BASIS CRSP core funding.

Outputs

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I. ACTIVITIES 2002-03

A. Policy and Institutional Reform

Mulwafu, Ferguson, Peters

Malawi revised most of its environmental and agricultural policies and laws, thus redefining ownership, use, and management of its resource base. The project addresses these research questions:

1. What are the implications of the disjunctions across the new water, irrigation, and land policies for improving smallholders' access to and use of irrigated lands?
2. Are newly enacted land, water, and irrigation policies and laws broadening disadvantaged groups' access to land, water, and other resources needed in formal and informal irrigation?

1. Current Situation

The Water Policy has been approved by Parliament, but the new Water Law has yet to be enacted. A review of existing water laws has been completed and that the new law is likely to be approved by Parliament this year. The World Bank, one of the major donors in Malawi's water sector, is supporting the development of pilot Catchment Management Authorities. The first is to be established in the Lilongwe area.

In 2000, the government enacted a new Irrigation Policy, and in 2001 the new Irrigation Law was approved, which legalizes the transfer of government-run schemes to farmers' organizations and promotes the development of informal irrigation. The lead donor in the transfer of the smallholder irrigation schemes is the International Fund for Agricultural Development (IFAD). We held one meeting with the Director of the IFAD project during 2003, two with the Acting Deputy Controller of the Irrigation Department, and one with Concern Universal, the NGO contracted to work with IFAD on the handover of the irrigation schemes. We also interviewed top personnel at Liwonde Agricultural Development Division (ADD), who are the people most directly in charge of the handover of the Domasi irrigation scheme to farmers.

The new Land Policy was approved in January 2002 and the Land Commission is in the process of finalizing the new Land Act, which is scheduled to be completed by the end of 2003. Informal interviews with the two academics on the Land Commission suggest that the new law marks a significant change in direction. It calls for the titling of customary land under the rubric of "customary estates." It also mandates the creation of a uniform inheritance law rather than recognition of both matrilineal and patrilineal inheritance practices. According to one of the members of the land commission, the aim is to further the concentration of land in the smallholder sector in hands of those who can use it most productively. While this may be intended to be a long-term outcome, the current government rationale for the land policy is the opposite—to provide land to "all."

Research can help ensure that correct information on the current practices and understandings regarding access to and use of different types of land is made widely available, and to outline the implications for the farmer of the current (and evolving) land policy. The land policy calls for wetlands, a central focus of our research, to be classified as public land exclusive to members of the traditional authorities. The Commission completed its deliberations on the customary sector in September 2003 and was soon to take up deliberations on private, leasehold, and public tenurial systems recognized in the new law.

The Local Government Act of 1998 transferred administrative, management, and fiscal authority for land, water, and other resources to Districts and Municipalities. The transfer of authority is taking place in stages over a five-year period. We continue to follow this process as it is occurring in the District and Municipal Development Committees in Zomba and Machinga Districts, where our research is based, to observe how decisions regarding access to irrigation, land, and water resources are made at this level. Presently, the ADDs and the Rural Development Project offices in our study area are extremely understaffed due to a combination of government efforts to reduce staff and costs, poor working conditions, and the effects of the HIV/AIDS epidemic. At the field level the ADD has not been able to play a lead role in many of the

functions associated with farmer training and handover of the irrigation schemes.

2. Research Summary

Interviews allowed us to continue to learn about how policymakers and program implementers view the status of the irrigation scheme rehabilitation and transfer, problems encountered, and training programs developed for farmers on the irrigation schemes. We can also compare the perspectives and understandings of the key policymakers with those of farmers and program implementers at the local level. We use the interviews to update decision-makers on our research and preliminary findings from the baseline and handover surveys on the Domasi and Likangala irrigation schemes. Briefly, the interviews reveal the following.

State withdrawal. The primary motivation for handing over the state-run smallholder irrigation schemes to farmers is the need to reduce government expenditures, coupled with a continuing redefinition of the role of the state away from implementation of projects to policy setting, monitoring, and evaluation. Other considerations were to improve the wellbeing of smallholder farmers and lessen dependency on government.

Difficult choices on what to renovate. The complexities involved in the transfer of the schemes have become more apparent. Initially the focus was on the physical renovation of the schemes, with less attention paid to the institutional and social dimensions involved in transfer. The plan was to renovate the schemes (using donor funds and farmers' labor but not their input on what to renovate) and then to hand them over to newly created farmers' organizations. It has become apparent that there are insufficient donor or government funds to fully rehabilitate any of the schemes. There has been more farmer input into what should be renovated and increased use of farmer labor in the rehabilitation process. Emphasis also has shifted from physical repairs to institutional development via farmer "empowerment" and organization.

Many plot holders are not supportive. Farmers on the Domasi and Likangala schemes have voiced opposition to handover. Some farmers think that they will not be able to manage the schemes on their own, due in part to the lack of renovation of the infrastructure and in part to their lack of managerial and financial experience. In particular, farmers have insisted that the schemes be fully rehabilitated before they are willing to take control of them. This has caused postponement of transfer, as, in most cases, funds to fully rehabilitate the schemes are not available. Domasi irrigation scheme, for example, was to have been handed over to farmers over a year ago.

Also, many farmers think irrigation transfer will allow chiefs to reassert control over the land and to remove plot holders who are considered outsiders. When the schemes were formed in the 1960s and 1970s, villages were displaced to make room. The schemes were originally conceived as resettlement projects, and on some of them people from other areas of the country were given priority as plot holders. On both Likangala and Domasi schemes, for example, certain blocks were given to the Malawi Young Pioneers, a paramilitary youth organization of the Banda era. On both schemes, it appears that many of the villagers displaced by the scheme obtained plots, but as time has gone by, people from outside the local area have also managed to become plot holders.

As government control over the schemes declines, Chiefs reassert authority. On Likangala, for example, a Group Village Headman assumed an influential, if unofficial, role on the government-run scheme management committee and has reportedly encouraged farmers in surrounding villages to take over irrigation blocks occupied by outsiders. The issue of the rights of outsiders/foreigners to land is a central debate in Malawi's new land policy and law as well, as the proposed new legislation restricts ownership of land to citizens. Chiefs argue that the concept of foreigners applies to those outside of their jurisdiction, not just non-citizens.

Farmer opposition to handover accounts, in part, for the growing emphasis placed on farmer mobilization, training, and empowerment by the Irrigation Department and IFAD. Our research will begin to explore more fully which farmers on the Domasi and Likangala schemes oppose or support handover and their reasons for doing so.

Water user associations rather than cooperatives. The debate about the choice of organizational structure for the newly formed farmers' organizations on the smallholder irrigation schemes has now been resolved in favor of water user associations (WUAs). This choice was made by

IFAD and the Irrigation Department based on two considerations: WUAs involve less complicated managerial structures, and they are easier to get recognized under Malawian laws. This decision, however, is at odds with some farmers' preferences, which focus on sourcing inputs (seed, fertilizer) and finding markets. As a consequence, the draft WUA constitution and bylaws on the Domasi scheme, for example, incorporate input procurement and marketing functions usually associated with cooperatives.

Uncertainty remains. Even at this late date in the transfer process, there is uncertainty regarding at least two key dimensions of the handover process. First, what will the tenure status of the schemes be under Malawi's new land law? Presently the schemes are government lands. Interviews with policymakers reveal conflicting interpretations of their future status. Some thought that the newly formed WUAs would become owners of the schemes, while others contended that the lands would continue to be owned by the state but would be leased to WUAs. Still others stated that the schemes would fall under leasehold tenure status. Policymakers agreed that WUAs should have powers to fine and to remove farmers who do not comply with scheme rules. While these powers have rested with the scheme managers and management committees since the1960s, with the progressive collapse of state control during the last two decades, many farmers have not followed the rules. In addition, plots have been passed on to matrilineal or patrilineal relatives following customary inheritance practices. Considerable potential for conflict thus exists as old rules are resurrected and new ones made.

Second, what will the role of the government be in relation to the irrigation schemes once they are transferred to WUAs? Will government continue to fund major renovations when these are necessary while WUAs take on responsibility for more minor repairs and maintenance? What services will be provided by government to farmers and on what terms? Will WUAs be expected to pay for extension services on a demand management basis? Exactly what is being transferred to the WUAs—management and operations responsibilities or more comprehensive decision-making powers and ownership? The schedule and guidelines for irrigation transfer, which will address these critical issues, are not yet finalized.

In summary, the interviews clearly indicated that "handover" is more complicated and fraught with tensions than originally envisioned. The physical rehabilitation of the schemes has taken on less prominence as issues associated with the formation of the new institutional structures have emerged. Policymakers in IFAD and the Irrigation Department now envision scheme transfer to farmers as a phased process rather than a single event. Tensions are also beginning to emerge between the equity and food security objectives of irrigation transfer on the one hand, and broader market-based approaches needed to generate funds to support new management institutions like the WUAs.

B. Formal and Informal Irrigation

Mulwafu, Nkhoma, Kambewa, Peters, Ferguson, Kerr

The surveys and ethnographic analysis documented the current uses and systems of rights in formal and informal irrigation sites, monitored the transfer process of the formal irrigation schemes from government to farmer organizations, and documented the relative importance of formal and informal irrigation in relation to each other and to dryland farming and other income sources to smallholders.

The following research methods were used:

- Census in of *dimba* (streambed) gardens along a stretch of the Likangala River to provide the information for the sample for informal irrigation.
- Baseline surveys on the Domasi and Likangala formal irrigation schemes, and on one informal irrigation site, to provide information on whether the latter also have access to *dimba* on stream-banks and in wetlands.
- Handover surveys on the Domasi and Likangala irrigation schemes to determine what farmers know about the transfer process, if and how they participated in the rehabilitation, and what kind of training they received.
- Qualitative information collected in each of the three sites to provide an ethnographic analysis of the sampled farmers.

1. Research Summary—Formal Irrigation

Research activities included a baseline survey and a survey of farmer knowledge and participation in activities related to handover, both involving 120 farmers (60 on Likangala and 60 on Domasi irrigation schemes), a water use survey conducted with a sub-sample of the 120 farmers, and field assistant observations on the Domasi and Likangala schemes. Data entry and cleaning were completed in September 2003.

Complicated handover. In Malawi, with the government hoping to reduce spending, responsibility over irrigation schemes is devolving to farmers. Yet many plot holders are not supportive of the handover. The run-down condition of many of the schemes, along with the farmers' lack of managerial and financial experience, creates concern. The transfer process is not running smoothly, and BASIS is examining the many complications and conflicts that arise. (*Photo by Peter Walker.*)

Preliminary information on discrepancies between the lists of irrigation scheme plot-holders and those actually using the plots suggests that the formation of a Water User Association and the farmer management of a scheme will benefit the better-off and politically connected families more than the poorer and less well connected. *Is this the case?*

Literature on small-scale, farmer-managed irrigation schemes suggests that the poorer families either do not manage to get included in the formation of such schemes or are sloughed off over time. *Has or will this happen in the Malawi sites?*

Ability to maintain the irrigation infrastructure will require considerable capital, as well as technical expertise and labor organization. Preliminary information suggests that capital is extremely scarce and is likely to be the cause of considerable difficulty and possible breakdown in the schemes' handover to farmers. *Will this be the outcome? If so, what measures might be identified to mitigate or remove the difficulty? If not, how will farmers manage to overcome the difficulty?*

Interviews, field assistant reports, and preliminary survey results suggest that both the Likangala and Domasi schemes are characterized by considerable social differentiation. A few plot holders control a large number of plots (5-20) while the majority of holders have no more than two. (A plot is .25 acres.) The degree of land concentration is hard to determine. First, there is little correspondence between the official list of plot holders and the actual users of the plots. These lists are very old and only now being updated as part of the WUA formation. Second, reflecting matrilineal residence and inheritance patterns common in the area, in some cases the wife and the husband both have access to their own plots although these are often farmed on a joint basis. Third, the issue of land concentration on the schemes has become highly sensitive due to the transfer process itself.

The process of transferring the schemes to farmers is much more advanced on the Domasi scheme than it is on the Likangala scheme. Domasi has benefited from IFAD funding while Likangala does not have donor support. Renovations on Likangala are being undertaken by the Malawi government using funds only now being released. A WUA is not likely to be formed there until 2004. It is primarily the experiences on the Domasi scheme—where a WUA has been established—that can be used to answer most of the research questions. Nevertheless, Likangala continues to be of interest because of insights into the process of mobilizing farmers for a handover of the schemes.

A number of developments suggest that better-off farmers with larger landholdings will benefit disproportionately from the handover process at Domasi.

Both the Likangala and Domasi schemes required that plots be opened up for use by other farmers in

surrounding villages in the dry season to improve the food security status of families in the area. This dry season reallocation of plots was carried out by the scheme manager and scheme management committee. The literature suggests that access to winter season plots, be it on irrigation schemes, along stream-banks or in wetlands, improves farmer incomes. This dry season reallocation is unlikely to continue once the WUAs are formed. The Domasi WUA constitution, for example, makes no provision for this practice. BASIS research revealed that while many plot holders say they favor the seasonal reallocation on the grounds of fairness, most were highly skeptical of the likelihood of the system being continued after handover. They based this conclusion on their understanding that handover meant that each holder was to control his/her plot in the same way that family plots were managed, and on their assessment that there would not be any management strong enough to ensure that the reallocation took place.

The Domasi WUA constitution and bylaws contain clauses that may favor farmers with larger numbers of plots and may result in greater land concentration. Few farmers appear to be aware of these clauses, although the election to ratify the constitution and bylaws will take place shortly.

Preliminary results from the handover survey plus the field assistant notes indicate that most farmers are confused and lack knowledge about nearly all aspects of the transfer process and the role of the newly created WUA. The farmer training carried out by Concern Universal (CU) has been limited to members of WUA committees and has not involved other farmers beyond a call for them to participate in general assemblies and in the rehabilitation work itself. The principle of "training the trainers" has not been put into practice—those trained see it more useful to keep the knowledge acquired to themselves.

The constitution and bylaws were drafted (with the involvement of CU staff) by a committee of 45 farmers, consisting of members of the new WUA executive committee and other newly formed committees. The committees do not appear to be representative of the full range of plot holders. The composition of the WUA executive committee is essentially the same as it was when it was the government-run scheme management committee. It consists primarily of farmers who own more than the scheme average of two plots. The next step is to have farmers ratify the constitution and bylaws. In preparation for the vote, CU staff plans a campaign to educate farmers in the surrounding villages about the advantages of the new documents. This village-by-village training approach is intended to give farmers a better opportunity to more fully understand and to ask questions about these documents than has been the case at the WUA general assembly meetings held to date. At this point, farmers will be given the choice to ratify the constitution and bylaws or not; modifying them does not appear to be an option.

The draft constitution requires that all plot holders join the WUA and abide by its rules or risk fines and possible removal from the scheme. The constitution includes provisions calling for farmers to follow a more regimented farming calendar than is presently the case, including planting the same crops at the same time and marketing together—a regime not unlike that once enforced on the smallholder schemes by the repressive Malawi Young Pioneers. For example, the constitution states that a fine of MK500 will be levied on those found planting crops not agreed on by the WUA.

The constitution is silent on critical issues, particularly whether tenancy/renting will be allowed and the number of plots that farmers will be permitted to farm. The statement in the constitution concerning landholding size says that WUA members have a right to "a profitable" landholding size according to agreed criteria for land allocation. Administrators in charge of the handover process themselves appear to disagree on what a profitable landholding size may be, as well as on the issue of renting/tenancy.

Those interviewed in Liwonde ADD suggested that tenancy and renting, which are widespread practices on the schemes, will not be allowed. IFAD personnel, on the other hand, stated that these practices will be permitted. CU staff, working more directly with farmers, were uncertain about what the outcome of this debate would be. They recognized that renting of plots was widespread among both poor and better-off farmers (for different reasons) and would be difficult to prevent. In a similar fashion, they knew that many of the WUA committee members owned numerous plots and that it would be hard to limit landholding size or to redistribute plots. Our interviews with

policymakers in the Irrigation Department indicated a strong preference for promoting what was termed "commercial thinking," involving consolidation of plots, a focus on high market value crops, and group marketing strategies. Aware of these ambiguities, most farmers interviewed in the baseline and handover surveys were reluctant to admit to renting land, engaging in tenancy, or owning numerous plots.

Domasi WUA membership and other fee structures (water and plot fees) have been set low in an effort to encourage farmers to join the association. CU staff notes that the income generated from the present fee structures is well below what will be required to meet even minimum WUA operating expenses once the scheme is given to the farmers. They anticipate significant and unavoidable hikes in these fees in the near future. The impacts of rising fee structures on access cannot yet be determined, but may be hypothesized as likely to fall hardest on those with only one plot and few other sources of income, thus, the poorest.

The Domasi constitution states that membership in the WUA is limited to "residents in the area who are engaged in farming," thus potentially fueling existing debates about whether "outsiders" should be allowed plots on the scheme, and who these "outsiders" are. While the interview with the head of the IFAD project indicated that "tribal authorities" around Domasi scheme have now officially recognized that scheme land will not revert to customary tenure and will be under the control of the WUA, nearly one-third of the farmers we interviewed on the scheme still thought that it was going to revert to customary tenure under the control of chiefs.

Taken as a whole, the information to date suggests that irrigation reform may not broaden access to valuable irrigation plots but rather may result in the concentration of these holdings in the hands of those who control decision-making and who are in a position to abide by the new rules promoting more market-driven use strategies. Critical decisions about the schemes are being made by better-off farmers with more than the average number of plots who constitute the membership of the new WUA committees. These farmers occupy a privileged position, not only because of the number of plots they own, but also because they have had considerable voice in drafting the WUA constitution and bylaws. While CU contends that women play active roles in committees, field assistants living on the schemes report that, even though a large number of the plot holders are women, they are marginalized from WUA meetings. Clearly, much depends on the campaign that CU is planning to carry to familiarize scheme farmers with the new constitution and bylaws as a prelude to the up-coming ratification vote.

2. Research Summary—Informal Irrigation

The new land policy assumes that "customary" land is under the command of chiefs. In practice, in densely settled areas such as southern Malawi, much of so-called customary land is de facto family property. *What will be the effects of the new land policy that assumes customary tenure to be allocation by chiefs but that does not recognize de facto family property? Will it exacerbate competition within families for seasonal gardens and will it undermine locally recognized rights?*

Research confirmed our initial understanding that most streambed gardens (*dimba*) are held as family property in the densely populated southern region, even though legally they are under "customary tenure." This is stereotypically described, in a wide range of documents, as land held under the guardianship of "traditional authorities" and allocated to residents of villages. These rights are considered to be held in what has been called a hierarchy of rights allocated through an administrative hierarchy: hence, superior chiefs allocate to lower chiefs who allocate to lineage elders who allocate to family units who allocate to family members. In practice, in many parts of Malawi (as elsewhere in Africa) land comes to be held by extended families or lineages and by individuals within those.

BASIS research confirmed that renting of streambed gardens (and irrigation plots) is common, having increased over the past ten-plus years. This provides flexibility within the small-scale farming systems. The agreements are almost always for one season only.

The present land policy document treats "customary" land as land under the trust of chiefs that is allocated to social units in their jurisdiction. It thus homogenizes a wide variety of systems of holding across the country, including the family

property system typical of the research area. The current intention of the new policy is to register and title customary holdings. We have learned that World Bank representatives are pushing the "household" as the unit to be designated as the holder on the grounds that the user of a plot needs the security of tenure provided by titling to provide the incentive to invest. This not only runs counter to what land researchers in the World Bank have recently written, but is likely to greatly reduce the above-described flexibility of "customary" tenure, as well as probably increase landlessness, not to speak of disruption in the well-established norms and practices of land transfer.

The situation with reference to gardens in the wetlands (*dambo)* is complex (see details in section D below), yet the current land policy assumes a homogeneous regime of authority. In practice, BASIS research indicates two types: one, similar to the land policy's premise, is where residents of village(s) have rights to use wetlands within their area (defined by chieftainships); the other is where certain chiefs have set themselves up as sole authority over a wetland, and rent plots to users.

We investigated the effects of the Temporary Inputs Program (TIP) to *dimba* (streambed and wetland gardens). The distributed package is of maize seeds plus some beans and top dressing of fertilizer. Since the main use of *dimba*, at least in areas close to markets, such as those of the research sites, is to produce vegetables for sale, and for some/most of that income to be used for purchasing maize, it is likely that the program will have displacement effects. Though the overall maize harvest may well be larger as a result of the program, it will displace income sources and dynamics (sales of vegetable along a chain of sellers and buyers, purchases from local maize growers) that might have longer-term negative effects.

The results on this year's implementation are suggestive rather than conclusive. BASIS research shows that the main use of streambed gardens has been to grow out-of-season vegetables, such as tomatoes, eggplant, cabbage, onions, many green leafy vegetables, and fruits, which are then sold in markets, including peri-urban and urban markets, for much higher prices than the same crops in the rainy season. While some maize has been grown in these dry season irrigated gardens, it has been sold "green" or fresh (to be eaten boiled as a snack), unlike the rainy season maize that is left to dry in the fields and is harvested largely for home staple consumption, although some is also sold.

In contrast, BASIS research over the past two seasons reveals that, during the dry season, far more maize has been cultivated than has been the case in the years before the TIP distribution. Farmers have not yet indicated major dissatisfaction with the inputs program, apart from the packages arriving late in the season, nor have they specifically lamented the relative displacement of vegetables by the maize. Nevertheless, they have indicated that the prime use of streambed gardens is for cash income, primarily through selling vegetables and, for a minority, through acting as burley tobacco nurseries. As one farmer said, "We use our *minda* (dryland fields) for our food and we use the *dimba* for cash. Without *dimba*, we're in big trouble!" Surveys also supported this statement in that 67% said they drew most of their cash income from streambed gardens. Nevertheless, 36% also said that they derive "not all but a lot" of their food from the gardens and a further 25% said they got "about a half" from the gardens.

It appears that some of the maize grown (as a result of the TIP inputs) in the dry season gardens has been directed not towards the family food supply, as premised by the TIP architects, but as "green" maize for sale as snack foods to markets, including those in the urban areas. It is noteworthy, too, that one of the highlighted conclusions of an evaluation (dated February 2003) of the dry season TIP distribution was that maize displaces "crops which help to diversify farmers' food and income." This was particularly deplored since debate about agriculture over the past ten years in Malawi has consistently stressed the need for more diversity in cropping. The implications for such displacement are likely to be considerable for farmers' ability to gain cash income, which is used both for purchasing staple maize on the market and for a wide range of other family expenditures.

C. Collaboration

The BASIS team has made contact with DFID consultants who have recently completed a national survey of *dimba* (defined in that survey as gardens in both wetlands and along streams) as part of the evaluation of the most recent TIP. Both teams will share information. For the BASIS research, the

interest is to have some comparative information on access to streambed and wetland gardens in different parts of the country. For the consultants (members of the University of Malawi), the interest lies in the in-depth quality of information collected in the BASIS study.

BASIS researchers are active in the regional WATERNET network and share research findings at the annual symposia. Researchers have also participated in the production of modules on the Social and Environmental Aspects of Water Resources Management for the Regional Masters Programme in Integrated Water Resources Management. The Programme is currently being taught at the University of Dar-es-Salaam in Tanzania and Zimbabwe. Contracts have also been made with the Malawi chapter of the Global Water Partnership. Researchers from the Bean/Cowpea CRSP project focusing on irrigation practices in the Chingale Wetland in Zomba District plan to share findings.

D. Key Findings

1. Irrigation Scheme Transfer

The primary goal of smallholder irrigation transfer in Malawi appears to have been reduction in costs to the state. As experience with the handover process has deepened, more attention has been given to developing farmers' organizations.

Many of the decisions regarding transfer that might have helped to coalesce a strong farmers' organization on Domasi scheme were made by the government and/or a small number of farmers on newly established committees.

Significant ambiguities that continue to surround the irrigation transfer process are likely to undermine the creation of strong farmers' organizations. At the national level, administrators themselves are uncertain about the future tenure status of the schemes.

Considerable differences of opinion surround the key issues of what will be transferred to farmers and what the role of the government will be in relation to the schemes after transfer. Differences of opinion also were found regarding criteria for membership in the WUA and the permissibility of widespread practices, such as tenancy and renting arrangements.

The research suggests that our hypothesis that the poorer members of the scheme may not benefit equally may be confirmed. Both Domasi and Likangala schemes are characterized by considerable socioeconomic differentiation, with a small number of plot holders farming a large number of plots and the majority farming only two plots. The needs and interests of these two groups of farmers are likely to be distinct. At scheme level, decision-making regarding the transfer process on Domasi has been concentrated in the hands of a small group of better-off farmers—first the Scheme Management Committee and later the newly formed WUA Executive Committee, with little change in committee membership.

The information gathered to date indicates that most members of this committee are owners of more than the average number of plots and are long-time participants in scheme management under government direction. These farmers tend to oppose redistribution of plots and limits on number of plots owned. They may also be positioned to benefit more and be able to comply with strict rules regulating crop varieties planted, cropping calendars, and joint marketing ventures.

Costs of belonging to the WUA (membership, plot, and water fees) are reportedly well below what is actually required for financial viability of the organization and, when raised, may pose obstacles for the poor. Practices that once broadened access to the scheme, for example rotating dry season plots to non-scheme farmers, are likely to be discontinued. Given these circumstances, it is possible that access to land, and possibly capital and marketing opportunities, will be broadened for certain farmers positioned to take advantage of the new opportunities, but not for the majority who have had little voice in setting the transfer agenda.

This suggests that organizational structures which separate the WUA type functions (water control and management) from cooperative style functions (input acquisition and crop marketing), rather than hybrid organizations combining these two functions such as that proposed in the current Domasi constitution, may promote greater equity. WUA membership, plot, and water fees might then be kept low enough, and scheme rules flexible enough, so as not to exclude the poor, while farmers interested in input and marketing functions would have the option to join a cooperative.

2. Informal Irrigation—Issues of Tenure, Access, and Use

Findings revealed more complex interaction across types of irrigation and across farmer/users, and more extensive cultivation in the wetlands than expected. The hypothesis that farmers using irrigated cultivation specialized either in formal or in informal irrigation was supported. Nevertheless, the surveys revealed that a majority (72%) of the streambed farmer sample also used wetland gardens, and a minority (9%) even had access to irrigation scheme plots. Similarly, in the irrigation scheme samples, 48% of the farmers had streambed gardens and 24% had gardens in wetlands, with somewhat higher percentages in the Domasi scheme and lower in the Likangala scheme. These findings raise questions about *access rights*—how do farmers obtain irrigated/irrigable gardens, and what kinds of rights do they hold; and about *use*—how do farmers use the different gardens in relation to each other and to dryland gardens. In turn, a question can be asked about the wider population of Malawian smallholders. Information collected for the streambed farmer sample shows that the percentage of households in a village who have streambed gardens varies greatly—from 2% to over 80%, even though all these villages border the same river (Likangala).

Results so far indicate clearly that smallholder farming strategies are complex and diversified, features that are important in livelihood strategies. Tenure and use practices in stream-bank and wetland gardens and on irrigation schemes also appear to be far more complex and flexible than official "rules" suppose—a factor not recognized or appreciated in the new land and water policies.

The new land policy recognizes only one form of tenure over wetlands—traditional authorities. We found that wetlands in the research area are treated in two main ways. First, wetlands are a type of village "commons" to which village residents have access, although some of the longstanding gardens may be treated as family property. A second main mode of access to wetlands is what we are provisionally calling "chief-run." Several of the bigger wetlands are claimed by a chief (usually a Group Village Headman) as under his control and are used as an essentially private property in that he retains the annual rents charged to users of gardens.

The research reports reveal a slippage between a "gift" offered a chief in thanks for the garden and a relatively standard "rent" charged by the chief for a seasonal garden.

The present land policy document treats "customary" land as land under the trust of chiefs, who then allocate plots to social units in their jurisdiction. It thus homogenizes a wide variety of systems of holding across the country, including the family property system typical of our research area.

"Without *dimba*, we're in big trouble!" Increasingly, families are renting streambed gardens, known as *dimba*, in order to augment household income. BASIS research shows that the main use of streambed gardens is to grow out-of-season vegetables, such as tomatoes, eggplants, cabbages, and onions. These are sold in markets for much higher prices than what the same crops can attract during the rainy season. Findings provided by BASIS research will help assess the effects of the new water and land policies in Malawi as well as in other regions of southern Africa. (*Photo by Peter Walker.*)

The current intention of the new policy is to register and title customary holdings. The unit that will be designated holder has not yet been finalized, but academics serving on the land policy commission team suggest that it is likely to be the "household." World Bank advisors are promoting this on the grounds that the user of a plot needs the "security" of tenure offered by titling to provide the "incentive to invest." Yet the World Bank itself has issued several important documents and held multiple

conferences over the past few years in which the Bank's own Land Researchers have explicitly rejected the need for individual/household titling as providing security, and have accepted the evidence of several decades of research documenting the flexibility of African "customary" tenure and the extensive investment in agriculture on land under such tenure. This new position also has been embraced by several influential donors, such as DFID and the EU. If, indeed, Malawi were to title "households," there is a real danger of small-scale farming families losing the above-described flexibility of "customary" tenure as well as an increase in landlessness as the inevitably tiny titled plots prove infeasible to generate a livelihood and title-holders are forced into selling their land. Furthermore, it is very likely that there will be severe disruption to the farming systems, not to speak of the difficulty of defining "household" in a society where adults move in and out of marriage frequently. The new law also undermines matrilineal inheritance practices common in our research area and in much of southern Malawi by aiming to create a unitary inheritance law throughout Malawi whereby property is to be inherited by spouses and direct descendants, not nieces or nephews.

Just as donors and government have turned to dry season cultivation along streams and in wetlands as a potential solution to the problem of chronic food shortages, so they have started promoting treadle pumps as a technology that will enable intensification of dry season cultivation. There are some treadle pumps owned by a small number of farmers in the area, but the new promotion seems certain to bring in far more and far more quickly. As of the end of August 2003, 21 pumps have been taken up in the Streambed Garden Site, and close to 100 farmers in the irrigation scheme samples have applied for such pumps (for their off-scheme plots), with more likely to join the list. The pumps are being provided on credit through the Department of Agriculture both to individual buyers and to groups of five farmers per pump. While many farmers show great interest in the pumps, some of the women farmers have expressed some concern to the field researchers, fearing that they will not be able to manage the credit repayments, a pattern seen in the credit clubs (for hybrid maize seeds and fertilizer) during the 1970s and 1980s before their collapse in the new political economic conditions of the 1990s.

II. WORKPLAN 2003-04

A. Research Plan

1. Policy and Institutional Reform

Mulwafu, Ferguson, Peters

Researchers will attend meetings of the Zomba and Machinga District Development Committees to observe how decisions regarding access to land, water and irrigation resources are made at this level. The Assemblies have not held any ordinary meetings; only extraordinary meetings have taken place and these have tended to be donor driven.

The Irrigation Policy makes reference to the need to coordinate irrigation reform with other recently enacted reform measures. Information from our on-the-ground investigation of research sites in the Lake Chilwa Basin will be of assistance in carrying this coordination/policy harmonization.

The Water Policy contains contradictions regarding expressed support for stakeholder participation and the actual proposed composition of the new water management institutions, particularly River Basin Authorities. Terms of access to water abstraction permits remain poorly defined. Will the newly formed WUAs on smallholder irrigation schemes, for example, be legally recognized as the holders of water permits? Will WUAs find a voice on the Lake Chilwa River Basin Authority? Will there be any representation from the more invisible but much more extensive informal irrigation sector? What rights, if any, to water abstraction permits will farmers in this informal irrigation sector have?

The Land Policy proposes significant changes in Malawi's tenure systems, including the creation of local level land committees, possibly headed by traditional authorities, to title customary land, and the designation of wetlands as public lands. Other unresolved points in the policy include to the unit proposed for titling (the household, or a wider extended, lineal family), possibilities for joint titling of spouses, and recognition of matrilineal systems of inheritance. At this time it is unclear who the titleholder of the plots on the irrigation schemes will be—the plot holders or the WUA?

Through continued focussed interviews with policymakers in the Ministries of Agriculture and Irrigation, Lands, and Water Development; and interviews with IFAD, World Bank and other donor organizations supporting these reforms, we will follow the evolving policy issues and will study their implications for irrigation reform. Drawing on our research, we will provide research findings and recommendations to the Ministry of Irrigation, the Ministry of Water Development, Ministry of Lands, relevant donors and other key actors.

We meet two to three times per year with the Deputy Directors in the Irrigation Department in the Ministry of Agriculture and Irrigation and the Ministry of Water Development. We will establish a similar relationship with the Ministry of Lands. We will continue to meet with key donors active in water, irrigation and land policy reform (IFAD, World Bank) and NGOs involved in irrigation handover (CU).

Our methods will consist of (a) reviewing policy documents and laws and interviewing key policymakers at the district level and in ministries and donor organizations, (b) attending district meetings related to irrigation, land and water resources, and undertaking a qualitative analysis of notes from these meetings to determine representation of different interests. Reports on these activities will be prepared by September, 2004 for inclusion in the BASIS Malawi final report.

2. Formal Irrigation

Mulwafu, Ferguson, Kerr, Peters, Nkhoma, field assistants

Research during 2002-03 revealed considerable variation in institutional arrangements within the irrigation sector in our study area. We found that small-scale farmers often cultivate fields under both formal and informal irrigation in addition to their upland holdings. Irrigated agriculture in the study area incorporates the following variations: (a) the large complex irrigation schemes, such as Domasi and Likangala, (b) smaller complex irrigation schemes, often associated with the larger schemes, that are without special funds or inputs for handover but that seem to be moving toward management by the farmers, and (c) self-help schemes started with minimal government inputs in the 1980s of varying levels of effective farmer-management.

A. Large, Complex Irrigation Schemes (Domasi and Likangala)

We will gather information on farmer knowledge of and participation in the newly formed WUAs on the Domasi irrigation scheme and the Scheme Management Committee and emerging WUA on the Likangala scheme.

We will carry out focussed interviews with the managers of the schemes, and with the heads of the newly formed committees to learn their view on the rehabilitation and handover process and problems they have encountered. We will interview CU, the NGO hired to train and "empower" farmers in the handover process on Domasi irrigation scheme, and the traditional authorities who are making claims to land on the schemes. In addition to their perspectives on the progress and problems associated with transfer, we will gather information on land titling and water abstraction issues/disputes.

We will follow the process of development of the WUA bylaws on the Domasi Irrigation scheme by attending meetings and interviewing participants.

Nkhoma (BASIS-supported M.A. student at Chancellor College, University of Malawi) will produce a report/thesis analyzing irrigation reform and the handover process within Malawi's larger agricultural and political-economic history.

Using key informant interviews, participant observation and case studies, we will more intensively study and follow-up on the information emerging from the analysis of the 2002-03 baseline handover survey and qualitative data from the Domasi and Likangala schemes.

Methods and timeline. Semi-structured interviews, key informant interviews, case studies, participant observation and field notes. Interviews with officials will take place during the rainy season (November-February); interviews on the schemes will take place through out the year.

B. Smaller Complex Irrigation Scheme and Self-help Scheme (Khanda and Chilico)

Field assistants will carry out semi-structured interviews with the local level officials in charge of these two schemes. Handover at Khanda is reportedly advancing autonomously with little support or input from the Ministry of Agriculture and Irrigation. At Chilico, the self-help scheme is reportedly under the control of the village headman. Depending on the results of these interviews, follow-up may be carried out by senior researchers to further document institutional variability in order to map the kinds of institutional arrangements viable and preferable for small-scale irrigation.

Methods and timeline. Semi-structured interviews, key informant interviews during October-December and April-July.

3. Informal Irrigation

Peters, Ferguson, Mulwafu, Kambewa, field assistants

Research has identified types of access to *dimba* gardens (see the research summary of informal irrigation in the Activities section above). We will document the extent of these systems of access and learn more about their operation. Research on systems of access to and use of wetlands forms a key part of Kambewa's dissertation at Bunda College of Agriculture, University of Malawi.

We will monitor developments in water sector reform and their implications for informal irrigation. The water policy proposes to formalize water rights by instituting a system of permits. Large scale users (such as the WUAs and estates along the Likangala and Domasi Rivers) will be required to obtain water abstraction permits. Although the water policy grants small holders a right to water for domestic purposes (which includes small-scale gardens), it is likely that competition for water in the Lake Chilwa Basin will intensify as irrigation schemes are renovated and as both river and ground water resources are more intensively used by estate owners, organized farmer and fisher groups and claimed by conservationists. As presently formulated, small-scale independent users engaged in informal irrigation will have little voice in watershed or river basin management as they are not identified as stakeholders.

Methods and timeline: It is not feasible to use survey techniques to gather information on systems of access to wetlands as some are technically illegal. The dominant mode of analysis will be qualitative, using rigorous methods of comparing answers via schedules of questions that are posed through informal means. The work will take place October-December 2003; April-July 2004.

4. New Irrigation Technologies and Programs

Mulwafu, Kerr, Peters, Kambewa, field assistants

As donors and government have turned to dry season cultivation along streams and in wetlands as a potential means to address the problem of chronic food and cash shortages, they have started promoting treadle pumps and distributing free fertilizer, maize and beans seed to intensify and expand dry season cultivation. Our research, operating at the literal grassroots, is able to follow the ways farmers are responding to these initiatives.

A. Treadle Pumps

Treadle pumps are a low-tech option for small-scale irrigation. Developed in Bangladesh in the 1980s, they have been introduced in various African countries over the last decade or so with relatively favorable results. New programs for treadle pump distribution are now starting in the Likangala and Domasi watersheds. Investigation is needed to determine the conditions under which treadle pumps can be viable for small-scale agriculture in Malawi, and to understand their implications for broadening access to irrigation.

Treadle pumps are designed to lift water not more than about 7 meters and are potentially suitable for areas with high water tables or adjacent to streambanks and wetlands. They can increase irrigation capacity by about 8-fold over traditional bucket irrigation methods. Various NGOs and the Ministry of Agriculture have distributed pumps through group credit arrangements at highly subsidized prices; now the subsidy program has ended and the pumps are being sold at market price. At least one firm is considering manufacturing them in Malawi.

Research questions include whether (1) the use of group-based credit as well as individual ownership will work well, given past negative histories where a piece of equipment is owned by a group, and how these compare with the individually-owned pumps, (2) the imported pumps will be subject to breakdown and lack of repair, (3) they will be culturally acceptable for use by women, for whom small garden irrigation is an important source of livelihood, and (4) the pumps will lead to overutilization scarce dry season water sources, causing environmental and equity problems.

Studies from neighboring countries suggest that the pumps can be viable economically and environmentally if they succeed in bringing additional land into cultivation, if there is sufficient water available, if they are used by more than one farmer, if there is a market available for the additional crops they produce, and if repair facilities are available. Developing local manufacturing capacity contributes to the capability to repair the machines. Subsidy programs have had mixed results, with the machines spreading beyond the subsidized area in some cases. The pumps have proven to be culturally acceptable to women farmers in neighboring countries. A set of six hydrological studies in Zambia suggests that about six treadle pumps can be utilized per hectare of *dambo* (wetland) area without causing environmental damage.

Methods and timeline: We will try to gain information about eligibility criteria for subsidized pumps and special credit programs. If we can learn this, we will set up a quasi-experimental sampling design to enable us to determine the effects of the subsidy and credit programs. If not, we will focus on learning how the pumps are used and their implications for access to irrigation, including expansion irrigated area, expansion of access through pump rental or concentration of access through overexploitation of scarce river water, and any technical problems.

B. Targeted Inputs Program (TIP)

Research indicates that there is much more maize being grown in dry season gardens than has been the case in the years before the TIP distribution. In addition, one of the evaluation reports of TIP noted a concern that maize was displacing a diversity of crops normally grown in the gardens. Implications for such displacement are likely to be considerable for farmers' ability to gain cash income used both for purchasing staple maize on the market and for a wide range of other family expenditures.

We will seek to identify how farmers are using the free inputs and how their cropping pattern and income strategies are changing. This will enable us to engage in an important debate about appropriate and inappropriate ways to use valuable resources like irrigated fields to ensure food security.

Methods and timeline: April-July 2004, field assistants will conduct observations and focused

interviews on the TIP program at the field sites. Mulwafu and Kambewa will interview Ministry of Agriculture and ADD officials in the study area. Existing literature and evaluations of the TIP will be reviewed.

B. Anticipated Outputs

We will circulate research reports and policy briefs to groups such as International Institute of Water Management, Water Research Fund for Southern Africa, WaterNet, and SADC programs and to international donor organizations concerned with these issues. We will post materials produced from activities on key websites, such as:

- BASIS: http://www.basis.wisc.edu/water.html
- African Water Page: http:www.africanwater.org
- WaterNet: waternet@africaonline.co.zw.

We will publish and present research findings in scholarly venues such as conferences, workshops, working paper series and journals. We will explore presenting a panel at the African Studies Association on BASIS research.

1. Policy and Institutional Reform

We will hold a local workshop to present study results to key stakeholders in irrigation and irrigation scheme transfer, including members of the WUAs or scheme management authorities for Domasi and Likangala Irrigation Schemes, representatives from other schemes being transferred to users, traditional authorities, local councilors, district development committees, agricultural development committees, and others. A summary report of results and recommendations will be circulated prior to the workshop, which will take place in July/August 2004.

We will hold a national level policy roundtable discussion to present results of our study, involving a small number of key policymakers, donors active in these sectors, Malawian academics, and the Agricultural Policy Unit. This roundtable is designed to address cross sectoral issues emerging from our research. It will take place in July/August 2004. A draft BASIS research report/policy brief will be circulated prior to the meeting.

Mulwafu, Ferguson, and Peters will prepare a final research report and *BASIS Brief* on policy coordination.

2. Formal Irrigation

Mulwafu and Ferguson will lead continued interactions with the Department of Irrigation, IFAD, Concern Universal, representatives from the two Agricultural Development Districts and District Commissioners/Development Committees to keep them informed of our progress and preliminary findings. Throughout the research process we have met with most of these officials twice a year to discuss the progress of the research. We have been able to provide information that they have taken into account in their ongoing work. We will hold meetings with these individuals in October 2003 and February/March 2004.

Mulwafu, Ferguson, and Peters will prepare a final report and *BASIS Brief* on smallholder irrigation transfer.

Nkhoma (Chancellor College) will complete the M.A. thesis analyzing irrigation reform and the handover process within the larger agricultural and political-economic history of Malawi. He will make a formal presentation of findings to the History Department faculty and students and other interested academics in April 2004.

3. Informal Irrigation

Mulwafu and Ferguson will continue to meet with key officials to keep them informed of our progress and preliminary findings concerning policy developments and our findings concerning the informal irrigation sector. Meetings with these individuals will be in October 2003 and February/March 2004. Peters, Mulwafu, and Ferguson will prepare a final report and policy brief on wetlands tenure and use. Kambewa (Bunda College of Agriculture) will continue work on his Ph.D. dissertation on wetlands tenure and use.

4. New Irrigation Technologies and Programs

Mulwafu, Kerr, and Peters will integrate research results on these issues into the broader workshops, round table discussion, policy briefs and research reports.

RURAL MARKETS, NATURAL CAPITAL, AND DYNAMIC POVERTY TRAPS IN EAST AFRICA

Global Constraint 2*: Unsustainable Use of Degradable Resources*
Global Constraint 3*: Poverty and Food Insecurity Traps*

Charrette driver, Madagascar
(Photo by Chris Barrett)

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Syracuse University, USA: John McPeak

http://www.basis.wisc.edu/poverty.html

PROJECT PROFILE

One fifth of the world's population lives on less than a dollar a day. Most of the ultra-poor live in rural areas and work in agriculture, so the poorest populations in the world rely disproportionately on the natural resource base on which agricultural productivity depends. Recent empirical studies using longitudinal data find that a disturbingly large share of these people suffers chronic rather than transitory poverty. Many appear trapped in a state of perpetual food insecurity and vulnerability because their poverty and poor market access preclude efficient investment in or use of productive assets.

In the course of their ongoing struggle to survive, those caught in a poverty trap may have strong incentives to degrade natural resources, particularly the lands they cultivate and graze. Partly as a consequence, nearly two-fifths of the world's agricultural land is seriously degraded and the figure is highest and growing in areas such as Central America and Sub-Saharan Africa. Such degradation exacerbates pre-existing poverty traps by discouraging capital-strapped smallholders from investing in maintaining, much less improving, the natural resource base on which their and their children's future livelihoods depend. Resulting degradation of the local agroecosystem further lowers agricultural labor productivity, aggravating the structural poverty trap from which smallholders cannot easily escape. These problems feature prominently in Kenya and Madagascar and in discussions among policymakers, donors, and NGOs as to how best to design poverty reduction strategies.

The project "Rural Markets, Natural Capital and Dynamic Poverty Traps in East Africa," undertaken in collaboration with partners in Madagascar and Kenya, has the goal of identifying best-bet strategies to help smallholders escape the interrelated problems of dynamic poverty traps and on-farm natural resource depletion. Degradation of soils and access to factor and product markets are the primary foci. Empirical analysis, based on panel data collection, qualitative fieldwork and soil sample collection in five sites in Kenya and two in Madagascar, along with context-driven simulation modeling, are used to determine the incidence, severity and causal linkages behind poverty traps. The project identifies the most promising approaches to reducing the incidence and severity of chronic poverty, especially in ways that support agricultural productivity growth and repletion of degraded soils.

The project engages in discussions with policymakers involved in the Poverty Reduction Strategy Programs in each country, with the most senior levels of the agricultural research communities in each country, and with local communities about practical, science-based strategies for improving access to productive inputs (including soil nutrients) and markets necessary for poor people to be able to improve their livelihoods over time.

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Support

BASIS CRSP core funding. Matching funds from Cornell University and Rockefeller Foundation.

Add-ons from: Rockefeller Foundation, International Development Research Centre, USAID/Madagascar, National Science Foundation.

Outputs

BASIS Working Papers (available at project website: http://www.aem.cornell.edu/special_programs/AFSNRM/Basis/papersreports.htm):

Barrett, Christopher and Brent Swallow. 2003. "Fractal Poverty Traps." September revision.

Barrett, Christopher and John McPeak. 2003. "Poverty Traps and Safety Nets." September.

Barrett, Christopher, Christine Moser, Joeli Barison and Oloro McHugh. 2003. "Better Technology, Better Plots or Better Farmers? Identifying Changes in Productivity and Risk Among Malagasy Rice Farmers." June revision.

Presented at American Agricultural Economics Association, Montreal, Quebec, Canada, July 2003.

Barrett, Christopher. 2003. "Rural Poverty Dynamics: Development Policy Implications." Presented at 25th International Conference of Agricultural Economists, Durban, South Africa, August (paper revised in September).

____. 2003. "Smallholder Identities and Social Networks: The Challenge of Improving Productivity and Welfare." July.

Bellemare, Marc and Christopher Barrett. 2003. "An Asset Risk Theory of Share Tenancy." June.

Huysentruyt, Marieke, Christopher Barrett and John McPeak. 2002. "Social Identity and Manipulative Interhousehold Transfers Among East African Pastoralists." October revision.

Moser, Christine and Christopher Barrett. 2003. "The Complex Dynamics of Smallholder Technology Adoption: The Case of SRI in Madagascar." June.

Mude, Andrew, Christopher Barrett, John McPeak and Cheryl Doss. 2003. "Educational Investments in a Spatially Varied Economy." July.

Okumu, B., N. Russell, M.A. Jabbar, D. Colman, M.A. Mohamed Saleem and J. Pender. 2003. "Technology and Policy Impacts on Economic Performance, Nutrient Flows and Soil Erosion at Watershed Level: The Case of Ginchi in Ethiopia." May.

Okumu, Ben. 2002. "The Impact of High Yielding Varieties of Wheat on Economic Performance, Nutrient Flows and Soil Erosion in the Ethiopian Highlands: The Case of the Ginchi Watershed." December. Presented at *The Workshop on the Green Revolution in Asia and its Transferability to Africa*. Tokyo, Japan, December.

Place, Frank, Paul Hebinck, and Mary Omosa. 2003. "Chronic Poverty in Rural Western Kenya: Its Identification and Implications for Agricultural Development." April.

Barrett, Christopher. 2003. "Qualitative and Quantitative Poverty Appraisal: Maximizing Complementarities, Minimizing Tradeoffs." Presented at Learning Workshop of the International Conference of Agricultural Economists, Durban, South Africa, August.

____. 2003. "Smallholder Identities and Social Networks: The Challenge of Improving Productivity and Welfare." Presented at AAEA annual meetings, Montreal, Canada, July 2003.

Moser, Christine. and Christopher Barrett, "Le Systeme de Riziculture Intensif a Madagascar: Situation Actuelle et Perspectives." Prepared for *Agriculture et Pauvrete* conference, March 2003, in Antananarivo, Madagascar.

Phiri Marenya, Paswel, Willis Oluoch-Kosura, Frank Place, and Christopher Barrett. 2003. "Education, Nonfarm Income, and Farm Investment in Land-scarce Western Kenya." **BASIS Brief 14**.

Place, Frank, Christopher Barrett, H. Ade Freeman, Joshua Ramisch, Bernard Vanlauwe. Forthcoming. "Prospects for Integrated Soil Fertility Management Using Organic and Inorganic Inputs: Evidence from Smallholder African Agriculture Systems." *Food Policy* 28. http://www.elsevier.com/locate/foodpol

Two two-day bioeconomic modeling short courses held at Cornell University, Okumu (lead instructor) and Barrett.

Website containing project publications, presentations, photographs, participants' listings, information on bioeconomic modeling course, and links to relevant sites: http://www.aem.cornell.edu/special_programs/AFSNRM/Basis/

I. ACTIVITIES 2002-03

A. Accomplishments

1. Household-level panel data collection

McPeak, Ouma, Rasambainarivo, Randrianarisoa, Rakotoniaina, Hogset, Murithi, Place, Wangila, Teklu, Barrett, Okumu

Data collection activities in the Embu (central Kenya) site were completed, as were surveys in western Kenya (Madzuu) and Madagascar (Fianarantsoa and Vakinankaratra). Data entry and initial data cleaning is complete in each site. A protected web-based FTP site was created through which team members can access data sets.

2. Qualitative fieldwork

Mango, Kariuki, Ongadi, Mulindo, Oluoch-Kosura, Murithi, Place, Rasambainarivo, Rakotoniaina, Barrett, McPeak

Meetings with stakeholders in 2001 highlighted the need to complement the quantitative analysis with qualitative social science analysis. The goal was to better understand processes inhibiting or promoting improvements in rural households' welfare and the potentially complex relationships between welfare dynamics and natural capital possessed by rural households. We secured additional funding to undertake qualitative research at community and household levels in four field sites in Kenya—Dirib Gumbo (Marsabit), Embu, Madzuu (Vihiga), and Ngambo (Baringo)—and two in Madagascar—Fianarantsoa and Vakinankaratra.

In Kenya, the work is supported by grants from International Development Research Centre (Canada) and the Rockefeller Foundation to the University of Nairobi, in collaboration with ICRAF and KARI. In Madagascar, the work is supported by Cornell University's Ilo project funded by USAID-Madagascar.

The basic design of the qualitative work follows the "sequential mixing" design of integrated qualitative-quantitative poverty analysis, around which experienced rural sociologists and anthropologists were recruited. All the qualitative survey work in the Madagascar sites and most of the Kenya work was completed. Reports from initial community meetings in each of the Kenya sites were completed.

3. Data analysis

Barrett, Hogset, Marenya, Minten, Murithi, Ouma, Place, Randrianarisoa, Rasambainarivo

The project began data analysis with the estimation of transition matrices for each site. These were a cornerstone of discussions at the annual team meeting and for the design of the qualitative data collection through community-level focus group meetings and oral histories of selected households chosen from the constructed transition matrices. The transition matrix results appear to confirm our initial hypotheses about the depth and extent of poverty across sites stratified by market access and agroecological potential, and seem to confirm meager economic mobility among our survey populations. More sophisticated econometric analysis of poverty dynamics was begun, including a few results in Barrett's plenary paper at the triennial International Association of Agricultural Economics (IAAE) meetings. Considerable time was spent working out appropriate estimation methods, which the Cornell-based team communicated to the rest of the team through detailed methodology memos.

4. Development of Crop, Livestock and Soils in Smallholder Economic Systems (CLASSES) model

Okumu, Barrett, Blume

A first, conceptual version of the bioeconomic modeling tool was developed using VENSIM systems dynamics software. This continues to have significant bugs and is undergoing substantial refinement. Parameterization and calibration of the model continue, and we are revising the basic architecture of the model so as to get it to handle the full range of behaviors we seek to model.

5. Bioeconomic modeling course and supplementary web-based instruction

Okumu, Barrett, Blume, Rasambainarivo, Rakotoniaina, Randrianarisoa, Wangila, Obonyo, Odendo, Ouma, Phiri, Oduol, Oluoch-Kosura

Professional staff at the national agricultural research institutes in each country have had little or no prior training in methods for the analysis of the

coupled dynamics of human and natural systems. Therefore, we have invested heavily in training key staff in FOFIFA and KARI in systems dynamics methods and software that underpin our new bioeconomic modeling tool, the CLASSES model. This will allow our FOFIFA partners the opportunity to help refine the model and use it for ex ante impact assessment of new technologies or policies at their home institutions. Subsequently, they will be able to help train others in use of the CLASSES tool.

The first bioeconomic modeling course began with a two-day module, held at ICRAF in June 2002. The web-based instruction (http://afsnrm.aem.cornell.edu/Bioecon/) was launched, followed by a two-week session in Ithaca, which included three students fully funded by non-BASIS funds, one paid by ICRAF, one from the University of Nairobi on a grant from the Rockefeller Foundation, and one from the USAID-Madagascar Landscapes Development Initiative (LDI).

The course was offered again from 25 August-5 September 2003 to two scientists from the Université d'Antananarivo. The participants raised the funds necessary to travel to Ithaca. Dr. Ben Okumu was again the instructor.

The restricted-access course website continues to be used by enrolled students and a few others who have been authorized access. There are 27 users and the website has had about 1000 hits. Ten graduate students and scholars from developing countries were granted access to the web-based course materials in order to extend the impact.

6. Learning workshop, "Analytical and Empirical Tools for Poverty Research"

Barrett

Barrett and Csaba Csaki (World Bank) co-organized a learning workshop in August 2003, immediately prior to the 25th triennial meeting of the IAAE in Durban, South Africa. The program aimed to familiarize participants, especially practitioners and researchers in developing countries, with state-of-the-art methods and theories of poverty analysis. The program included the BASIS CRSP Director and other leading scholars in this general area of research, and was attended by the USAID/Washington BASIS CTO. More than 110 participants from at least 22 different countries attended the learning workshop, including economists and other poverty researchers or program managers from line ministries in various African governments, universities from six continents, USAID, the World Bank, CGIAR centers, and other national and multinational organizations. The program was seen as so valuable that IAAE is now considering replicating this event biennially in developing regions around the world. All the presentations have been posted at: http://aem.cornell.edu/special_programs/AFSNRM/workshop/.

7. Degree training

Mude, Hogset, Moser, Teklu, Phiri, Osterloh, Bellemare, Randrianarisoa, Lentz, Barrett, Oluoch-Kosura

Through co-financing from host institutions and other projects, we were able to help support training for five Ph.D. candidates this year. Andrew Mude (Kenya) was mostly funded by BASIS (with co-funding from Cornell) in the Cornell Economics program. Heidi Hogset (Norway) and Christine Moser (USA), Agricultural Economics Ph.D. candidates at Cornell, were funded for part of the summer by BASIS for work in Kenya and Madagascar, respectively (with co-funding from Cornell). Amare Teklu (Ethiopia), Ph.D. candidate in Natural Resources at Cornell, received logistical and field data collection support from BASIS. Marc Bellemare, Agricultural Economics Ph.D. candidate at Cornell, and Sharon Osterloh and Erin Lentz, Agricultural Economics MS/Ph.D. candidates at Cornell, contributed to BASIS research but were wholly funded by other sources at Cornell. Jean Claude Randrianarisoa began his training towards an Agricultural Economics Ph.D. at Cornell, partially funded by BASIS CRSP. The project supported the field research of Paswel Phiri (Kenya), Agricultural Economics Ph.D. candidate at the University of Nairobi under the direction of Professor Willis Oluoch-Kosura.

8. Post-doctoral training

Okumu, Barrett

Okumu is training in empirical methods while playing the lead role in the bioeconomic modeling component. Barrett supervises Okumu's training, which included field visits to Kenya and Madagascar, leading the development of the

CLASSES bioeconomic modeling tool and the associated bioeconomic modeling course, preparation of a manuscript submitted to a journal, and presentation at the conferences in Japan and South Africa.

9. Stakeholder consultations

Rasambainarivo, Randrianarisoa, Place, Murithi, Mulindo, Kariuki, Mango, Ongadi, Okumu, Barrett, Obonyo, Ouma, Odendo, Minten, McPeak

A national level stakeholder meeting was convened in March 2003, drawing representatives from the government of Madagascar, other research institutions, and various stakeholder groups. The conference drew the attention and praise of not only the Ministry of Agriculture (and the Minister himself) but also of the Office of the President and President Ravalomanana himself. They requested the full proceedings and background maps on CD and sent an email of praise and thanks to Minten, the Ilo chief of party and BASIS team member.

The core annual BASIS project team meeting was held in March 2003, with the BASIS Cognizant Technical Officer in attendance. The team meeting included site visits to two villages in Vakinankaratra, one village in Fianarantsoa, and meetings with FOFIFA-Antsirabe and the USAID-supported LDI project in Fianarantsoa. (See March 2003 trip report.)

A workshop, "Agriculture and Rural Sectors in Economic Growth and Poverty Reduction in Kenya," was held in March 2003 at the University of Nairobi. The purpose was to present key issues in agriculture and rural development for consideration in the Economic Recovery Strategy of the newly elected government of Kenya. Many development researchers believe that agriculture is not being given proper attention in the new government. Government invitees did not attend, but an issues paper was drafted.

A workshop, "Poverty, Economic Development and Service Delivery," was hosted by INSTAT and Programme Ilo in June 2003 to disseminate research findings to policymakers. Jean-Claude Randrianarisoa presented findings on the impact of political crisis on the rural poor.

ICRAF, KARI and the University of Nairobi hosted a "feedback" workshop with Kenyan farmers in Vihiga in June 2003. Researchers presented the preliminary results of the first phase of the Dynamic Poverty Traps Study and introduced the second phase. During open discussion, farmers generated solutions to gaps or inconsistencies in the study's findings. A report was written based on sub-group discussions on issues concerning the social aspects of dynamics of poverty traps.

Another feedback workshop and community level discussions were held the following month in Baringo District, Kenya, again hosted by ICRAF, KARI and the University of Nairobi. In July, McPeak shared the results of a recent study and farmers confirmed his results and filled in gaps through focused group discussion. Farmers generated results based on questions asked in the Social Aspects of the Dynamics Poverty Traps and a report was written.

Another workshop was held in Dirib Gombo in September 2003, organized by Kariuki and Galgallo, with initial contact made by McPeak. The purpose was to collect from the community data that would be used to complement quantitative data already collected at the household level. The idea was to get the community's perception on issues related to poverty: how people get into poverty, and some of the coping mechanisms that different household types use to get out of poverty. There were 38 participants, 8 women and 30 men.

10. Field visits

Barrett, McPeak, Blume, Mude, Hogset, Okumu

Madagascar field visits were conducted in March. Because it was the rainy season and it was a relatively large group, visits were confined to only five relatively accessible villages among the 18 in our sample. We conducted daily visits to survey households in three villages in Vakinankaratra and one village in Fianarantsoa.

Barrett and McPeak visited field research sites in northern Kenya in early August 2003. In Dirib Gombo, McPeak presented findings from his research, followed by an open discussion with approximately 40 farmers. Barrett and McPeak also visited Logologo and held similar discussions with farmers. McPeak, Mango and Mulindo held a similar meeting with farmers in Ng'ambo location (Baringo) in July.

Hogset left for field research in the Embu and Madzuu sites in August. She will remain in the field for approximately 12 months conducting dissertation field research linked to the BASIS

project but wholly funded from other sources (National Science Foundation [NSF] biocomplexity project, Social Science Research Council, and Cornell University). Mude left for dissertation field research in central Kenya in early September. He will remain in the field for approximately four months conducting research linked to BASIS but wholly funded from other sources (USAID SAGA cooperative agreement and the Rockefeller Foundation).

11. *BASIS Briefs*

We released one brief, "Education, Nonfarm Income, and Farm Investment in Land-Scarce Western Kenya". We drafted a comparative analysis of patterns in central and western Kenya, but this brief is undergoing further revisions.

12. Project team meeting

A team project meeting was held in Madagascar in March 2003. The meeting included daily field site visits to survey households, presentations and group discussion of preliminary findings, presentation of the bioeconomic modeling work and a discussion of the CLASSES model, and agreement on a detailed outreach plan for the coming year. There was extensive discussion about the qualitative field work to follow up on the quantitative survey work and a decision to modify the sample selection criteria.

13. Additional activities

We offered a second session of the bioeconomic modeling course for a husband and wife team from the University of Anananarivo who were unable to secure funding for the original course in Ithaca. This session took place in August-September 2003 and followed the outline from the original course. This second course extends the reach of the CLASSES model, providing more feedback for Okumu and disseminating the methodology to another two researchers in Madagascar.

Barrett gave a plenary address on poverty traps to the annual USAID Global Livestock CRSP conference in Washington, DC, in October 2002. In November he gave a presentation at the *Nature, Wealth and Power* symposium at World Resources Institute, which was attended by 50-60 people, including USAID staff and senior researchers with IFPRI, World Bank, and World Resources Institute. Also, Barrett sat in on a panel on poverty and development policy hosted by the International Resources Group in Washington, DC, in December.

Place participated in the October 2002 KARI-MOARD stakeholder meeting on food security in Kenya. The Government of Kenya has committed KSH360 million and is raising additional funds from FAO and other donors for a program emphasizing agricultural technology and innovation within rural communities. The Ministry (in particular, the Director of Agriculture, Dr. Wanjama) will coordinate the process and is receptive to our project's message on poverty traps. KARI is actively involved (Dr. Kiome presented on best-bet technologies for food security). The program emphasizes partnerships to achieve impact on the ground, with an emphasis on income generation and productivity improvement. Some of the planned work will explore how the poor interact with markets and the resulting prospective impacts of different technologies. Marsabit and Vihiga are priority districts.

B. Collaboration

In Kenya, we have strong links to three other USAID-funded projects and to a new NSF research project. We share our Baringo and Marsabit sites with the USAID Global Livestock CRSP Pastoral Risk Management (PARIMA) project. PARIMA has enabled us to leverage data collection in our northern Kenya sites significantly, to our mutual benefit, as BASIS funding enabled expanded thematic coverage of the households being surveyed under PARIMA.

The BASIS project, "Building Assets for Sustainable Recovery and Food Security," also works in the Baringo site. We cooperate in data collection and interpretation. The USAID Strategies and Analyses for Growth with Access (SAGA) cooperative agreement includes Kenya as a core country in exploring "bottom-up" approaches to growth with access. The consortium of Kenyan collaborators under SAGA includes each of the major economic research institutes in the country and are heavily represented in the KRDS and PRSP advisory processes in the government. The SAGA program in Kenya is pursuing two interrelated projects that link nicely to our BASIS project, "Reducing Risk and Vulnerability in Rural Kenya"

and "Empowering the Rural Poor." Coordination has been explicit between BASIS and SAGA.

Our project is most closely linked in Kenya with our team's new 5-year $1.7 million NSF biocomplexity grant entitled "Homeostasis and Degradation in Fragile Tropical Agroecosystems." The NSF project augments the BASIS social science research with in-depth biophysical field research and modeling in the Baringo, Embu, and Vihiga sites to pursue frontier modeling of complex dynamic systems. This project began September 2002 and involves extensive biophysical field research over four-plus years with involvement of leading animal, atmospheric, and soil scientists, in addition to sociologists and economists. The NSF project also involves four Kenyan Ph.D. candidates—a GIS specialist, two soil scientists and a rural sociologist—whose programs at Cornell are funded under the Rockefeller Foundation's African Food Security and Natural Resources Management program at Cornell and complement the BASIS project. This adds considerable capacity in the understanding of ecological degradation and will ultimately improve the quality of the bioeconomic modeling product.

Our project is closely linked with two other projects directed by ICRAF. One is a DFID funded project assessing the impact of agricultural research on the poor, coordinated by IFPRI, with ICRAF directing the case study work in western Kenya. Another related DFID-funded project on Voices of Poor Livestock Farmers in the greater Lake Victoria basin also includes the western Kenya sites.

Linkages to other projects are strong in Madagascar. Cornell has just completed a multi-year policy analysis and capacity building project (the Ilo project) funded by USAID-Madagascar. Minten was the Ilo project chief of party in Antananarivo and Barrett, Moser and Randrianarisoa were involved in the research. Cornell is part of USAID-Madagascar's LDI project run by Chemonics International, and Madagascar (like Kenya) is one of seven core countries under the USAID/Washington SAGA cooperative agreement. These projects share complementary interests: Ilo and SAGA in welfare dynamics and public policy, and LDI in sustainable agricultural systems for smallholder producers. Ilo has helped fund the social analysis component of BASIS' data collection, while LDI and Ilo both contributed background data to BASIS analysis of poverty traps and rice technology adoption. SAGA will help integrate BASIS findings into a broader policy dialogue about Madagascar's poverty reduction strategies and into training economic researchers in the country.

Our project has been closely linked to initiatives of the Rockefeller Foundation and USAID/AFR/SD.

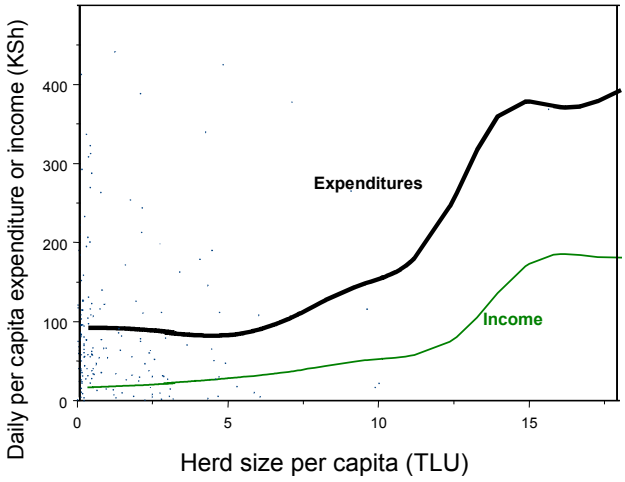
Barrett and Moser co-authored the economics component of the *Nature, Wealth and Power* strategy document released by USAID/AFR/SD for the World Summit on Sustainable Development in Johannesburg in August 2002. They also participated in shaping the final content. *Nature, Wealth and Power* is a summary statement of lessons learned about sustainable development in rural Africa. It has been distributed worldwide and was the topic of a major public forum held in Washington in November 2002, featuring the heads of EGAT and Africa Bureaus, as well as the Directors General of the International Food Policy Research Institute and the World Resources Institute.

C. Key Findings

1. *Economic mobility* appears significant in the short-run as a share of income, with considerable transitory income shocks and measurement error between periods. In the longer run, however, these shocks and measurement errors appear to cancel out, leading to considerable concentration around zero real per capita income growth in our sites. This suggests that risk management plays a significant role in understanding long-term growth patterns and that panel data with short intervals may lead to overestimates of long-term growth rates.

2. The economic mobility findings are consistent with preliminary evidence favoring the hypothesis that *poverty traps* indeed exist. Indicators of this have been uncovered in cross-sectional distributions that reveal multi-modal distributions consistent with the existence of multiple dynamic equilibria (see figure 1). These poverty traps manifest themselves in non-adoption of high-return technologies (e.g., SRI rice production in Madagascar and tea and dairy cattle production in western Kenya) by poorer households and as generalized poverty in the poorest communities.

Figure 1: Expenditure/income—herd size relationship



They also reveal themselves in a welfare-wealth relationship that exhibits increasing returns over the medium-to-upper ranges of the wealth distribution among pastoralist households in the northern Kenya sample, (figure 2). For example, in Madagascar's southern highlands, our Fianarantsoa sample suffers generally very low real per capita incomes and these fell significantly following the national political crisis of 2002, as depicted by the leftward shift in the year-specific income distributions (figure 3). The project also worked on connecting observations of poverty traps at these multiple levels of households and communities, as reflected in the Barrett and Swallow working paper on "fractal poverty traps."

3. Stochastic transitory income that leads to much short-term variability in incomes and the existence of poverty traps leads in turn to a third important finding. We find evidence in our northern Kenya survey households of *wealth-dependent consumption smoothing* patterns. At the lowest wealth levels, households undertake little or no consumption smoothing. Indeed, consumption seems more variable than income, consistent with the asset smoothing hypothesis that desperately poor households will knowingly destabilize consumption in an effort to conserve productive assets on which future survival will depend. As wealth (proxied by herd sizes, reflected in figure 4) increases, the coefficient of variation of expenditure decreases while the coefficient of variation on income increases. This reflects the empirical regularity that because of better financial liquidity and wealth-dependent risk preferences, richer households take on higher-risk/higher-return livelihood strategies, while also signaling that consumption smoothing appears to be a normal good, increasingly accessible as households become wealthier.

Figure 2: Wealth distribution

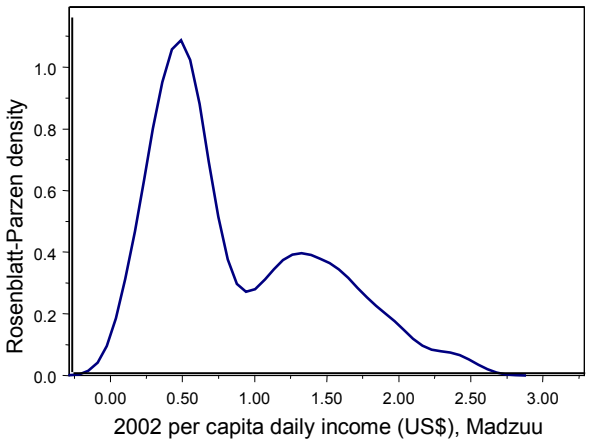
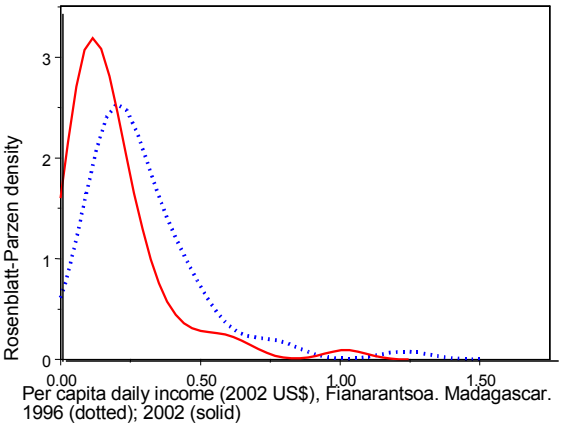
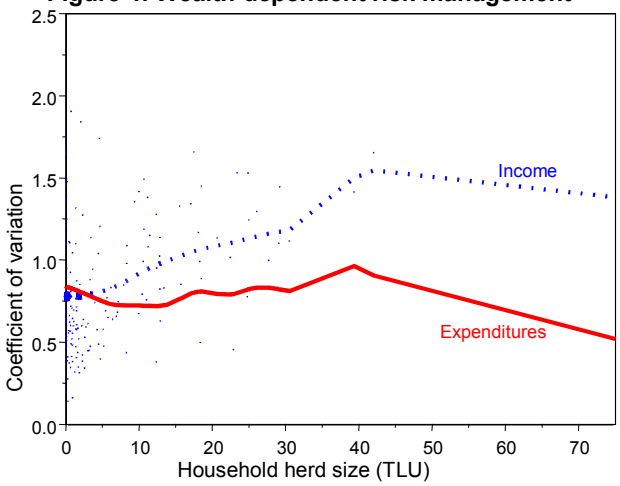


Figure 3: Income distribution



4. One of the key explanations for poverty traps appears to be *education.* Secondary school completion appears necessary, albeit by no means sufficient, to obtain stable, remunerative non-farm employment. In areas where farm or herd sizes are shrinking due to land scarcity, one needs an alternate pathway to livelihood security. Educational attainment is strongly correlated with both the level and stability of expenditures in our

Figure 4: Wealth-dependent risk management



northern Kenya sites. Nonfarm employment enabled by education also provides steady cash income that can be invested in profitable agricultural intensification. It also provides a superior alternative to unskilled farm labor for households lacking sufficient land or livestock to fully employ their household's labor.

We find evidence of these relations repeatedly: in semi-arid and arid sites in northern Kenya, where the educated build up their herds; in central and western Kenya, where education is strongly, positively correlated with adoption of dairy cattle and use of mineral fertilizers; in Madagascar, where education is positively correlated with capacity to invest in and propensity to adopt improved rice cultivation practices.

Financing education is a serious constraint, however, especially in the wake of policy reforms aimed at "cost recovery" in education. In western Kenya, for example, secondary level school fees have increased tenfold in the past 13 years, to more than 200% of the average annual income of households in the poorest quartile. We find as well that although households espouse interhousehold transfers and loans to pay for education, remarkably little such informal financing of education takes place.

We developed a formal theoretical model to explain how, in particular, spatial inequality in infrastructure that affects labor productivity can induce rural-to-urban migration that will restrict the educational attainment of intellectually able children from poor families because migration can foreclose options to borrowing. This model was motivated by survey-based observations in our northern Kenya sites showing that lending and transfers in support of educational investments were—surprisingly and contrary to popular rhetoric—nearly nonexistent. This creates a mechanism by which poverty gets transmitted intergenerationally in less favored areas.

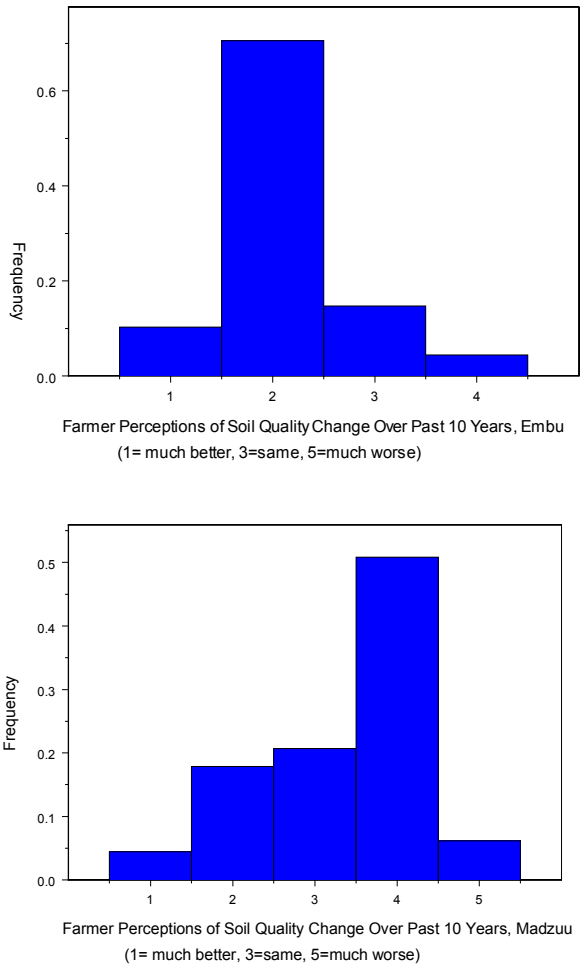
5. *Access to financial services* (insurance, credit, savings) seems to play a major role in avoidance of poverty traps. Households with access to credit, liquid savings, or steady off-farm cash or commodity income appear better able to afford investments in productivity-enhancing crop inputs, in health care for both livestock and family members, in education for children, and in fixed costs of participation in remunerative entrepreneurial businesses and commercial markets. Households without such access meet their needs for credit, savings and insurance through distorted transactions in other markets, distortions that come at a significant economic cost.

This was graphically illustrated for us by a Malagasy farmer, Mr. Robson Andratraimahamaina, in the village of Iandratsay. He doesn't terrace much because of insufficient labor availability. As a result, his fields suffer erosion, and fertility is declining. He has to hire seasonally for rice cultivation (land preparation, transplanting, weeding and harvest) and simply cannot afford to hire labor for constructing soil conservation structures as well. Because there's no credit available, he pays for this labor by selling maize and some rice and from proceeds from the household's small store in which they sell simple foods and household basics. This gentleman's use of the rice market for quasi-credit typified rice marketing by net rice buyer producers (remarkably, most of Madagascar's rice producers are actually net buyers of rice). He sells paddy at FMG1000/kg to a local collector in the commune who evacuates the paddy by ox cart to a wholesaler elsewhere. He has a three-month soudure during which he buys rice from the same fellow at FMG750/kapoaka (a Nestle condensed milk tin, used as a local retail measure) using proceeds from groundnuts and maize. This is equivalent (once one adjusts for units of account and milling losses) to about FMG1850/kg paddy-equivalent.

So he effectively buys back in January the rice he sells the preceding June at a premium of 85%. This is best understood as the implicit interest rate (including storage losses) on seasonal quasi-credit. The core lesson is that when the financial markets fail, people find alternative means of engaging in intertemporal arbitrage, even when it proves very costly (in this case due to storage losses, transport costs and the transactions costs associated with multiple physical exchanges). We have seen this pattern repeatedly manifested in various market transactions. Households lacking access to formal credit or insurance find costly ways to secure quasi-credit, which significantly decreases the returns to their activities relative to those of households that do not have to use such costly financing mechanisms.

6. In the presence of poverty traps, *short-lived assistance* can make a lasting difference by changing households' accumulation paths. This is nicely demonstrated by the history of one of the better-off Malagasy farmer households in the study. Mr. Rajaonarison lives in the village of Ambatomainty in the Vakinankaratra region of Madagascar. He has one improved cross-breed cow, three other Zebu cows and two traction animals—a large herd by local standards. He received his first milk cow from a government development project about 20 years ago and he has continued to grow his herd with assistance from FIFAMANOR, a Norwegian-funded agricultural development agency operating in Vakinankaratra. The initial grant and ongoing assistance have made a great difference, he says; he doubts he could have done this without the initial push. Now he sells milk each day to Tiko, the private milk processing firm founded by the nation's new President. Tiko sends trucks each day to collection points along the roadsides in the area around Antsirabe, underscoring how proximity and accessibility to market matters. As we found later, farmers a couple of hours out on the same highway did not enjoy access to the Tiko collection routes and thus had little incentive to keep dairy cattle.

7. *Change in soils quality* varies markedly across sites and appears strongly correlated with economic opportunity. In our Embu study site with better market access and agroecological conditions in central Kenya, farmers perceive soil quality to be improving at decadal scale, as shown in the top histogram of the figure. By contrast, in the poorer market access study site (Madzuu) in western Kenya, farmers overwhelmingly perceive soil quality to be declining. The more positive perceptions seem due to (i) increased investment incentives because of proximity to the major urban market (Nairobi), and (ii) far more widespread participation in cash-oriented, year-round dairy and tea markets. Moreover, households' perceptions of



ordinal soil quality dynamics indicate that soil quality changes are largely common across plots controlled by the same household, suggesting that household characteristics (e.g., wealth, income, education, labor availability) rather than plot-specific characteristics (e.g., location on the toposequence, drainage or plot cultivation and fallow history) drive ordinal change in soil quality

at decadal scale. Only 17.6% of households had different soil quality experiences across plots (i.e., at least one plot deteriorating in soil quality over the previous decade with one or more not deteriorating).

D. Problems and Issues

The main problems concerned (i) considerable delays in data entry in Embu, (ii) delays in getting the CLASSES model working well and calibrated, and (iii) political disruptions in both countries that delayed work and made it more difficult to secure the attention of policymakers and senior analysts.

Problems with baseline data necessitated significant revisiting of our objectives and field research strategy in Embu, which delayed the commencement of data collection until September 2002, with a second seasonal round in April 2003. This set us back about nine months in the field and reduces our capacity to undertake the full range of welfare dynamics analysis in that site. We will revisit sample households to construct a proper panel. This loss has been partly offset by the fortuitous opportunity to add a similar site in western Kenya (Madzuu, Vihiga District) in which the University of Nairobi had collected detailed household survey data in 1989. Remarkably, we managed to track down 89% of the respondent households 13 years later, creating an unusual low frequency (and low attrition rate) panel data set that we are presently exploiting.

Delays in constructing the CLASSES model have been entirely internal to the team. The programming proved more complicated than originally anticipated and we suffered a number of unproductive months' work on the model. As a consequence, we are nine or so months behind schedule on this component of the project.

The 2001-2 political crisis in Madagascar has had lingering effects that caused minor delays. The December 2002 presidential election and handover of power in Kenya created similar delays. Travel bans related to terrorism threats caused additional delays and added to international travel costs for project team members traveling from the United States.

II. WORKPLAN 2003-04

A. Research Plan

1. Data collection

In Kenya, we will collect further data from our sites in central and northern Kenya in order to maintain the established panel data, focusing in particular on understanding cases of success in asset accumulation in response to shocks and emerging market opportunities. In Madagascar, we will conclude our sampling of soils from each of our survey respondents' plots, creating a baseline of matched economic and soils data to enable future construction of an unprecedented matched panel of socioeconomic and biophysical measurements of continuous variables, and we will undertake a small survey on land contracting as it mediates productivity and poverty dynamics in rural Madagascar.

Our original project design called for panel data collection activities to be completed in the 2001-2 project year. This has proved infeasible in our Embu (central Kenya) site, where we uncovered significant problems with the data set on which we had originally planned to build. This necessitated redesign of the questionnaire and survey methods, ultimately causing us to postpone the first round of data collection in that site. The completion of the baseline dataset in Embu took place immediately following the harvest of the short rains season crops, in March 2003. The panel will be formed by a similar exercise conducted in 2004-5, partially funded by the BASIS project. Quantitative surveys have been completed in all other Kenya sites. This includes soil sampling conducted in collaboration with a companion study focusing on soil management and dynamics, funded by NSF.

In Madagascar, two data collection/entry activities remain. The final land contracts and productivity survey module will be implemented. Soil samples, collected in September 2003, will be entered and cleaned. All qualitative case study interviews will have been completed in the Madagascar and Kenya sites (except for Embu).

2. Data analysis

We will complete empirical analysis of qualitative and quantitative data collected over the past two years to explore the core issues of the project: welfare dynamics and how these relate to households' initial conditions and access to markets and technologies, as well as associated changes in soil quality and land and livestock productivity. After a number of delays, we have begun the descriptive analysis, including construction of poverty transition matrices, descriptive statistics on all variables, plots of income and asset dynamics and their relation to soil dynamics. More sophisticated inferential work, drawing on both econometric and simulation modeling as well as qualitative case study analysis, will be done.

The 2003-04 period will focus on econometric work on welfare dynamics and relationship to natural capital dynamics. We will identify the appropriate way to capture welfare dynamics over time and establish the existence of poverty traps. This will be followed by empirical analysis of the explanations for poverty traps. That empirical analysis will employ mixed qualitative and quantitative methods, drawing not only on household-level panel data but also on the household and community-level qualitative data we have been collecting.

The second major area of data analysis will involve parameterization and calibration of the bioeconomic modeling tool, CLASSES. This will involve considerable estimation of production functions, market participation equations, investment functions, etc. Bioeconomic modeling will take advantage of our team's joint work in three of our Kenya sites (Baringo, Embu and Vihiga) with a team of outstanding biophysical scientists at Cornell, ICRAF and KARI.

3. Stakeholder consultations

We will continue the series of annual stakeholder meetings as well as the annual team meeting. We will continue the policy research circle discussions launched this year with domestic policy researchers in the host countries.

Hamlet near Mahsoabe, Madagascar. BASIS research is confirming the existence of poverty traps in rural areas. By illustrating the causes, the research is pointing the way toward policies that can help families avoid or escape poverty traps. (*Photo by Chris Barrett*.)

We will continue to give much attention to dissemination of findings through stakeholder consultations. There will be national level workshops in both Kenya and Madagascar. In Kenya, advantage will be taken of the recently formed policy researcher forum, through which the results of the project will be presented and discussed. Because a number of poverty studies have been recently made in Kenya, a high level audience is expected to attend a meeting related to rural poverty. There will also be a local feedback workshop in the western Kenya site.

Our project is targeted toward informing debate on high profile policy questions highlighted in the new Kenya Rural Development Strategy (KRDS) and the Poverty Reduction Strategy Paper (PRSP) processes in both Kenya and Madagascar. In both countries, the PRSP has identified agricultural and rural development as top priorities towards poverty alleviation and economic growth. The KRDS has emphasized problems of risk and vulnerability, market access, and smallholder empowerment as central to agricultural and rural development. The USAID missions in each country are addressing these issues through their own program of work. Toward that end, we are in regular, ongoing contact with USAID missions and local officials and plan national policymaker workshops in both countries.

We will continue our program of District or community-level consultations. We will convene the key members of the project for our annual team meeting in Kenya in March.

4. Training

Wangila is doing Ph.D. dissertation research in the University of Nairobi's Department of Agricultural Economics based on fieldwork under this project in our western Kenya sites. Mude is doing a Ph.D. in economics at Cornell, writing a dissertation on poverty traps and coordination failures in our central and northern Kenya sites. Osterloh is completing her M.S. in agricultural economics, writing a thesis on microfinance and nonpastoral enterprise investments in our northern Kenya sites. Hogset is doing a Ph.D. in agricultural economics, writing a dissertation on technology adoption, social insurance and groups and poverty traps in our central Kenya site. Phiri Marenya is in Cornell's graduate program in Agricultural Economics with funding from the Rockefeller Foundation. Bellemare is beginning a Cornell agricultural economics Ph.D. project on Madagascar. Randrianarisoa began the Cornell agricultural economics Ph.D. program to study soil fertility dynamics and poverty traps in Madagascar.

We are also investing in non-degree training for professional staff in both countries' agricultural research communities, including ongoing web-based bioeconomic modeling instruction for team members and approximately one dozen other researchers from developing countries who have requested access to the course materials. We will deliver, for the second time on Cornell's campus, a two-week bioeconomic modeling course for visiting faculty from the Université d'Antananarivo (Madagascar). Finally, we are investing in post-doctoral training of one research associate (Okumu).

The final non-degree training planned for the coming project year is a workshop on "Integrating Qualitative and Quantitative Methods of Poverty Analysis in Kenya," to be held in Nairobi in March 2004, organized by the University of Nairobi and the Institute for Policy Analysis and Research.

B. Anticipated Key Findings

The project's data collection and data analysis activities are aimed at providing a sound characterization of the incidence and severity of poverty traps in rural Kenya and Madagascar. The project attempts to identify key causal factors at household and community level and prospective project- or policy-level interventions that might help those trapped in poverty lift themselves beyond crucial asset thresholds. The project's design emphasizes factor and product market access as well as agroecologically appropriate technologies and natural resource management practices. Relationships between human behavior and welfare, on the one hand, and natural capital (here reflected in land and livestock *quality* as well as *stock quantities*), on the other hand, typically elude standard analytical methods. We are therefore exploring these relationships econometrically and developing an improved bioeconomic modeling approach based on systems dynamics methods in close collaboration with biophysical scientists at Cornell, ICRAF and KARI.

The project's consultations and training activities are aimed at facilitating access of key decision-makers in the private and public sectors to emerging findings from the project and of the project's research staff to the insights and reactions of this primary audience, and at building capacity for dynamic welfare analysis and research on coupled dynamics of human and natural systems among national research teams.

C. Anticipated Outputs

We will disseminate project findings through a variety of outputs.

- *BASIS Briefs* offering comparative perspectives on different sites, on poverty and activity/technology choice, on inter-site and inter-household variation in poverty-resource linkages, and on characterization of poverty traps and identification of their key causal factors in Kenya and in Madagascar.
- "Voices" briefs based on intensive, qualitative, oral history research with households in our samples.
- Report on socio-economic dimensions of poverty processes at household and community level, based on our qualitative research.
- Applied economic theory paper on activity choice and poverty traps.
- Paper on bioeconomic modeling of poverty traps in western Kenya.
- Paper on comparative analysis of poverty and resource dynamics across our sites.
- Paper on fractal poverty traps.
- Paper on bioeconomic modeling of rural welfare dynamics in Madagascar's central and southern highlands.
- Cornell MS thesis on microfinance and nonpastoral enterprise development in northern Kenya.
- Trip reports and informal team memos on findings and methodologies.

We will post all these materials at (http://www.aem.cornell.edu/special_programs/AFSNRM/Basis/).

We also anticipate disseminating the CLASSES model to applied researchers in Kenya and Madagascar for their own virtual policy experimentation.

ASSETS, CYCLES, AND LIVELIHOODS:

Addressing Food Insecurity in the Horn of Africa and Central America

Global Constraint 3*: Poverty and Food Insecurity Traps*

Ethiopian farm household surrounded by ripening wheat fields
(*Photo by Peter Little*)

Principal Investigators

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Collaborating Institutions and Researchers

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Department of Geography, and Department of Economics, Addis Ababa University: Mulat Demeke, Tegegne Gebre-Egziabher, Daniel Tesfaye

Organization for Social Science Research in Eastern and Southern Africa, Ethiopia: Abdel Ghaffar M. Ahmed, Alameyu Azeze

ESA Consultores, Honduras: Rafael del Cid, Ian Walker

Institute for Development Anthropology, USA: A. Peter Castro, M. Priscilla Stone, Michael Shin, Mengistu Dessalegn Debela

Agricultural and Applied Economics and Land Tenure Center, University of Wisconsin: Michael Carter, Michael Roth, Marco Castillo, Tewodaj Mogues

http://www.basis.wisc.edu/assets.html

PROJECT PROFILE

The Horn of Africa includes some of the world's poorest rural populations, most volatile political conflicts, and extreme cases of food instability. In these and other impoverished regions, including parts of Central America, natural disasters—such as droughts and floods—can further devastate the lives of rural people by depleting already meager assets and savings and in the extreme creating conditions of severe food insecurity (famine). This proposed annual work plan represents the final year of a three-year research program that examines the ways that households and communities cope with and attempt to recover from climatic 'shocks.' The key roles that assets, as well as market and non-market mechanisms play in the coping and recovery processes is highlighted. During particularly harsh natural disasters when severe asset depletion occurs, prices for remaining assets, such as livestock, and for labor and land often decline, while food prices and credit costs often skyrocket. This pattern further hurts the disaster-impacted poor. In post-disaster periods, markets often move in opposite directions: assets often increase in price as does the costs of labor and land, which inhibits recovery for asset and land-poor households. The ultimate goal of the study is to identify policies that help poor households retain assets during disasters, as well improve their access to markets in the recovery period, thus allowing them to avoid relief dependency. Without an understanding of how factor markets relate to cycles of poverty and asset depletion, policy interventions have tended to be restricted to targeted, short-term efforts, such as food aid relief and highly subsidized credit schemes that neglect long-term development and sustainability.

The research project includes three different research sites—South Wello/Oromiya, Ethiopia, Samburu/Baringo, Kenya, and rural Honduras—that provide very different market and policy conditions. The research design also allows comparisons and assessments under different policy frameworks. The major research site is South Wello/Oromiya, Ethiopia where the greatest data collection effort is focused, followed by Honduras where the project is building on existing studies and data bases, and finally Kenya where minimal update of an existing study has taken place. In contrast to Ethiopia and to some extent Kenya, Honduran households have relatively good access to factor markets and are able to pursue relatively complex mixes of farm and non-farm activities; and land rentals and purchases. BASIS began working in Honduras just as Hurricane Mitch struck with terrible devastation.

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Support

BASIS CRSP core funding.

Add-on: USAID/Ethiopia.

Outputs

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Protected Areas, edited by A. Peter Castro and Erik Nielsen, pp. 1-17. Rome, Italy: FAO.

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Stone, M. Priscilla. 2003. "Retrospective Accounts of Responses to Drought by Female and Male Heads of Household in Bati and Dessie Zuria Woredas, South Wello and Oromiya Zones: Preliminary Field Report, 2002." January.

Presented at the Bahir Dar Workshop, June 2003.
http://www.basis.wisc.edu/assets.html#pubs

"Research Methodology and Study Areas of the BASIS/IDR Household Study in South Wello and Oromia Zones, Amhara Region, Ethiopia," by Workneh Negatu.

"From Poor to Poor: Cycles of Poverty and Drought Recovery in South Wello, Amhara Region, Ethiopia," by Peter D. Little.

"Gender Dynamics and Household Drought Coping and Recovery Strategies in South Wello and Oromiya Zones, Ethiopia," by M. Priscilla Stone and A. Peter Castro.

"Food Self-sufficiency or Income Security? Managing Human and Physical Assets to Secure Livelihoods and Food Security in South Wello, Ethiopia," by Michael Roth and Tewodaj Mogues.

"Agricultural Technology, Food Production, and Household Food Security in South Wello and Oromia Zones of Amhara Region, Ethiopia," by Workneh Negatu.

"Factors Affecting Soil Fertility Management on Smallholder Farms in Sub-Saharan Africa: A Case Study of the Highlands of Northern Ethiopia," by Samuel Benin, Simeon Ehui and John Pender.

"Land Tenure and Food Security in South Wello and Oromiya Zones, Amhara Region, Ethiopia," by Yigremew Adal.

"The Performance of Micro-enterprises in Small Urban Centers of the Amhara Region," by Tegegne Gebre-Egziabher and Mulat Demeke.

I. ACTIVITIES 2002-03

A. Accomplishments

During the past year BASIS continued to analyze data from a survey of approximately 850 households and develop a conceptual framework for analyzing the role of assets in shock recovery in Honduras. In 2003 two meetings were held with the Ethiopian and Honduran research teams and a draft paper will be completed in Fall 2003. After initial challenges posed by country and data-specific differences between the Ethiopian and Honduran studies, considerable progress on the comparative work was made. The results of the Honduran data have been presented at different professional venues. During the third year of the project, emphasis will be given to publishing a comparative article on Ethiopia and Honduras with a specific focus on the policy implications of assisting households to escape poverty during disaster recovery periods.

Field research activities were undertaken in Ethiopia and Honduras, with the bulk of work focused on the South Wello/Oromiya Zones, Ethiopia. In Ethiopia, the seventh round of data collection for an ongoing household study were conducted in July-August 2003. A herd recall study was conducted among our sample of 420 households to establish asset levels prior to the 1999-2000 drought. The data for the herd recall study were cleaned and entered in September; cleaning and entry continues for the round seven-data. Final data cleaning and checks for rounds three and four were completed.

The intensive household data collection (three times per year) in South Wello has ended. Now, data on assets, food stocks, and other recovery indicators will be collected on an annual basis. An annual update was conducted July-August 2003. These annual updates are critical to gauge where communities and households are on the recovery/ non-recovery cycle. Continued work on GIS analysis and the qualitative studies of individual and household recovery strategies took place.

Other research activities conducted in Ethiopia during the past year included qualitative research on a sub-sample of 40 individual and household heads that we have been visiting during the past two years. Past ethnographic research covered individual histories of drought and recovery, unrecorded food and other transfers not captured in the survey, and gendered responses to asset de-accumulation and recovery. During the summer of 2003 ethnographic research and interviews concentrated on understanding different kinship and social relations in six of the eight study communities, with a particular focus on the ways in which social networks and relationships (kinship and other) are used by individuals and households to cope and recover from climate shocks.

Data collection for a case study of non-farm activities and enterprises, which would complement our household and community-level research, was carried out during the year. For the case study a total of 332 enterprises were randomly selected from six towns in or near the study region. From each town, a total of 50 enterprises or more were selected from five different categories of enterprises: trade, service, food and drink, manufacturing and processing, and handicraft. A structured questionnaire was administered to each randomly selected enterprise.

To more closely link our research programs with policy in Ethiopia, an IDR/BASIS Research and Development Liaison Committee was formed during the year. A meeting was held in Dessie, Ethiopia and in Bahir Dar, the capital of the Amhara Regional State. The objectives of the committee include:

- documentation of zonal and regional policies and directives,
- inventorying research projects and their activities in the zones,
- inventorying development projects and their activities in the zones,
- organizing seminars and workshops to discuss research and development issues and gaps, research outcomes and policy implications and recommendations.

The committee comprises seven members drawn from the South Wello zone administration, Oromiya zone administration, Rural Development Departments of both zones, Dessie-Zuria *woreda*, NGO CONCERN, and IDR. In addition, a working group on policy and research was formed among regional officials who attended the project's

workshop in Bahir Dar. The Head of this group is the Deputy Director of the Food Security Department, Bureau of Rural Development, Amhara Regional State.

In Honduras, data analysis is complete. The task of completing comparative analyses with the Ethiopian study was initiated. In Kenya, annual updates on a very limited number of households (30) were initiated, and additional qualitative interviewing of household members is required to complete that work. Comparative analyses on poverty and drought recovery between the Ethiopian and Kenyan research sites was begun.

1. Specific activities

1. An annual "asset" update of the household study (427 households) in Ethiopia measured ending stocks of assets, household composition, savings, and other indicators of drought recovery/non-recovery. A "herd recall" survey was conducted at the same time and for the same households.
   (Adal, Little, Negatu, Roth, Mogues, Tadesse)
2. Qualitative/intensive repeat interviews of a sample of 40 households initially interviewed in 2002. These included detailed interviews with 40 individuals, stratified to represent different types of households (female-headed, oxen-less, wealthy, etc.). The qualitative work focused on social and extra-household networks used to cope with and recover from droughts.
   (Castro, Stone, Kebede)
3. Data entry and initial cleaning and preliminary analysis and write-up of data from rounds four and five of the Household Study. Data entry but no cleaning was done for the sixth round of data collection. Cleaning these data is expected to be completed by November 2003.
   (Aredo, Tadesse)
4. Write up of qualitative community assessments of eight communities (sub-locations) in Samburu/Baringo, Kenya.
   (Little, Smith)
5. Analysis and write-up of household data collected in Samburu/Baringo, Kenya (29 households plus an additional 60 households from an existing study in the area).
   (Little)
6. Meeting of the Policy Liaison Committee in Dessie, South Wello, Ethiopia. Meetings with policymakers in Bahir Dar, Ethiopia.
   (Adal, Negatu, Tadesse, Roth, Little)
7. Meeting of Honduran and Ethiopian researchers in Addis Ababa, Ethiopia and Madison, Wisconsin, USA.
   (Little, Carter, Roth, Mogues, Negatu)
8. Two-day policy workshop, "BASIS/IDR Research Project in Eastern Amhara, Amhara National Regional State, Ethiopia," in Bahir Dar, Ethiopia.
   (Little and Negatu co-chaired workshop of 20+ BASIS and Ethiopian researchers and policymakers)
9. Literature review and position paper on drought recovery strategies among pastoral communities in the Horn of Africa.
   (Abdel Ghaffar, Azeze, Little)
10. Experimental data measuring norms of trust and altruism in Honduras was analyzed and a first paper using the data was prepared.
    (Carter, Castillo)
11. Data analysis and write up of rural household survey in rural Honduras dealing with the effects of Hurricane Mitch.
    (Carter, Castillo)
12. Preliminary outline of workshop proceedings that includes summary papers and contributions from Adal, Benin, Little, Roth, Mogues, Stone, Castro, Gebre-Egziabher, and Demeke.
    (Little and Negatu, co-editors)
13. Field research and data entry for case study on the role of role of non-farm activities and enterprises in South Wello/Oromiya (add-on funded by USAID/Ethiopia). Preliminary report of the research presented at BASIS/IDR workshop.
    (Demeke, Gebre-Egziabher)
14. Additional efforts included meetings in Bahir Dar with policymakers, a research panel proposed and accepted for the 2003 African Studies Association annual meeting, and a herd recall study (to acquire data on pre-2000 livestock assets).

B. Problems and Issues

Logistical problems delayed the research program. The recurrence of a severe drought in Ethiopia postponed a workshop planned for January to June 2003. Visa problems by a key researcher on the

Honduran case study limited participation at a meeting in Addis Ababa. The Iraq conflict restricted travel to Ethiopia and Kenya during the first half of 2003, which delayed by about four months some of the collaborative writing between US and African researchers.

It remains extremely difficult and time-consuming to obtain visas for our Ethiopian colleagues. One of our Ethiopian graduate students who worked on BASIS was forced to delay the beginning of his graduate studies at Syracuse University until January 2003.

C. Collaboration

Collaboration continues with other research groups and practitioners who work on problems of disaster ("shock") recovery and poverty alleviation in Ethiopia and elsewhere. Collaborative arrangements are in place with IFPRI/ILRI, working in the Amhara Region, Ethiopia. A member of that research team presented a paper at the BASIS/IDR Bahir Dar workshop and is publishing a version in the workshop proceedings. The project has established linkages with the Amhara Regional State, including the Amhara Regional Agricultural Research Institute (ARARI) and the Bureau for Rural Development. A regional policy working/liaison group, similar to one we established in South Wello in 2002, was formalized in June 2003, with ARARI and the Bureau for Rural Development agreeing to head up the group.

BASIS is now informally collaborating with the new USAID-funded project, Amhara Micro-enterprise Development, Agricultural Research, Extension and Watershed Management, based in Bahir Dar. The Chief of Party of the project and other staff members attended the BASIS/IDR workshop.

The project continues to keep ICRAF informed about BASIS activities in Ethiopia, and we invited members of the ICRAF team to attend the workshop. ICRAF is involved in an applied research activity looking at natural resource policies in the Amhara Region, in collaboration with ARARI. Tree-planting and sales are important drought coping and recovery strategies in South Wello/Oromiya.

D. Key Findings

1. Factors determining food security in South Wello/Oromiya Zones, Ethiopia

Data show that well-off households—High Food Self-sufficiency (FSS) and High Cash Income Security (CIS)—secure their food availability with abundant entitlements derived from own-production and food purchases (see Table 1). It is also clear that households with the smallest entitlement set (Low FSS, Low CIS) achieve their rather minimal levels of food security through purchases. While food-giving to neighbors and kin is evident, it is significant only for well-off households. Receipt of gifts from neighbors and kin is important for all strata but is nonetheless a rather small contributor to food security. Food aid receipts, whether obtained through outright grants or food for work programs, are an important pathway to food security for all households, both poor and relatively well-to-do.

As indicated in Figure 1, the aggregate effect of food aid is to equalize food availability, measured by food production plus food aid. However, while it could be argued that all households in the South Wello region are relatively poor and needy, food inequality and inadequate targeting of food aid is nonetheless evident, particularly for all households other than the High FSS-High CIS strata (see Roth and Mogues 2003, p. 4).

Consistent with theoretical expectations, a multiple regression model showed that ownership of land and animal assets have a strong positive effect on food security, as does food aid and off-farm income entitlements. Had land been a binding constraint to FSS, and had non-farm opportunities been lacking, household size would normally have a negative effect on food security. Despite the small size of farms in South Wello, labor nonetheless remains an important determinant of food security status through its productive deployment on off-farm income generation. Surprisingly, household head characteristics (gender and age) either had no significant or a very weak effect on household food security (Roth and Mogues 2003, p. 8).

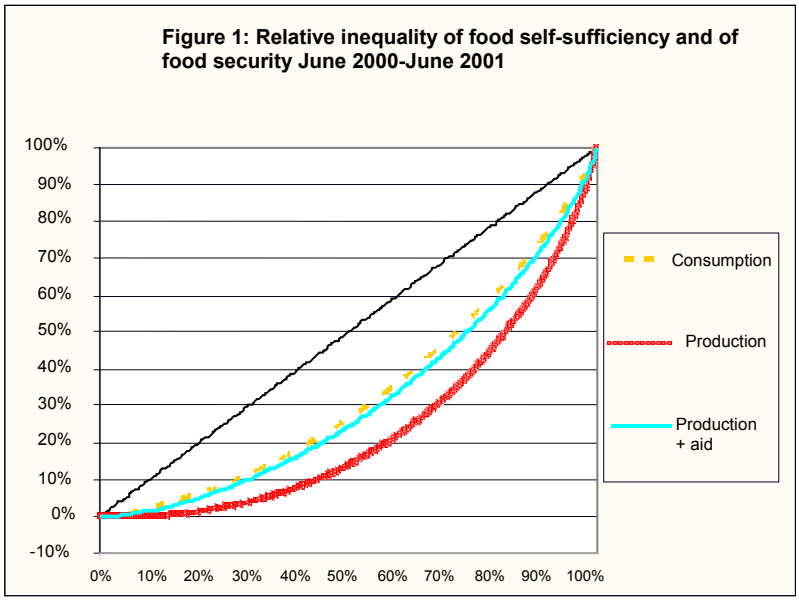
Table 1. Food security strata: Food stock and livestock adjustments, June 2000-June 2001

Food security strata:		Low FSS: Low CIS	Low FSS: High CIS	High FSS: Low CIS	High FSS: High CIS
Sample size	**No. of HHs**	**N = 122**	**N = 90**	**N = 90**	**N = 121**
FS status					
Food self-sufficiency	Kg produced[a]	104.9	110.4	643.9	692.6
	Calories/adult/day [b]	285.8	305.3	1741.5	1887.5
Food security	Kg consumed[a]	447.3	767.7	826.6	1182.8
	Calories/adult/day [b]	1229.2	2124.5	2267.2	3283.7
HH cash income	Birr	8.6	412.1	15.2	492.9
Food marketing and transactions					
Food purchases	Calories/adult/day	627.9	1275.6	565.5	1187.1
Food sales		46.4	61.2	317.0	185.1
Food gifts received		25.4	27.7	17.3	20.0
Food gifts sent		5.5	29.1	13.2	69.6
Food aid					
Engaged in food for work	% HHs	65%	75%	38%	70%
Food aid received [2]	Mean kg	272.3	144.07	127.73	206.06

Source: Roth and Mogues 2003, p. 4.

a. Total crop production or consumption per household.

b. Caloric equivalent of average household production/consumption (per adult per day) of all grains, pulses and oilseeds. Calorie conversion coefficients vary by commodity, roughly 100g = 350 calories.



Source: Roth and Mogues (2003, p. 4)

2. Market access, non-farm activities, and asset recovery

Access to non-farm income, particularly waged employment, closely correlates with distance to major market towns and other infrastructure, as does access to food aid and other services. Table 2 examines the relationship between asset wealth (measured in livestock ownership) and distance (measured in walking time) to markets and other infrastructure (all-weather roads, financial facilities, electricity and six other indicators). Statistical analyses and tests were conducted. Not surprisingly a strong relationship was found between market/infrastructure proximity and wealth (significant at the .029 level).

Table 2. Average distance to market, roads, and other infrastructure by wealth quartiles, 2000-2001

Wealth quartile*	Mean isolation (in minutes walking time)	Median	Standard deviation
I (poorest)	1174	1140	555
II	1067	958	546
III	984	870	512
IV (wealthiest)	955	895	409
ALL (n=447)	1054	960	518

*Statistically significant relationship between isolation and wealth (measured in livestock wealth). (significant at .029 level).

**Data analysis was conducted by Eric Silver.

3. Poverty and recovery from the 1999-2000 drought in Ethiopia

Different categories of poor show an incredible amount of economic agency ("churning") around asset poverty thresholds; e.g., ownership of 1+ oxen, but this should not be mistaken for movement (escape) out of poverty (see Table 3). We found that there are more than 20 different types of petty trading and casual labor arrangements that the poor pursue, and some of these allow them to recover to pre-drought asset levels. Many of them remain poor and very poor, however, even after recovering their assets following a disaster. In South Wello 25% of the poorest households still only owned an average of only 1.65 tropical livestock units (TLUs)[1] more than two years into the post-1999 drought recovery period and 45% still owned no oxen in an ox-plough agrarian system (see Figures 2 and 3).

When we look at how the poor managed their meager livestock assets during the post-drought period of 2000-2002, wide differences with other households are revealed. For instance, very poor farm workers and laborers relied heavily on purchases (or borrowing, in a few cases) to re-stock their herds, but accumulated fewer assets through natural reproduction than wealthier households. Although they represent the poorest livelihood category in the area, they actually relied more on the market to recoup assets than did the better-off households. The poorest laborer households sold animals much less frequently than other households did in the post-2000 period, when livestock prices were growing considerably. As a ratio of the number of animals they sold versus the number they purchased, the casual laborer households had a ratio less than 1/3 that of the richest decile of households and 1/2 that of *all* households. An important reason why the poor were forced to restock by market purchases is because they did not have sufficient herd holdings to benefit much from breeding (natural reproduction) following the drought. Wealthier herders pursued this strategy, as did middle strata of households.

The study shows that the wealthiest decile of herders, who control more than 40% of the herds in the area, pursue distinctly different strategies of post-drought recovery. Unlike the poor, they are able to plow their own fields with their oxen, invest in lucrative trading activities, breed their animals, sell livestock on a favorable market, and rent or share-crop in lands. Yet, even the wealthiest strata of herd owners still had not recovered their assets to their pre-drought level.

[1] As used here, a TLU (Tropical Livestock Unit) is:

- TLU=1 head of cattle (oxen, bull, cow, calf, heifer)
- 0.5 TLU=1 Horse/Donkey/Mule
- 1.4 TLU=1 camel
- TLU=1 sheep/goat
- 0.05 TLU=1 chicken

The TLU ratios approximate weight, subsistence (food), and market value of different animals.

Table 3. General indicators of extreme poverty in South Wello and Oromiya Zones, Ethiopia

Poverty indicator	Number
% of HHs with no TLUs (Dec 2001)	16
% of HHs with no oxen (June 2002)	46
% of HHs with less than 0.5 hectares (June 2002)	40
TLU holdings of poorest quartile of livestock owners (June 2002)	1.83
Average farm size (ha) of poorest quartile of farm owners (June 2000)	0.35
Average six month cash income of HHs in lowest farm quartile (2000-2001) (US $)	29.41
Percentage of HHs in poorest farm quartile who sharecropped out land	32
HH size of lowest food security quartile	3.56
Percentage of HHs receiving food aid (June 2000-June 2001)	62
% of HH heads who are illiterate	79
% of HH members > 6 years who never attended school	81
% of HH members > 6 years who have attended secondary school	2
% of poorest landholding quartile with no memberships in social/self-help associations	29

Figure 2. Livestock ownership by livestock quartiles 1997-2002

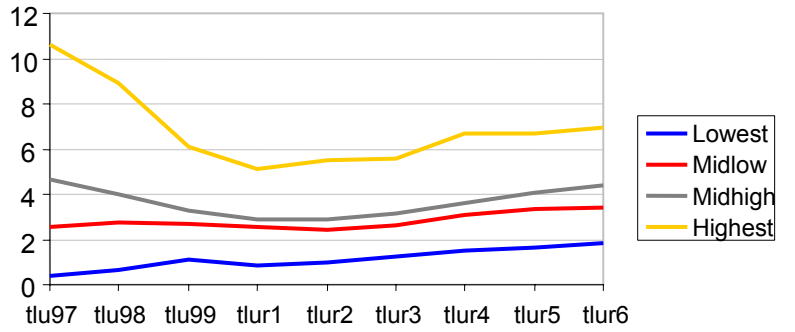
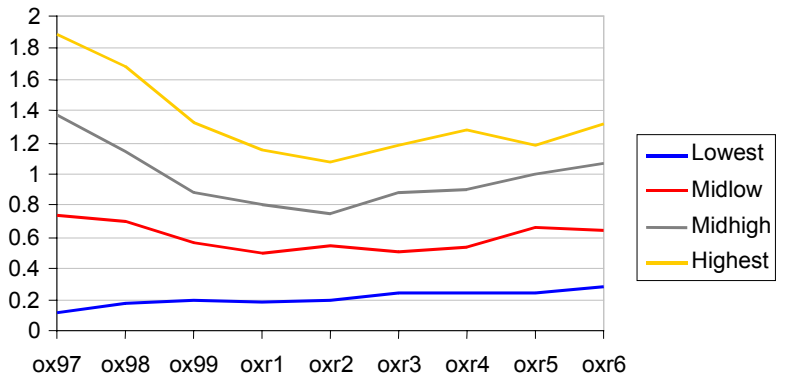


Figure 3. Oxen holdings by livestock quartiles



4. Vulnerability of female-headed households

Female-headed households comprise about 24% of households in the region and show a greater tendency to be poor than do male-headed households. However, female-headed households show greater non-farm innovations than male-headed units, earning more cash than males in activities like petty trade, brewing, crafts, and remittances (see Stone 2003). While their average asset holdings are meager in many cases, they also show a greater capacity to recover from drought. During the post-drought period, June 2000-June 2002, herds owned by households headed by females increased 73%, although average holdings in June 2002 were still only 2.49 TLUs. The herds of male-headed households, in turn, grew by only 30% during the same period, but on average still remained considerably larger than those of female-headed households.

Female-headed households cluster at the bottom of the wealth strata and seem to be more limited in many of their options, especially after divorce. In order to continue to use land received from divorce settlements, most divorced female-headed households (divorce is very high in the region) need to stay in the settlement of their husband, which can be difficult for them (see Stone 2003). However, this does not mean that all are very poor, which one could say confidently about certain livelihood categories (e.g., casual day laborers). In fact, there are female-headed households in the wealthiest livestock ownership quartile, and about 12% of female-headed units are in the largest land-holding quartile, which has an average farm size of 1.7 hectares.

II. WORKPLAN 2003-04

A. Research Plan

1. Cross-regional and comparative

The development of a conceptual model in the past year for integrating the two different study sites will facilitate the comparative work. A paper comparing different experiences in post-drought asset recovery in the Horn of Africa itself will be written along with a policy brief addressing mechanisms for protecting assets during and after major disasters.

A series of policy briefs that address different dimensions of persistent poverty and drought recovery, including the gendered dimensions, will be produced. A final policy workshop is planned for Ethiopia along with presentations at the BASIS Policy Conference, "Persistent Poverty in Africa."

Outputs will include:

- comparative policy paper, "Reversing the Drought and the Emergency Trap in the Horn of Africa"
- comparative paper, "Asset Shocks and Poverty in Baringo, Kenya and South Wello, Ethiopia"
- comparative paper and analysis between Ethiopia and Honduran experiences
- case study on poverty in Ethiopia for the BASIS Policy Conference: *Combating Persistent Poverty in Africa*.

2. Ethiopia

South Wello/Oromiya comprise the primary research sites for the project and for the designated regional and national policy work. The bulk of the primary data collection activities, the national and regional policy work, and the training activities occur in this region. While the Honduran and Kenyan sites will contribute to global policies and frameworks for understanding the effects of different policy scenarios, the Ethiopian program is heavily oriented to regional (Amhara State) and national policy concerns and actors, in addition to global policies for alleviating disaster vulnerability and assisting the poor with recovery. The year's activities will focus on:

- data cleaning and analyses of rounds six to eight of the South Wello household study
- annual repeat round of sample households to assess where they are on the drought recovery cycle
- follow up on qualitative case histories conducted in 2002 to assess community perspectives and strategies on recovery
- panel on the BASIS South Wello research for the Annual Meetings of the African Studies Association
- research policy workshop in Addis Ababa
- continued funding of an Ethiopian graduate student for Ph.D. training
- data entry, analysis, and write-up of South Wello household survey
- update (annual) round of household data collection
- intensive interviews with sub-sample of households
- policy seminar, Addis Ababa
- completion of GIS analysis of patterns of food insecurity and poverty in South Wello
- Ph.D. training for Ethiopian social scientist at the University of Wisconsin.

3. Honduras

Emphasis will be given to publishing a comparative article on Ethiopia and Honduras, with a specific emphasis on the policy implications of assisting households to escape poverty during disaster recovery periods. Honduran work will include:

- refining measures of asset losses and recovery using Honduras household data
- undertaking phase one and two analyses of the impact of markets and social capital on loss and recovery
- additional data analysis and development of conceptual framework for exploring relationship between asset shocks and poverty traps
- producing a paper on the role of assets in disaster recovery in Honduras
- producing a paper that highlights the impact of social norms on asset loss and recovery, giving particular attention to the determinants of social norms and the boundaries of trust.

B. Collaboration

The project will continue collaborative linkages with agencies working on rural development in the Amhara Region. The project has communicated with several NGOs in the region (including Save the Children-UK and World Vision International) and through its recently formed Policy Liaison Committee has a formal arrangement to disseminate research findings and provide policy recommendations to the NGO, Concern International.

Save the Children-UK is implementing an experimental project in North Wello Zone, with USAID funding, on Asset Protection and Food Security. We have been in touch with the individuals involved, and they have requested to be kept informed of our work and to receive our reports and publications. The USAID/SCF-UK activity is premised on many similar assumptions to our project, such as the significant role assets play in food security and poverty alleviation, and the need to guard against massive asset de-accumulation during periods of drought and other disasters. In the hopes of spurring asset protection, asset recovery, and income and asset diversification, the SCF-UK is guaranteeing food aid to communities in four districts over a three-year period. It is assumed that the relaxation of the food security constraint will allow for more productive use of assets and other resources and buttress households against future shocks. After the initial three-year period, it is hoped that communities will depend less on food aid and be able to better protect their assets against future shocks.

Work in Honduras is related to an ongoing MacArthur Foundation-funded study of social capital and income distribution dynamics. This project includes participation by IFPRI, the University of Natal, South Africa, and Catholic University, Lima, Peru. A methodologically-oriented paper comparing the Honduras experimental results with work generated by the MacArthur project has been prepared. The work has been presented at a high profile conference on chronic poverty at the University of Manchester.

C. Key Indicators and Policy Impact

Through the strong efforts of IDR, the project is forming a Policy/Development Liaison Committee in the Amhara region, which will be an addition to the committee that already is operative at the district/zone level. The Regional Committee is chaired by a senior government official from the Bureau of Rural Development in the Amhara Regional State. Through the formation of this committee, along with the eight-member committee already formed in South Wello, the project will have forged strong links at different levels of government and with private development agencies. The formation of the Regional Policy/Development Liaison group helps ensure that research results will be disseminated to key policymakers and agencies in the region and provides an important policy lobbying group for the BASIS research program.

The Amhara Regional Government's "five-year plan" has among its top priorities increased regional food security, improved access to credit by rural populations, and growth in rural employment. The proposed research and policy liaison activities during the year will continue to complement these objectives and be in a position to assist regional and zonal policymakers in understanding the constraints to improved food security and income growth. Because of the complexity of the decentralization program in Ethiopia, the above-mentioned Regional Policy/Development Committee was formed to address policy concern at this level of government. In 2002 a new federal ministry and regional departments of rural development were formed in each of Ethiopia's regional states and the activities and structure of several key ministries were in a process of reorganization. Responsibilities for food security programs and rural development generally were put in the Bureau of Rural Development, which has meant that some of the previous government entities we worked with are no longer functioning.

In June 2003 the BASIS team held a regional workshop attended by more than 10 senior officials from regional offices and organizations. The meeting was convened by the head of the Department of Rural Development, Amhara Regional State. An agreement for BASIS to work through a Policy/Development Committee in

disseminating research results in the region was an important outcome of this meeting. In the June workshop BASIS/IDR researchers presented papers that focused on four strategic topics:

1. identification of the most vulnerable households in the region and the causes of their poverty and food insecurity,
2. the role that government policies have played in local drought-coping and recovery strategies,
3. the effects of food aid on coping and recovery strategies,
4. the role of non-farm employment and small-scale enterprises in recovery strategies and its scope for expansion.

Data were mainly presented from rounds one to four of the Household Study (June 2000-December 2001) and from the ethnographic and case study research conducted in 2002 and 2003.

At the global level, international development agencies and policymakers increasingly recognize the difficult problems of disaster coping and prevention, poverty and asset loss, and identifying the means of sustained disaster recovery. Our approach of addressing the linkages among asset cycles, factor markets, food insecurity, and poverty is consistent with AID's programs globally, in the Horn of Africa, and in Ethiopia. During the past two years, the project has held meetings with officials in the Bureau of Disaster, Conflict, and Humanitarian Assistance, Office of Foreign Disaster Assistance, and the Africa Bureau. Individuals from these three programs, as well in the field missions and regional field offices (REDSO/East Africa) represent important audiences for the global policy implications of our research program. While polices that help households retain assets are only part of the solution to buffer people against the deleterious effects of disasters, further research on the period of recovery is needed to develop policies and mechanisms for more sustained development. The project now is in a position to contribute to policies for sustained development following severe economic shocks whether climatic-, conflict-, or domestic policy-induced.

In 2002-2003 the Horn of Africa was ravaged again by drought and severe food insecurity and the United Nations continues to designate the Horn of Africa as a global priority area. The research elaborated here will be of direct relevance to this initiative as well as to ongoing work of other international agencies (such as the World Bank and IGAD) focused on disaster recovery and poverty alleviation.

The project builds local capacity in the Horn region through continued support of Ph.D. and Post-Doctoral training activities for African graduate students and faculty, by supporting local publication series, and by supporting participation in international meetings and writing projects by national and regional collaborators. During this year, a senior researcher from Ethiopia will spend six months in the United States as a Visiting Post-Doctoral Scholar working with BASIS researchers on data analysis and write up.

Syracuse University is providing a scholarship and assistantship fellowship to an Ethiopian graduate student who worked under BASIS to pursue a Ph.D. degree in anthropology. He works under the supervisions of a BASIS researcher and Syracuse University faculty member. Direct support is provided to an Ethiopian graduate student pursuing a Ph.D. degree in agricultural economics and working as a research assistant on the project.

Finally, results from the project will be presented to an audience of USAID and World Bank policy makers at an IFPRI-hosted conference, "Socially Embedded Inequality and Economic Mobility: Livelihoods, Social Networks and Exclusion," 4-5 December 2003 in Washington, D.C.

D. Anticipated Outputs

During the year emphasis will be on dissemination activities through publications, workshops, and conferences, cleaning and entering the data from the July 2003 round of the Household Study, and final write-up of research materials from the Horn of Africa and Central America.

1. Seminars, workshops, and professional meetings

- Research/Policy Seminar in Addis Ababa.
- Panel at the annual meeting of the African Studies Association, Boston, MA (30 October-2 November 2003). Panel title: *Poverty and Food Insecurity in Amhara Region, Ethiopia*. Papers to be delivered:

Debsu, Dejene Negassa and Peter D. Little. "Socioeconomic Responses of Peasant Households to Resource Pressures at Kamme, Bate, Oromia Zone of Amhara Region."

Castro, A. Peter. "Vulnerability, Shocks, and Memory: Food Shortages and Conflict in South Wello and Oromiya, Ethiopia."

Dessalegn, Mengistu. "Individualizing the Commons and Changing Resource Users: The Case of Gimba Meda."

Stone, M. Priscilla. "Female-Headed Households in Ethiopia: A Case of Sustained Unsustainability."

- Panel at the annual meeting of the American Economics Association, San Diego, CA (3-5 January 2004). Panel title: *Reciprocity, Altruism and Trust In Economic Development.* Paper to be delivered:

  Carter, Michael and Marco Castillo. "Coping with Disaster: Altruism and Reciprocity in Honduran Communities."

2. Reports and publications

- *BASIS Brief*, "The Role of Assets in Disaster Coping and Recovery Strategies."
- Report, "Small-scale Enterprise and Employment in South Wello/Oromiya, Ethiopia."
- Completion of paper on impact of social norms on asset shocks and recovery in Honduras.
- Edited proceedings of papers presented at the BASIS/IDR Bahir Dar Workshop.
- Publication of, "Time as an Ally or Enemy: Food Insecurity and Poverty Dynamics in Northeastern Ethiopia."
- *BASIS Brief*, "Food Self-sufficiency or Income Security? Managing Labor and Assets to Secure Livelihoods and Food Security in South Wello, Amhara Region, Ethiopia."
- Report, "Geo-spatial Aspects of Poverty and Food Insecurity in South Wello, Ethiopia."
- Case study, "Persistent Poverty in South Wello Ethiopia," for the BASIS Policy Conference, *Persistent Poverty in Africa*, Washington, DC.

3. Journal submissions

- "Comparison of Livelihood and Disaster Recovery Strategies in Northeastern Ethiopia and Northern Kenya."
- "Methodological Lessons from Qualitative and Quantitative Research on Food Insecurity and Poverty in the Horn of Africa."
- Article comparing Ethiopian and Honduran experiences with shocks and asset recovery.

4. Other outputs

- Finalize and clean Ethiopian household data set.

CREDIT-REPORTING BUREAUS AND THE DEEPENING OF FINANCIAL SERVICES FOR THE RURAL POOR IN LATIN AMERICA

Global Constraint 1*: Ineffective Agricultural Resource Use in Post-Reform Economics*
Global Constraint 3*: Poverty and Food Insecurity Traps*

Open-air market in Chiquimula, Guatemala
(*Photo by Nancy McGirr,* courtesy of IFAD at http://www.ifad.org/photo/)

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http://www.basis.wisc.edu/credit.html

PROJECT PROFILE

Lending is an information-intensive activity. The ability of lenders to verify bad borrowers and the outside indebtedness of borrowers is a precondition for liquid capital markets. Two factors currently coinciding in most Latin American countries bring together new sources of information with new sources of capital: namely, the rapid growth of public and private credit bureaus in combination with a tremendous extension of lending capital to the poor driven by the new lending technologies of microfinance. Due to these two factors, not only is there a huge host of mostly semi-poor borrowers who have, in the past decade, established experience and reputation with microfinance lenders, but private capital markets are increasingly extending loans to poorer clients. This intersection of factors turns our attention towards credit reporting as a natural mechanism through which economic mobility may be enhanced.

Two countries have been selected for specific focus in this research. Peru was selected because of the presence of a resurgent smallholder agricultural lending sector side-by-side with an active microfinance sector. In rural areas, particularly in the rich agricultural areas of the Quillabamba valley, a multiplicity of credit-offering agencies have emerged, making it a natural study for the process by which information moves between these sectors. This summer will see the entry of 14 small rural microfinance lenders into the bureau used by the large regional agricultural lenders, and this will form the center of our study in the country.

Guatemala was selected because a confederation of the country's major microfinance lenders instituted a new credit bureau one year ago. Using Genesis, an institution that joined in the first tranche along with other lenders soon to join this bureau, we can use dynamic changes to identify impact. Graduate students from the University of San Francisco, USA conducted preliminary surveys in Guatemala over this past summer, which have been used to inform the design of the experiments.

Lending institutions collect high quality time-series data on their clients by necessity, and so the use of institutional data greatly simplifies the mechanics of our project. The endogeneity of the locations and lenders among which we observe information sharing has proven to be problematic. Earlier hopes that differences in intensity of sharing within Central America could be argued to be exogenous have not been justified, and consequently we are turning towards more experimental methodologies to identify impact.

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Support

BASIS CRSP core funding.

Add-on: FAO Latin America Offices.

Outputs

Luoto, Jill. "Credit Reporting in the Developed and Developing Worlds: A Selected Comparison of Latin American Industries."

Luoto, Jill. "Summary and Assessment of Field Research in Guatemala, Summer 2003."

Grela, Kurt. "Summary of Surveys Conducted with GENESIS Empresarial."

Credit Bureaus and the Rural Microfinance Sector: Peru, Guatemala, and Bolivia. 2003. University of California at Berkeley and FAO Office for Latin America. Posted at http://www.basis.wisc.edu/credit.html#pubs. Includes the following case studies:

"Information Sharing and Microfinance in Peru," by Martín Valdivia and Jonathan Bauchet.

"Analysis of the Lending and Credit Reporting Systems in the Formal and Agricultural Sectors," by Carlos Enrique Herrera Castillo.

"Credit Information Reporting in Bolivia," by Rémy N. Kormos.

I. ACTIVITIES 2002-03

A. Accomplishments

The core of our work over the past year has been establishing collaborating institutions with whom we will perform experiments or quasi-experiments. We have formed working agreements with the microfinance institution (MFI) umbrella organizations in both Peru (COPEME) and Guatemala (Redimif), in addition to the major microfinance credit bureaus in both countries. All parties have expressed strong interest in the research goals and in assisting us. Individual MFIs with whom we will work may incur fairly sizeable costs as a result of the randomizing, and thus we plan to spend a portion of our funds reimbursing these MFIs. Since they effectively are conducting our data collection, this approach is both equitable and cost-effective.

Theoretical work by members of the team and results of extensive interviews and focus groups conducted in the field under funding from FAO made the following points clear.

There is an important difference in the effect of sharing only "negative" (defaults) as opposed to "positive" information, including the full lending history and current indebtedness. The former allows for mitigation of adverse selection, and the latter moral hazard.

Information held by borrowers is vital. We have been surprised to find an almost total absence of knowledge in the hands of borrowers as to how information about them is used. This fact should reduce or even remove the adverse-selection effects of information sharing.

Systems to safeguard client data require a user of the system to have the tax ID number of any borrower checked. However, bureaus can still be used to screen new clients who approach a lender. Thus sharing information from within one's own client base may have an additional impact to using the system to run checks.

The actual degree of overlap between the core microfinance sector and the formal banking sector is minimal. Consequently, we have had to look fairly hard to find environments where there is in fact a transfer of clients from microfinance to formal sector lending, whether in agriculture or urban commerce. Our hope in focusing on these environments is that, since the degree of overlap is increasing over time everywhere, lessons learned here can guide policy as this vector for mobility becomes a more pervasive feature of these economies.

1. Guatemala training program

Our surveys reveal a surprisingly poor level of knowledge among Guatemalan microfinance clients about the sharing of information. Fewer than a third of clients reported knowing what was done with their credit history. Out of 130 clients surveyed, none displayed detailed knowledge of the workings of the new information-sharing system. This state of affairs is not only inequitable, but inefficient, as there can be no incentives in a system whose rules are not known by participants. While these clients would inevitably learn by doing over time, the relatively recent creation (September 2002) of Crediref, the Guatemalan MFI credit bureau, means that little such learning has yet to take place.

Genesis Empresarial is a leading MFI in Guatemala with a client base of over 40,000. The director of Genesis is also the Executive Director of Crediref. Internal research already alerted Genesis to the absence of understanding of Crediref in their client base. Seeking to capture the moral hazard benefits of training, the institution considered conducting a training exercise. In return for our help in designing and conducting the training program, Genesis has agreed to allow us to randomize the *order* in which clients will receive the training.

This study is strictly based on behavioral changes among clients when we administer the "shock" of (we hope) improved information. The channel for impact is solely the moral-hazard differences that will arise between informed and uninformed individuals.

Genesis has some 40-50 branches, which is a number too small to allow us to conduct a proper randomization. Consequently, we can try to form an index, using data on current clients, that allows us to rank their branches according to certain criteria, the most important of which may be level of education. We can then count down this ranking, sequentially assigning each branch into one of three groups: (1) a pure treatment (100% training), (2) a

pure control (0% training), and (3) a group in which a random percentage of the individuals or groups within the branch are trained.

Assuming no spillovers between branches, then (1) vs. (2) gives us the treatment effect. Comparison of untreated in group (3) to the real controls in group (2) gives us a measure of the spillover effect. If we are interested in within-group spillovers, then we can train random percentages of members within group (3). The idea of the ranking is essentially to conduct a pre-test matching setup where every treated branch has a "similar" untreated branch.

A random subset of clients will be administered a test and survey, so that we can directly observe differences in information between the treatment and controls. The hypotheses of interest on this question are:

1. What are the differences in client behavior (loan size, type of loan taken, delinquency, and multiple borrowing) between the treatment and control?
2. How much information about the workings of the bureau had clients acquired before training began?
3. How quickly do the control groups acquire information over the course of the year, and is there any difference between "learning by doing" and "learning by teaching" in terms of the connection between client information and client behavior?
4. What are the differences in the *level* of information and in the *efficacy* of the training between village banks, solidarity groups, and individual borrowers?
5. How does information flow across groups? By randomizing the penetration level, we can interact the penetration level with different measures of communities to understand better how community characteristics effect the transmission of information and changes in behavior in response to the credit information bureaus.

The estimation of the simple treatment effect is essentially a branch-level analysis, even if we use individual data. The analysis of the spillover effects depends on the level at which we are measuring spillovers: if we are looking at spillovers from one group to another, it makes sense to use the group as the unit of analysis. One could regress group outcomes on a vector of control data plus a spillover intensity index, which gives the percentage of other groups in that branch trained. Or one could compare subgroups from (3) to similar subgroups from (2), which we will have to assume received no spillover effect. If we want to study spillover within groups, then it makes sense to use individual data and to examine how outcomes among untreated individuals change as a higher fraction of the individuals around them are trained. This analysis could be done either entirely within group (3) (where the control is achieved through regression on the percent in group trained) or by a matching-type comparison with similar individuals in group (2) who had no fellow group members trained.

This should allow us to measure the spillover effect in aggregate terms—"How much does training an additional 10% of the agents in a branch add to the information of untrained agents in that branch?" It does not, however, allow us to understand the channels through which the information is conducted. To do this, we will need to add questions to the survey questionnaire that allow us to identify the channels through which agents receive financial information, and additional data that allows us to estimate their degree of interaction with treated groups (markets in which they sell, neighborhood lived in, etc.). We hope there are different lending products offered in a sufficient number of different branches so as to give us treatment effects and spillover effects separately for all three kinds of lending products.

The training office in Chimaltenango has a large amount of experience conducting training for microfinance clients, and it is relatively independent of the rest of the organization since the trainers are subcontracted. Our goal is to train 500 groups. Rough calculations indicate that if we did this ourselves it would cost $40,000; hiring the subcontracted trainers in Genesis to do it will cost $25,000. Further, the logistics will be simplified, and we believe the worst case scenario (namely, that the training doesn't have any impact at all) will be much less likely.

2. Cuzco training program

This experiment will work in a similar fashion, with the exception that it is designed to focus on information-sharing problems within the

agricultural sector. Researchers at GRADE in Peru performed a careful, GIS-based analysis of the extant financial services in the country, focusing on areas that have healthy, dynamic agricultural lenders in concert with active microfinance sectors. The Cuzco/Quillabamba area meets these criteria, and in addition has been selected because of the upcoming entry of 14 rural MFIs into the credit bureau system used by local agricultural lenders. Since microfinance remains primarily an urban phenomenon, this presents us with an unusual natural experiment where these two sources of credit exist side-by-side. Given the rapid resurgence of the Peruvian agricultural lending sector and the push of MFIs further into rural areas, it is hoped that this environment, though atypical, is a vision of what is to come in rural financial markets. This experiment will also differ due to the dramatically lower level of education found among participants in this training site compared to those in Guatemala.

The above two experiments guide important policy questions concerning the role of education and motivation of borrowers in the use of bureaus, but say little about the direct effects of the imposition of a credit bureau. To address this more basic question, we had hoped to use a quasi-experiment where one area established a credit bureau and comparable area did not. A research report prepared by Jill Luoto, as well as information from surveys conducted in Guatemala and extensive interviews with MFI and credit bureau organizations have convinced us that such a quasi-experiment is not to be found.

The criteria that lead to the establishment of a bureau are easy to establish, but for this same reason we cannot really argue that covered areas where we have studies in Guatemala, El Salvador, or Peru are sufficiently comparable to areas that are not covered. Similarly, the institutions that choose to join bureaus where they exist tend to do so for very clear reasons, setting them apart from the usually smaller, poorer, non-computerized organizations that do not. Even the specific clients that a participating agency chooses to check are virtually always those who take larger loans and request rapid loan increases, making this sub-treatment group endogenous as well.

These multiple layers of endogeneity have caused us to turn to more experimental techniques to identify impact. Our additional projects are the following.

3. Fe y Alegria, Guatemala

We have excellent contacts with this MFI, because the director is the former director of IDIES and is eager to have us conduct quality research with the organization. They have extended us full access to their data. This institution started using Crediref several months ago. Because the system was free on a trial basis, they have subsequently checked every single client for every single loan. Because they started using the system all at once, there are three separate methodologies that we hope to pursue in analysis of the impact of the bureau.

Preliminary analysis of the effect of entry

By using data already entered digitally, we can do a quick preliminary analysis of the impact of entry to the bureau, based solely on the discontinuity present when they recap groups subsequent to beginning to use the bureau. This should help guide our thinking, point out data problems that may emerge, and provide a preliminary test of hypotheses.

Screening and application analysis

Fe y Algeria collects consistent information on all applicants, which includes quite a bit of detail on socioeconomic status, business history, etc. These forms all exist (on paper) along with a record of whether the applicant was accepted. Thus, we can conduct two interesting kinds of analysis. The first is to see how the screening criteria change discontinuously when they start using the bureau. This gives us a clear picture of the "losers" from the advent of the bureau in terms of access to credit.

The second is based on the observation from the manager of the institution that they have seen very strong spillover effects in a direction we hadn't thought of: potential applicants have become very well informed on the use of the bureau by Fe y Algeria. Consequently they have seen an increase in honesty and a change in the composition of the applicant pool. While these two effects are going to be hard to disentangle, it may be quite an interesting test of a kind of rational expectations spillover: whatever changes we see in the composition of acceptees should subsequently be

seen in the pool of applicants, if the spillovers are informationally accurate. We would have to pay to enter the data on all of these screening forms.

Randomized entry of data into Crediref

As of now, Fe y Algeria is simply checking in the system but it has not entered client data. However, all of its clients *think* their data is in the system and the institution is not disabusing them of this impression. When that data is entered into the system, therefore, we expect no change in behavior either on the part of the clients or Fe y Algeria. The only impact should come from the availability of information to other lenders who seek to cherry-pick clients. Thus, this setup is completely free of the subjective, incentive-based changes in client behavior being measured in the Genesis experiment. Furthermore, we could easily randomize entry into Crediref at the individual level, since there is really no administrative cost to doing so. Fe y Algeria may be happy to hold back client data if Crediref agrees. This would allow us to measure very cleanly something that is interesting, if somewhat synthetic; namely, the rate at which the observability of information to outside lenders increases cherry-picking, independent of the learning on the part of clients that causes them to *seek* outside loans at a higher rate.

4. Agudesa, Guatemala

This is a World Vision-affiliated MFI based in Chimaltenango that offers loans in seven different areas of Guatemala (although they have only four branches). At present, it seems willing to enter into a quasi-experimental project. The institution has 3,500 clients, of whom 44% are in communal banks, 50% in solidarity groups, and the remainder take individual loans; 90% of the credit is issued in rural areas, and 40-45% of its clients take loans for quasi-agricultural activities.

The few branches in the organization (and the fact that one of them is in Huehuetenango, the town with the worst Crediref coverage) means that selecting on the branch will be difficult. On the other hand, it has independent credit officers who single-handedly run the operations in various cities, so it may be possible to pick pairs of cities that would enter the bureau in a staggered fashion. The idea would then be to ask the organization to pick a quantity of credit below which it would never check loans, and above which it always would do so. In addition, clients below this threshold would not be entered into the Crediref database. By having the three pairs enter Crediref in a staggered fashion, and via the threshold level, we have three degrees of identification: temporal, spatial, and within group (or area). We discussed this strategy with the organization, and it seemed quite willing, particularly if we can assist it in a general fashion to upgrade its data systems prior to the beginning of the test, including possibly entering some data now on paper.

The advantage of this organization is that it conducts all three kinds of lending, which allows us to measure how the treatment effects vary across methodology. A major problem is that, on communal loans, Crediref appears only to record the name and identity of one individual in the group, making it next-to-impossible to identify multiple loan-taking if both lenders are communal banks. Solidarity group members are entered separately.

5. Collaboration with Crediref, Guatemala

We have looked carefully at the reports out of Crediref to the MFIs, and the results are somewhat disturbing. The system reports a great deal of information on loans taken from one's own institution (which makes little sense) but aggregates all other lenders into a single category called "other institutions." From this, one can see a two-year monthly time series of delinquency on any other loans, and how much is outstanding to other lenders at present, yet one cannot identify which lenders have issued those other loans. For these reasons, we will try to enter into an agreement with Crediref that would call for it to give us its entire database while we hire an expert to extract from it the data we need for our experiments. This plan will require the approval of the managers of BanCafe, Banrural, Redimif, and of Bucaro. In return, we would offer to not publicize the data set nor transmit any information to our collaborating MFIs that they wouldn't have been able to observe for themselves.

B. Collaboration

We have built collaborative relationships with IDIES, the Institute for Economic and Social Research at the Universidad Rafael Landivar in

Guatemala City. We have been working with Carlos Herrera, an independent consultant and formerly of the Superintendency of Banking in Guatemala. We have received complementary funding from the FAO Latin America offices and have shared the results of preliminary research with them.

C. Key Findings

We have yet to obtain real data from which to draw conclusions; however, preliminary results follow.

1. All across Latin America, credit bureaus are being initiated without a corresponding training of clients. This state of affairs, from both a theoretical and an equity perspective, is woefully inadequate. There are strong reasons to think that the bureaus' ability to mitigate moral hazard will not occur if clients are imperfectly informed. Furthermore, this situation reinforces the kind of paternalistic, top-down approach that the microfinance movement was supposed to avoid. Thus we anticipate training to be a major (and unexpected) component of our results.
2. Virtually all Latin American countries have major, banking-sector credit bureaus that are run by one of the big three bureaus from the United States. These bureaus, however, typically are not used either by microfinance or agricultural lenders. Thus, an issue as important as impact may be the differential use of overlapping kinds of bureaus. An unexpected policy conclusion of the research is that it may be important to legislate use of different bureaus by lenders at various levels.
3. Computer data systems are the primary hurdle for most small-level MFIs in entering credit bureaus.
4. Strategic concerns influencing the entry of MFIs into credit bureaus are very strong. While most organizations realize that the absence of information-sharing leads to unhealthy market conditions for lenders, they tend to fear the higher-level lenders being able to observe their clients' behavior. Thus, the use of a bureau to check clients is purely to the benefit of MFIs, while adding their own data into the bureau has few advantages for lenders but many risks. It will be necessary to have a quid-pro-quo system wherein lenders cannot use the system unless they contribute their data to it.
5. Because of these fears, the databasing systems being used in microfinance bureaus tend to severely limit how much one lender is able to observe about client behavior in another lender. Indeed, the system in Guatemala seems to have been set up with more concern for the prevention of the transmission of data than for information-sharing. It may be that MFI disincentives to share are so strong as to lead to suboptimal outcomes, requiring government legislation on the degree of sharing.
6. Formal banking clients in Latin America now face levels of information-sharing very similar to those found in the United States. The coverage of upper-level MFI clients is very heterogeneous, relying heavily on the degree of cooperation in the MFI sector in that country. Even in countries with good MFI bureaus, however, the fixed costs involved in running checks mean that few lenders run checks on all clients. The implication is that even in countries with the most intensive networks, small-scale microfinance clients live in a world as if there were no bureaus. (A notable

Fuel-saving stove purchased with micro-credit loan. Hilaria Ramirez in Guatemala has been provided with credit and training to obtain and use this improved stove. BASIS seeks to identify how credit-reporting bureaus might increase a smallholder's ability to access credit from an MFI or formal bank, especially for agricultural activities. (*Photo by Nancy McGirr, courtesy of IFAD at* http://www.ifad.org/photo/)

exception is Bolivia, which requires sharing on all MFI loans.)

7. Many Latin American countries generally follow international guidelines in the development of new, specific laws for credit reporting. However, bank secrecy laws and regulations keeping financial sectors separate continue to hamper the development of an efficient credit reporting system in many countries. Many Latin American countries also have not paid adequate attention to educating consumers regarding their rights and responsibilities with respect to credit reporting. As a result, many Latin American consumers remain unaware of the importance attached to their credit histories and of the potential consequences for non-performance on loans.
8. The strong economies of scale in credit bureaus introduce a baseline "hit-rate" (e.g., a consultation of a client's credit record that returns useable information) below which the bureau cannot take off. Reluctance to join bureaus is highest in their early days, when a trial use of the system may reveal an unacceptably low level of information in the system. Once this baseline hit-rate is cleared, the growth of the bureau tends to rise.

II. WORKPLAN 2003-04

A. Research Plan

Work will consist of three experiments to be performed with collaborating lending institutions. Recognizing the relatively risky nature of this research methodology, we have intentionally designed some overlap into the experiments. In a best-case scenario, this will allow us to test hypotheses using multiple environments. If one of the experiments should prove unsuccessful, we will be able to test a variety of hypotheses with the remaining projects. The experiments are described in the activities section above. The following are timetables for carrying out the work.

1. Guatemala training program

October-November 2003 (Rosada, McIntosh): Before training, we will select a random group of clients, balanced between the trained and the untrained, and administer a test and a survey to this subset. From the test, we will measure their pre-existing information about the bureau. From the survey, we will get basic control information on borrowers. These surveys will be conducted by researchers from IDIES (Instituto de Investigaciones Economicas y Sociales) at Universidad Rafael Landivar in Guatemala City.

December 2003-January 2004 (Rosada): Training will be administered, utilizing expertise from IDIES and the School of Education. We will design the training to convey as much information as possible because the treatment effect that we measure from this experiment will be crucially related to the effectiveness of this training.

December 2004 (Rosada): Return to the clients and retest their degree of knowledge about the workings of the system. Subsequent to training, we expect a difference to emerge between treated and controls, and we expect that difference to disappear over time as the natural process of information accumulation eventually reveals everything taught in the class. Several separate hypotheses of interest can be tested from this setup:

1. What is the first-order effect of the information-sharing intervention?
2. How much knowledge have clients accumulated about the degree of information-sharing by the time the training begins?
3. How does the behavior of more informed agents differ from the control? That is, what is the second-order effect of borrower response to information-sharing?
4. How long does it take for the controls to catch up to the treatment? That is, what is the natural speed at which different kinds of clients in different institutions acquire "full" information about how their information is used?

2. Cuzco training program

This experiment will work in a similar fashion as the one in Guatemala, yet it is designed to focus on information-sharing problems within the agricultural sector.

November 2003 (Valdivia, McIntosh): Work with COPEME in Lima to ensure cooperation of MFIs and credit bureau in experiment, travel to Cuzco to meet with MFIs and plan training.

October-December (Valdivia, McIntosh): Begin analysis of COPEME's database on nationwide use of the credit bureau; expected outputs are a trade paper guiding COPEME on the most cost-effective information in the system, and an academic paper on the determinants of being "weeded out" by the bureau.

December 2003-May 2004 (Valdivia, Karlan, de Janvry, Sadoulet, McIntosh): Design the training materials to be used in the experiment, field-test training programs and work with trainers to ensure a product that has maximum educational impact.

June-September (Valdivia, Karlan, de Janvry, Sadoulet, Wydick, McIntosh): Conduct the training program, implement the exams and background surveys in both the control and treatment groups.

June-September (Wydick): Conduct additional field surveys to investigate ways in which better sharing of information leads to greater insurance/ forgiveness for agricultural borrowers. To be conducted by graduate students from the University of San Francisco.

August 2005 (Valdivia, Karlan, McIntosh): Conduct final round of exams in the study group to verify the "natural" rate of information acquisition.

3. Guatemala credit bureau experiment

While details of this third experiment have yet to be fully agreed to with the collaborating institutions, what follows is an outline of the research plan.

September of 2002 saw the beginning of the credit bureau among MFIs in Guatemala. The presence of institutional records means that we can easily get pre-treatment baseline data from prior to this date. We have full cooperation from Genesis (which is already in the bureau), and have made preliminary contact with two of the eleven MFIs that are planning to join the bureau in the coming months. We have put together three research designs, which will be presented below in increasing order of complexity and ability to measure treatment effects accurately. In other words, we are hoping to conduct experiment (c) and will move to (b) or (a) only if we cannot get full cooperation from a second MFI other than Genesis.

(a) Non-experimental design

Here, we would identify a second MFI that intends to join Crediref, giving us two different points in time at which we observe entry. We would ask both MFIs to keep careful records of applications and approvals/rejections. The basis for this study, then, is the discontinuity in the behavior of the organization once they have the additional information in Crediref for the screening process. We expect to see a jump in rejections once the information is observable, but *whom* precisely is rejected? What is the *rate* at which the rejections increase? Does the rejection rate see a temporary spike, or does it remain permanently higher as a result of Crediref? Does the rate at which current clients of the joining MFI move to other lenders increase as a result of their quality now being observable?

This analysis allows us to identify the immediate winners and losers from the formation of the bureau, and allows us some explanatory power over longer-range effects such as the effects on lenders of offering up information on clients. The problem with this approach is that, other than the immediate effects of the bureau on rejections, the identification rests on the time trajectories of the two MFIs being identical in the long term, which they almost certainly are not. This means that answers to longer-term questions will be quite weak. Hence, we suggest the next methodology:

(b) Quasi-experimental design

Here, we would work with the MFI to design some rule by which a certain group of clients would be subject to the bureau and a certain other group would not. The most obvious way of doing this would be to agree that all loans over, say, Q3,000 would be run through Crediref and all loans under this value would not. This methodology gives us two control groups: the clients in the "outside" lender, and the other clients in the "inside" lender that were not checked. By exploiting both of these control groups, we will have a much better ability to measure the longer-term effects of the use of the bureau.

(c) Experimental design

This is the most effective and the most intrusive way of measuring the effects of entry into a bureau for the lender. Here, the entrant MFI would agree to exclude a random group of its clients from Crediref and use the system only for the remaining clients. In this way, we generate a proper experimental control group that allows us very strong measurement not only of the immediate effects of joining the bureau but also of the longer-term evolution of their client base, exit from the institution due to graduation, and the learning process of clients as they discover the effects of the bureau through experience. This methodology requires only one institution to perform the analysis, as clients within that institution form the control group.

The broadest possible set of hypotheses could be tested from a system where data on clients from half of the lender's branches are excluded from Crediref, and a separately sampled random half of the branches do not use Crediref to run checks on their clients for some period of time. In this way, the client base will be naturally divided into four groups: those for whom outside borrowing is observable by their lender but for whom borrowing is not observable to outside lenders, those for whom outside borrowing is unobservable but borrowing from their lender is made observable to others, those for whom neither kind of information is observable, and those for whom both kinds of information are observable. This methodology is intrusive but gives us the ability to answer a question frequently raised by MFIs: does the inclusion of their data in Crediref actually increase

the risk of their best clients moving to other organizations?

Regardless of which of these methods is used, such factors as the following will be necessary. It is likely to be the case that the effects of the bureau are different for clients taking individual loans, solidarity group loans, and communal loans. Testing each of these separate impacts requires that we have a treatment *and* a control group for *each* of these kinds of loans. Thus, by far the easiest way to proceed will be to study MFIs that conduct all three kinds of lending within a single institution. Since Genesis offers all three kinds of loans, we seek a similar diversified lender as our second institution in order to have the broadest possible set of tests available.

Since most MFIs do not keep track of their own use of the credit bureau, it is very likely that we will have to use Crediref itself as a part of the study. By combining data from Crediref with institutional data from the lenders, we are able to put together a full dataset of applications/rejections/acceptances.

October 2003 (Rosada, McIntosh): Meet with potential MFI collaborators, form agreement with collaborating agencies and design the experiment.

November-December 2003 (Rosada): Train staff at collaborating MFIs, select treatment and control groups, if appropriate.

January-September 2004 (Rosada, de Janvry, Sadoulet, Wydick, McIntosh): Conduct the experiment, work with MFIs to ensure data systems and separation of treatment and control are working properly.

This experiment will conclude 18 months after its inception, meaning that we expect to stop collecting data in June 2005.

STRUCTURE AND PERFORMANCE OF RURAL FINANCIAL MARKETS AND THE WELFARE OF THE RURAL POOR

A Comparative Study in Peru and Mexico

Global Constraint 1*: Ineffective Agricultural Resource Use in Post-Reform Economics*
Global Constraint 3*: Poverty and Food Insecurity Traps*

Harvesting alfalfa outside of Concepción in the Mantaro Valley, Peru
(*Photo by Stephen Boucher*)

Principal Investigators

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Collaborating Institutions and Researchers

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Colegio de México, Mexico City, Mexico: Antonio Yunez Naude, Angeles Chavez
University of California–Davis, USA: Catherine Guirkinger, Aslihan Arslan, Susan Materer

http://www.basis.wisc.edu/finance.html

PROJECT PROFILE

Financial market liberalization has been a core component of the market-oriented reforms undertaken throughout Latin America in the 1980s and 1990s. The structure and performance of the financial markets that emerge in the wake of these reforms has important implications for poverty reduction. We take an integrated approach to the analysis of rural financial markets in their three main capacities: financing productive investment, facilitating risk management, and promoting savings.

Our methodology is two-pronged. First, we are constructing a detailed, household-level panel data set to track consumption, wealth, and investment portfolios over time and to understand the evolution of these variables in relation to household participation in various niches of financial markets. This will permit us to understand the barriers different types of rural households face in accumulating assets and escaping poverty. Second, we will identify supply side constraints by conducting surveys with formal and informal lenders. One of the primary objectives of the lender survey is to understand how lenders manage the risk of contractual default. The ability of lenders to reduce the contractual risk facing borrowers is crucial since many rural households may refrain from participating in credit markets—and thus forego productive investments—for fear of losing collateral.

Peru and Mexico carried out similar land and credit reforms in the early 1990s. In both countries small farmers—*ejidatarios* in Mexico and agrarian reform beneficiaries in Peru—control a large fraction of each country's high quality, irrigated land. Among Latin American countries, these two countries hold out the possibility for a model of agricultural development in which small farms play a leading role. The types of financial markets that are emerging will determine, to a large degree, which rural households will be able to accumulate and realize the full potential of their physical and human capital. The research should thus help policymakers identify specific barriers to household participation in financial markets and enable the design of policy to enhance efficiency and equity in rural areas.

Within each country, several regions were selected in order to capture heterogeneity in primary crops, climate, and irrigation infrastructure—three of the main sources of agricultural risk. In Peru, the sample is divided between the northern department of Piura and the Mantaro Valley in the central highlands. The Mexican sample will be divided between the central state of Guanajuato and the southern state of Oaxaca.

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Support

Core funding: BASIS.

Add on: Center on Rural Economies of Asia and the Pacific at UC Davis; Giannini Foundation and the University of California Faculty Research program; Social Science Research Council grants for dissertation research.

Outputs

Boucher, Stephen R., J. Edward Taylor, Carolina Trivelli Avila, Antonio Yunez Naude, and Javier Escobal D'Angelo. 2003 *Meeting the Needs of the Rural Poor through Post-reform Financial Markets.* **BASIS Brief 18.** Madison: Department of Agricultural and Applied Economics, University of Wisconsin. http://www.basis.wisc.edu/live/basbrief18.pdf.

I. ACTIVITIES 2002-03

A. Accomplishments

The main objective of the first year was to finalize the field research design and begin data collection for the first survey round. In Peru, the research design has been finalized. The household and lender survey instruments have been extensively field-tested and finalized and the sample selected. As a result of delays and unanticipated costs, we have reduced the frequency of the household survey from semi-annual to annual. This will permit us to maintain the panel structure while slightly increasing the sample size. In Peru, the first of three annual survey rounds began in September 2003. In Mexico, the first round will be carried out in Spring 2004 immediately after harvest of the winter agricultural cycle.

1. Household survey, round one

The household survey was designed between February and May 2003. Extensive field tests were carried out between June and August. The survey form was finalized 15 September. The primary field task to be completed in the upcoming year is the collection of the first round of household data.

2. Community survey, round one

The household survey will be complemented by a community level survey that collects information on prices, local infrastructural development, and histories of primary aggregate shocks affecting each community. The survey was designed by Boucher, Trivelli and Escobal in August 2003. It will be implemented by field supervisors simultaneous to the collection of the household data.

3. Lender survey

To complete the supply side of the analysis, qualitative surveys with formal and informal lenders will be carried out in both regions in the next project year.

4. Mexico surveys

The activities for Mexico are essentially the same as in Peru; however, they will be carried out with a five-month lag. The plan is to adapt the finalized Peru survey to the Mexican context. The sample in Mexico will be drawn at least partially from the National Survey of Rural Households conducted by Taylor and Yunez in January 2003. There have been significant delays in data entry and cleaning in several of the Mexican states that have prevented us from drawing the sample. This baseline data will be available in October 2003, so both the field testing in Mexico and the sample selection can move forward.

Delays make it impossible to carry out three annual rounds of household surveys prior to the end of this project in October 2005. As a result, we will reduce the number of rounds in Mexico from three to two and increase the sample size from 650 per round to 900 per round. We will thus maintain a panel structure; however, we will lose the econometric advantages of having observations from three instead of two points in time.

B. Problems and Issues

1. Unanticipated Security Concerns

In Spring 2003, the Peruvian press reported several incidents that suggested the Shining Path guerilla group was potentially active. One of the locations was in the lowland province of Satipo, which is in the same department, Junin, as the Mantaro Valley. While the research was delayed, we felt it necessary to thoroughly evaluate the risk and derive contingencies.

First, we evaluated and chose an alternative highland field site. Boucher spent several weeks traveling through rural Cuzco conducting interviews with NGOs, producer associations and financial institutions to evaluate the feasibility of carrying out the highlands portion of the research project in Cuzco, one of the most secure highland regions during the guerilla war. Cuzco was judged to be an acceptable backup option.

Second, Trivelli and Escobal took several trips to various provinces in and around the Mantaro Valley to talk with Ministry of Agriculture representatives, security officials, and farmers to assess the potential security risk to field teams in the next three years. Based on observation and conversations, we judged the security risk to be minimal as long as we limited the research to the

region of the Mantaro Valley between Jauja and Huancayo. Originally we planned on drawing a portion of the sample from the Tarma Valley. Since this valley is closer and more connected via roads and seasonal migration to the lowlands, we decided to drop it from our sample. We will continue to monitor the security situation closely and will be ready to pull field teams at the slightest hint of risk.

2. Change of sample frame for Mantaro Valley

The sample frame used in Piura is the lists of farmers maintained by the water user organizations. This is an ideal sample frame since it enumerates all farmers and their farm sizes. We originally hoped to use the same type of sample frame in the Mantaro Valley, where there are 24 different user organizations. Unfortunately, we were unable to gain access to these lists. This was primarily due to the highly politicized nature of water policy in Peru as the current water law is being debated. The time spent in conversations and negotiations with the water officials was, however, well spent as we learned a great deal about the nature of risk and the quality of water delivery in different micro-regions of the valley. We then turned to alternative sample frames. We settled on cadastral maps completed by the government's Special Project on Land Titling (PETT) in 1998, which agreed to grant access to the entire database, which identifies the owner, exact location, and area of the approximately 35,000 private parcels in the valley. The disadvantage of this sample frame is that it excludes parcels that are within the boundaries of peasant communities (*comunidades campesinas*). We will, however, certainly pick up some community members (*comuneros*) since many also own private land.

C. Collaboration

In Peru, BASIS team members Trivelli and Escobal collaborated with Eduardo Zegarra, director of the Office of Agrarian Information of Peru's Ministry of Agriculture in the design of a risk module for the office's annual producer survey. The Ministry seeks to identify and analyze the frequency of primary production shocks affecting different crops and regions. This information will be used as an input to the Government of Peru's plan to design new crop insurance products. The risk module from the BASIS household survey instrument was used as a basis for this discussion. A greatly simplified version of this module was then incorporated into the Office of Agrarian Information's producer survey. Joint analysis of the survey data will begin in early 2004.

In Mexico, conversations were begun with the Ford Foundation to explore the possibility of jointly evaluating the impact of non-bank financial institutions on rural welfare in Oaxaca. The Ford Foundation is currently working with several networks of institutions to strengthen the savings and credit infrastructure available to the large numbers of rural households without access to the banking sector. As the BASIS survey will be carried out in Oaxaca, this will provide an opportunity to evaluate the outreach and impact of these institutions and to identify ongoing barriers to institutional performance and household participation. At this initial stage, no formal collaboration has been formed; however, conversations are ongoing and we expect a collaborative relationship will emerge.

II. WORKPLAN 2003-04

A. Peru Plan

The primary tasks to be accomplished in the upcoming year include implementing the first round of the household survey, implementing the community and lender surveys and carrying out initial data analysis and writing.

1. Household survey, round one

The primary field task to be completed is the collection of the first round of household data. The order of tasks is as follows.

Enumerator training, 29 September-10 October

We formed and agreement with Cuanto, a Lima-based NGO, to implement the household survey in both regions. The training will consist of classroom instruction and field training. The classroom instruction will take place at the *Instituto de Estudios Peruanos* and will be directed by Trivelli and the general manager of Cuanto. This will be followed by five days in the field during which each enumerator will conduct 8-10 full surveys.

Data collection and entry, 14 October-20 November

Surveying will occur simultaneously in Piura and the Mantaro Valley. In Piura, Guirkinger will carry out random revisits of households and review the survey forms as they come in from the field. Yancari will carry out the same role in the Mantaro Valley. Enumerators will visit each household twice at an interval of 15 days. The first visit is comprised of the following modules: (1) household roster/demographics, (2) business assets and income, (3) labor market participation and wage income, (4) agricultural landholdings, property rights and participation in land markets, (5) agricultural assets, (6) agricultural production and revenues, (7) agricultural costs, (8) livestock inventory, revenues and costs, and (9) household shocks and attitudes towards risk. The second visit, beginning immediately after first round visits are completed, is comprised of the following modules: (1) credit market participation, (2) housing and non-productive assets, and (3) consumption and expenditures.

There are two primary purposes for splitting the survey. First, we will generate more accurate consumption data by bounding household recall to the period between the first and second visit. Second, the mean time required to complete both surveys is approximately three hours. By splitting the survey into two visits we reduce survey fatigue of both the interviewee and enumerator, increase the quality of data collected and establish a better relationship with the household. This last point is important since we need to return in the next two years to repeat the interview.

Data entry and cleaning, 14 October-20 January

Data entry will occur in the field. Cuanto will set up data entry headquarters in each of the two regions. Completed surveys will be reviewed the night they come in from the field and, if approved, will be forwarded to the data entry team. If they are not approved, the enumerator will be sent back to the household to complete missing information. Initial data entry of both visits will be completed by 15 December—approximately two weeks after the last survey is completed. An additional round of data cleaning will take place in Lima. The final, cleaned data set will be ready by the end of January.

2. Community survey, round one

The household survey will be complemented by a community level survey that collects information on prices, local infrastructural development, and histories of primary aggregate shocks affecting each community. The survey was designed by Boucher, Trivelli and Escobal and will be implemented by the field supervisors simultaneous to the collection of the household data.

3. Lender survey

To complete the supply side of the analysis, qualitative surveys with formal and informal lenders will be carried out in both regions. One of the primary objectives of this survey is to understand the risk sharing rules implicit in contracts from different lenders. Guirkinger is taking the lead on this project component. During summer 2003, she designed and field tested the survey instrument.

Creation of lender sample frame, October 2004

A list of all formal lenders operating in each region has already been compiled. During October, a list

of informal lenders will be created from different sources including the chamber of commerce for input supply stores and rice and textile mills. The list of informal lenders identified in Boucher's 1997 survey in Piura will also be used.

Data Collection, November-August 2004

The survey will be applied by Guirkinger in two periods: October-November 2003 and June-August 2004. At current funding levels, the sample will include approximately 80 lenders between Piura and the Mantaro Valley.

Field testing the production survey. Johana Yancari of the *Instituto de Estudios Peruanos* interviews a peanut farmer in the department of Piura in Peru. BASIS collaborated with Peru's Ministry of Agriculture in designing a risk module for the Ministry's annual producer survey. The Ministry seeks to identify and analyze the frequency of primary production shocks affecting different crops and regions. Information gathered will be used in the government's plan to design new crop insurance products. (*Photo by Steve Boucher.*)

4. Analysis and reports

Descriptive paper on credit market structure: Demand side, January-May 2004

This paper will use the first round household survey data to describe the structure of financial contracts in Peru, degree of participation and rationing among sample households, and patterns of sorting and matching across different borrowers and lenders.

Sources of risk paper, January-May 2004

A second output will be a detailed analysis of the sources of risk facing rural households. This work will dovetail with a current project directed by Eduardo Zegarra, the director of the Office of Agrarian Information in the Ministry of Agriculture. In October 2003, this office will include a brief module on agricultural risk in its annual national agrarian survey. This is the first step in the Ministry's effort to study the possibilities of implementing new forms of agricultural insurance in Peru.

Panel econometric analysis of rationing mechanisms and productivity, February-August 2004

The 550 households that will be surveyed in Piura in October were surveyed by Boucher in 1997. Thus, we can conduct panel econometrics to examine the determinants of rationing and the impact of credit rationing on investment and productivity.

B. Mexico Plan

The main activities in Mexico for the upcoming year include undertaking the first round of the household and community survey and beginning the data analysis. At this point we do not have plans for a lender survey in Mexico, but are hoping to raise funds to carry one out.

1. Household survey, round one

Contextualization of household survey, October 2003

The first task is to modify the language of the Peruvian survey so that it is appropriate to the Mexican context. This task will be carried out by Yunez and Chavez at the *Colegio de Mexico*.

Field testing of household survey, November 2003-February 2004

Boucher, Taylor and Materer will travel to Guanajuato in November to supervise, along with Yunez and Chavez, the field testing of the survey instrument in the two states. After making modifications to the survey forms, Materer, Yunez and Chavez will carry out a second field test in Oaxaca in December. A final field test will take place in late January and early February.

Enumerator Training, 1-12 February 2004

The surveys will be simultaneously applied in each of the three states. We will follow the model implemented by Taylor and Yunez in their National Rural Household Survey of 2003, which is to hire researchers from the local state universities to carry out the data collection. The supervisors from each state will be involved in the pretesting and will coordinate the enumerator training with Naude and Chavez. A similar methodology of splitting the training into five days in the classroom and five days in the field will be followed.

Collection household data, 15 February-1 April 2004

The same two-visit methodology will be employed in Mexico as in Peru. This stage will also be carried out by the state university teams under the supervision of Yunez and Chavez. Materer will provide additional outside quality control.

Data entry and cleaning, 20 February-15 May 2004

2. Community survey, round one

As in Mexico, the household survey will be complemented by a community level survey. This survey will be designed by Taylor and Yunez and implemented by the field supervisors simultaneous to the collection of the household data.

3. Analysis and reports

Descriptive paper on credit market structure: Demand side, May-August 2004

This paper will use the first round household survey data from Mexico in a similar fashion to the descriptive paper described above for Peru.

Comparative credit market structure paper, May-August 2004

This paper will draw initial comparisons and contrasts in the financial market structure in the two countries.

Financial markets, risk and migration paper, May-August 2004

One of the primary differences between Mexico and Peru is the proximity of the US to Mexico. This permits rural households to use migration as both a means of overcoming credit market imperfections and for managing risk. This paper will be an initial econometric exploration of the inter-relationships between credit constraints, migration and remittances.

LONG-TERM EFFECTS OF ACCESS TO FINANCIAL SERVICES ON ASSET ACCUMULATION, ECONOMIC MOBILITY, AND THE EVOLUTION OF WELLBEING:

Revisiting Agricultural Commercialization in Bukidnon, 1984-2003

Global Constraint 3*: Poverty and Food Insecurity Traps*

Interview with corn farming household
(*Photo by Agnes Quisumbing*)

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http://www.basis.wisc.edu/bukidnon.html

PROJECT PROFILE

The research program provides a rare opportunity to study the long-term impact of credit constraints on human and physical asset portfolios, economic mobility, and wellbeing by resurveying original respondents and their children from a sample of 448 agricultural households in the Mindanao region of the Philippines previously surveyed by the same collaborating institutions in 1984 and 1992. Detailed economic and nutrition information was collected for individual household members and at the household level. The site was selected to study the effects of agricultural commercialization on consumption and nutrition outcomes. Construction of a sugar mill in 1977 led to a major shift from corn to sugar production for many households.

This site provides a policy-relevant case study of possible avenues for asset accumulation under credit constraints under different crop production regimes and land tenure distributions. The original case study examined the effects of the shift from subsistence corn production to sugarcane after the construction of a sugar mill. The main effects of the introduction of export cropping were a significant deterioration in access to land, as smallholder corn tenant farms using primarily family labor were consolidated into larger sugar farms using primarily hired labor, an increase in incomes for households that grew sugarcane, a decline in women's participation in own-farm production, and very little improvement in nutritional status as a result of increased incomes from sugarcane production, primarily because of high levels of preschooler sickness in sugarcane-growing households. The issue of deteriorating land access in the face of increased commercialization is especially important in Mindanao, the Philippines' poorest region, which has a long history of armed conflict.

Policymakers have recognized the need both to reduce poverty in Mindanao and to improve financial services in this area. The Medium Term Philippine Development Plan 2002-2004 mentions the following priorities: (1) develop the banking and capital market, including improving financial intermediation through support to microfinance institutions; (2) develop Mindanao as a food basket and exporter of high-value agriculture and fisheries products; (3) protect vulnerable groups through better delivery of social services, including microfinance programs.

USAID is carrying out a wide range of activities aimed at equity-oriented economic growth in Mindanao, which emphasize introduction or expansion of agricultural commodities that offer promise as export crops. USAID is working with rural banks and credit cooperatives to help them develop the capability to profitably serve the microenterprise market.

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Support

BASIS CRSP core funding. IFPRI core funding.

Add ons: Department for International Development, UK; CGIAR Biofortification Challenge Program; University of Paris 1-Pantheon La Sorbonne.

Outputs

Burton, L. 2003. "Changes in Access to Financial Services, Asset Accumulation, Production, and Coping Mechanisms of Rural Families in Southern Bukidnon, Philippines, 1984-2003." Draft qualitative report, August.

Harrower, S., D. Gilligan, A. Quisumbing, and M. Sharma. 2003. "Direct Questions or Consumption Insurance? A Simple Test of Credit Constraints Using Data from Bukidnon, Philippines." Draft, International Food Policy Research Institute, August.

Morales, B. 2003. "History of Financial Services in Southern Bukidnon." Draft, May.

Quisumbing, A. "Understanding the Nature and Long-term Impacts of Credit Constraints: Philippines, 1984-2003." Seminar at the Asian Development Bank, August 2003.

Quisumbing, A. "Direct Questions or Consumption Insurance? A simple test of credit constraints using data from Bukidnon, Philippines." Seminar at the School of Economics, University of the Philippines, August 2003.

I. ACTIVITIES 2002-03

A. Accomplishments

Main activities were (1) the qualitative study focusing on changes in the survey communities since 1984/85, (2) creation of analysis files and preliminary analysis of the 1984/85 data, (3) preparation and pre-testing of the quantitative survey questionnaire, (4) training enumerators, and (5) start of the quantitative survey.

The year's activities laid the groundwork for the longitudinal study. The qualitative work was essential to get an idea of the vast changes that occurred since the last survey. We also began preliminary analysis of the 1984/85 data to make it easier to link them with the new data once they come in. Since the present survey would only consist of one round, the old questionnaire (administered four times) was modified to: (1) reflect improvements in eliciting responses regarding credit constraints, (2) obtain more information on demand for credit and characteristics of loan transactions, (3) allow tracking of children who had formed their own households in rural and urban areas, (4) allow tracking of changes in landholdings, non-land assets, and educational investments by survey households. Modifying the questionnaire involved extensive pretesting of the new modules as well as training of enumerators.

1. Design of qualitative study protocols

Burton, Quisumbing, Gilligan, Harrower, Sharma

The IFPRI team had a series of meeting and email exchanges with the Research Institute for Mindanao Culture (RIMCU) team to come up with a list of topics to be covered in the qualitative study.

2. Field visit

Quisumbing, Burton, Bouis, Morales

Quisumbing was in the Philippines in January and February 2003 to visit the field sites, meet Philippine researchers on rural finance issues, pay a courtesy call to the USAID Mission in Manila, and explore alternative funding at the Asian Development Bank. Bouis visited the survey sites in February. Bouis was the original principal investigator in the 1984/85 study, so his impressions of changes in the sites were valuable. We were able to interview former respondents (sugar farmers), sugar workers, corn farmers, and corn tenants. (See February 2003 trip report.)

3. Field work for qualitative study

Burton and RIMCU team

Because many changes have taken place since the initial study in 1984-1985, it was important to collect qualitative data or information on changes in people's lives in the study communities. In March 2003, the RIMCU team undertook a rapid assessment/ appraisal to assess local conditions and needs, knowledge, attitudes and behaviors. This was followed by collection of qualitative data during April and May. The focus was on the respondents' perceptions of changes that have occurred in their communities over time, including the development of different types of financial institutions and strategies used by households to improve their welfare and wellbeing. The qualitative study established a timeline for the development and diffusion of financial markets into the rural villages.

Collection of qualitative data employed two methods: (1) Focus Group Discussion and (2) Key Informant Interviews, which were conducted in ten municipalities. Participants and respondents were selected from 28 sample *barangays* (villages) that were used in the 1984-85 study. Participants in the group discussions were chosen from different *barangays* and were grouped (6-10 participants) according to their status and/or occupation. These were sugarcane planters, corn growers, farm laborers, small and big landowners, entrepreneurs/ traders, tenants, renters, landless farmers, and indigenous communities. On the other hand, respondents in the informant interviews included the governor of the province, mayors of the ten municipalities, ten *barangay* captains, some line agency officers devolved to local government units, some NGOs, cooperative and traders associations.

4. Draft of qualitative study and paper on financial markets in survey area

Burton, Morales

By June 2003, Burton and team members completed a first draft of the qualitative study, and Morales submitted a first draft of the paper on the history of financial institutions in the survey area.

5. Review of existing questionnaire modules and drafting of new modules

Quisumbing, Gilligan, Godquin, Harrower, Sharma

Between January and July 2003, the IFPRI team reviewed the existing questionnaire modules and drafted new ones. Godquin joined the IFPRI team as an intern in May, with full support from the University of Paris 1-Pantheon La Sorbonne. Since her dissertation research is on microcredit, she worked with Sharma on the credit modules.

6. Analysis of 1984/85 data

Harrower, Quisumbing, Gilligan, Sharma

Harrower, an IFPRI RA, took the lead in creating analysis files from the 1984/85 data and also began an analysis of alternative methods of credit constraints.

7. Pretest new modules and finalize questionnaire

Burton, Gilligan, Godquin, Harrower, Palma, Quisumbing, Wong, other RIMCU staff

From 29 July-14 September 2003, various members of the IFPRI team were in the Philippines to pre-test the new questionnaire modules, finalize the household questionnaire, develop a community questionnaire and look into sources of administrative data, interview providers of rural financial services, meet researchers and policymakers on rural finance, participate in the training of enumerators, meet members of the economics department of Xavier University to discuss the training activities for next year, and present seminars at the Asian Development Bank and the University of the Philippines.

The IFPRI team sent a draft of the questionnaire to be translated into Visayan by RIMCU staff. The team stayed in Malaybalay, and went into villages near the survey area (but not the same survey *barangays*) to pre-test the survey modules. Gilligan and Wong made visits to public markets to develop the module on food eaten away from home. Harrower and Godquin stayed in two survey municipalities, Don Carlos and Quezon, to work on the community questionnaire and to interview providers of rural financial services. (See September 2003 trip report.)

8. Training of enumerators

Echavez, Wong, Palma, Godquin, RIMCU staff

Training enumerators for the main survey took place from 7-21 September 2003. Training consisted of lectures, mock interviews, and field interviews. Owing to the structure of the questionnaire, two teams will administer the survey: the "enumeration" team, which will do the bulk of the economic, education, and demographic modules, and the "food consumption" team, which will do the food consumption module, the 24-hour individual food recall, and the anthropometry, reproductive health, and morbidity modules. (Training for the food consumption team took place 6-10 October; fieldwork began 13 October).

Public market in the Philippines. When a sugar mill was constructed in 1977, many families in the Mindanao region switched from subsistence corn production to commercialized sugar production. BASIS research is going back to rural households first interviewed in the 1980s to determine the effects of credit constraints on the households. (*Photo by Agnes Quisumbing.*)

9. Start of quantitative survey

RIMCU

The interview started in September 2003.

10. Additional activities

Burton visited IFPRI in June 2003. This visit was not in the workplan, but it enabled her to brief the IFPRI team about the results of the qualitative study and to plan the August-September field visit.

Members of the IFPRI team attended the Rural Finance Policy Conference in Washington DC; Burton and Gilligan attended the Technical Committee meeting in Durban, South Africa.

IFPRI was able to raise additional funds to undertake a 24-hour food recall and diet quality survey for a subsample of 500 households; this meant that additional modules needed to be developed and pre-tested.

Quisumbing gave a seminar at the Asian Development Bank and another at the School of Economics, University of the Philippines.

B. Problems and Issues

An initial problem arose from our original intention to frontload the budget so that data collection could begin in the first year. This was not feasible given the limits on annual disbursements from BASIS. We structured the workplan so that the field expenses would be split between Years 1 and 2. The team ended up having enough time to draw upon the results from the qualitative study in designing the quantitative survey questionnaire and to pretest and modify the questionnaire in the field.

Another research issue—the exclusion of urban migrants from the study sample—arose because only half of the initial project funding was approved. We were able to resolve this issue with additional funds from the Department for International Development, United Kingdom (DFID). The urban migrant survey will be fielded in early 2004.

Because only half of the initial budget was funded, IFPRI decided to protect the field work budget at the expense of staff time, which ended up being covered by IFPRI co-financing. We were thus short of funds for personnel to work on preliminary data analysis and survey preparation. Bouis's appointment as Director of the CGIAR HarvestPlus Challenge Program freed up core time to hire Harrower and pay for her transportation and field expenses to the Philippines. Godquin was also able to obtain funding for her transportation from her university so that she could work with the IFPRI team.

Owing to the need to concentrate on getting the questionnaire finalized, both the RIMCU and IFPRI teams decided to postpone the training seminars for Xavier staff to 2004.

Because of the new visa requirements for visitors coming to the US to participate in training and capacity building activities, we need to evaluate whether this will affect potential visitors to IFPRI under the BASIS project. We need to discuss whether we should shift more of our capacity-building activities to the Philippines.

We still need to raise additional funds for analysis in Years 2 and 3 of the project. We have approached the Asian Development Bank, but were told that the Agrarian Reform Cooperatives Project has been delayed by a year (this research could have been funded under a project preparation grant). We are now looking into working with SEARCA and the World Bank to identify additional funding sources.

C. Collaboration

This project is one of the four core longitudinal studies in IFPRI's new Global Research Program on Pathways from Poverty. Quisumbing co-leads the program with John Hoddinott (IFPRI). IFPRI researchers on the team also are part of the other country teams, so that comparable analysis can be conducted across countries to facilitate synthesis work and the production of "global public goods."

The team also collaborates with the CGIAR HarvestPlus program with major funding from the Bill and Melinda Gates Foundation, and the IFPRI multi-country program on urban food security, with funding from DFID. The project will be receiving funds from these programs for Year 2, for the 24-hour recall and diet quality survey for a subsumable of 500 households, and for the urban migrant survey, respectively.

D. Key Findings

The key findings reported here are taken from the draft qualitative study report (Burton 2003).

1. Unlike twenty years ago, access to financial services by the rural households is much easier, especially for big landowners and sugar planters. However, smallfarmers (both corn and sugar) have some difficulty in accessing financial services.

Big landowners can avail themselves of loans or credit from commercial banks in the cities of Malaybalay and Valencia, Bukidnon, as well as from Cagayan de Oro, the largest metropolis in northern Mindanao. There are also local institutions

within the municipalities such as the Multipurpose Cooperatives and Rural Banks that extend loans for farm inputs. Local traders and commercial stores that sell agricultural inputs also extend credit to the farmers especially during planting season. Small landowners, on the other hand, have difficulty accessing credit because of low production and the inability to come up with the required collateral (land or house). Instead, they go to individual lenders that lend cash through the "5-6 system" (for every 5 pesos borrowed, 6 pesos is repaid). Sugarcane growers can also obtain loans through the milling company. One peso is added when paying back, like an interest.

Women collect mushrooms growing on sugar waste products and sell them to obtain additional income. Commercialized sugar production has resulted in higher household incomes, yet cash crops are subject to greater risk than basic food crops and the farmers have a greater demand for credit services. (*Photo by Agnes Quisumbing.*)

2. Land market transactions have changed over the past 20 years.

The introduction of sugarcane cultivation has driven up land prices in this historically land abundant area; land has now become scarce and expensive. One common way for acquiring land is through land rental and mortgaging. Smallfarmers who cannot afford to spend on land preparation either rent out their land or mortgage it. Another mechanism is for the landowner whose land is idle to make a deal with a financier. The financier shoulders all the expenses incurred during the cropping period. After the sale of the entire crop, the net returns are split between the financier and landowner. Land sales are also observed; this depends on the parcel's suitability for sugarcane and its accessibility to trucks.

3. Changes in asset composition are apparent in households' accumulation of assets that serve as a status symbol and enhance their social standing in their community.

In the past, the residents of southern Bukidnon lived a simple life, with houses made of light building materials (bamboo and thatched roofing). Towns were not electrified and asset holdings were minimal, except for some prosperous landowners who lived in better homes and had better utilities. However, when the farmers shifted to growing sugarcane, many changes occurred. Many farmers were able to build their own houses made of concrete and strong building materials. In general, the farmers of today are able to acquire more household durables; however, there remain sectors of the populace that cannot obtain such assets because of poverty, specifically the indigenous people and the laborers who are dependent on minimum wages.

4. The shift from corn to sugarcane planting has changed the production process and has implications on the family values and social roles of women and children.

In the past, agricultural land was more available and cheaper to purchase. Production was mainly for own consumption. However, with the advent of sugarcane, many farmers turned to growing non-traditional crops that would generate more income for the family. This changed social roles of

household members among the corn farmers and sugarcane planters. In corn production, women (and children, to a lesser extent) are engaged in farm activities the entire year. Although not engaged in plowing, women and children help in such activities as fertilizer application, planting, weeding, and harvesting. However, the shift to sugarcane cultivation increased the share of farm activities performed by men, especially during the harvest season. The women can only do few chores such as weeding, mixing fertilizer into the soil and preparing the *patdan* (cane cuttings). Thus women's labor opportunities in the farm became limited, which may have prompted them to look for off-farm employment.

Although many farmers have shifted to sugarcane planting, there are still farmers who grow corn. Corn growing is more expensive due to the need for inputs (seeds, fertilizers, pesticides) and more risky due to weather fluctuations. Most corn growers have shifted to hybrid corn that allows them to harvest 3-4 times a year. Most corn production is no longer for home consumption but for the growing livestock feeds market.

5. Changes in the socioeconomic conditions such as in health, education, infrastructure, local services, and utilities (water, electricity, telephone) are due more to new government programs and policies, specifically the devolution of powers/authority from the national to the local government units, than to changes in agricultural production. Political will on the part of the local executives played a role in the changes that have taken place in southern Bukidnon.

One policy change that has had a major impact on our study communities has been the devolution of governance and financing to Local Government Units in the 1990s. Each municipality now has its own internal revenue allotment, which is a financial share from the government for its own economic development, including the enhancement of education. Most *barangays* now have elementary schools and tuition-free high schools in some *barangays* that have large populations. Private high schools operated by religious groups are found in some *barangays* that do not have public high schools. In the more urbanized communities, there are private colleges and computer training centers. In the area of health, the number of rural health units or *barangay* health stations in the different villages has increased. Since health services provision has been devolved to the municipal government, Municipal Health Offices have more proactive health programs. Pre-natal care and family planning are now part of the health program and linked to reproductive health.

Electrification is widespread. Although electrical power came into southern Bukidnon in the early 1980s with the installation of the Pulangi Hydroelectric project, only a few municipalities were energized. In the last two years most of the *barangays* in the 10 municipalities obtained access to electricity. Communication facilities have also improved, particularly with the introduction of mobile or cellular phones. These phones are now used by farmers to monitor prices of corn, sugar and other produce.

II. WORKPLAN 2003-04

A. Research Plan

1. Data gathering

All quantitative data collection will take place this year. These data are necessary in order to evaluate long-term impacts of credit constraints and compare asset (physical and human capital) accumulation and consumption growth paths of households, depending upon their credit constraint status in the past. We plan to enrich the 1984/85 data by presenting a detailed picture of household demand for credit from different sources, focusing on different types of credit institutions, contract enforcement mechanisms, and transactions costs.

We mobilized additional funding to examine two aspects of long-term change that would not have been feasible under original funding from BASIS.

Changes in dietary quality

With $40,000 from the CGIAR Biofortification Challenge Program, we will undertake a 24-hour individual food recall survey in a subsample of 500 rural households with preschoolers—a sample roughly comparable in terms of demographic characteristics to the original 1984/85 study.

Survey of urban migrants

With funding from DFID, through a grant to IFPRI's multi-country program on urban food security, we will track some 500 migrants who are children of the original survey respondents. We dropped this cohort from our resubmitted proposal, despite the implications for attrition and selection bias, due to funding constraints. $20,000 from DFID will enable us to administer a short, focused survey to this group of migrants. Additional IFPRI core funds ($10,000) will be used to fund case studies of households who have "moved up" or "fallen behind" relative to their 1984/85 position.

We have pre-tested the questionnaires for the rural surveys (original and rural splits); we will pre-test the urban questionnaire in late January 2004.

2. Data cleaning and analysis

Data cleaning and analysis will link the previous survey to the recently collected data set and generate policy-relevant research findings.

3. Training and capacity building

We are considering expanding our training beyond Xavier University to include economics faculty from other universities in Cagayan de Oro and Mindanao. Confining the training activities only to Xavier staff would unduly limit the impact, as there are only three junior full-time faculty members who would potentially participate in the training. Capacity-building is very important in Mindanao, which has been a chronically under-served region. The state of economics education has lagged behind universities in the metro Manila area, as promising graduates go to Manila and do not return.

B. Anticipated activities

1. Quantitative household survey

Original household survey: 15 September-15 December 2003. Rural splits survey: 15 October 2003-15 January 2004. Urban migrants pre-test and survey: 30 January-15 March 2004.

The household survey will involve tracking the original households from the 1984/85 survey, new households formed from these original households and residing in any of the original rural survey *barangays* (rural splits), and new households formed from the original households but which migrated to any of the three urban areas of Valencia, Malaybalay, and Cagayan de Oro. The content of the questionnaire of each of these surveys will be slightly different. For example, the questionnaire for the original households will contain modules for identifying and tracking the rural splits and migrant households, the rural splits questionnaire will include a module on diet diversity and 24-hour individual food recall for a subsample of 500 households, and the urban migrants module will be much shorter owing to the difficulty of conducting household interviews in urban areas.

This activity is central to the research project because the data collected will form the basis for comparing changes in outcomes across different credit constraint categories.

2. Data entry and cleaning

15 October 2003-30 March 2004

This activity involves entering data into computer readable media, checking inputted data versus the questionnaire, and cleaning for outliers and errors in data entry. Data entry will take place in parallel with the survey to avoid delays in analysis.

3. Policy seminar on qualitative study

February 2004

This activity involves presenting the results of the qualitative work to an audience of policymakers from the Central Mindanao Region. This will be one of the project's first information-dissemination activities.

4. Training seminars for Xavier staff

Early February 2004 (to coincide with pre-test for the urban survey)

This will consist of an intensive one-week course on applied microeconomics/special topics in microeconomics for economics/agricultural economics faculty from Xavier University and other universities in Cagayan de Oro and Mindanao. IFPRI staff will be conducting the training, possibly to be held at the residential facilities of SEARSOLIN, Xavier University.

5. Creation of analysis files from survey

February-September 2004

Following the completion of data entry, IFPRI and RIMCU staff will create analysis files based on computed variables and link them to similar variables in the 1984/85 data. This will involve matching information from individuals and households to the earlier rounds.

This is an important stage in the analytical process, because many of the variables to be analyzed will have to be constructed from the raw data and linked with earlier observations from the 1984/85 data.

6. Qualitative case studies of households

April-May 2004

This new activity will consist of qualitative case studies of households who have "moved up" or "fallen behind" relative to their 1984/85 position. These case studies will be undertaken by graduate students from the Department of Sociology and Anthropology and will be part of their thesis projects.

This activity will complement the qualitative work on the survey communities undertaken in 2003. It will also support capacity-building activities because the work can be counted towards graduate students' thesis work.

7. First mini-sabbatical at IFPRI

April-May 2004

This activity would involve visits by the two RIMCU investigators, Burton and Morales, to IFPRI to work with the Washington-DC based team. Given the new visa requirements, this component is being discussed and evaluated vis-à-vis more in-country training.

8. Analysis

April-September 2004 (continuing to year 3)

This activity involves analyzing data from the quantitative survey and the two qualitative studies. It will involve regression analysis and interpretation in light of the qualitative study results. An initial output will be a paper on financial markets in the study area, linking the qualitative study findings and the data from the quantitative survey. The analytical phase will build on the data collection phases in the first two project years.

C. Anticipated outputs

We will produce a research paper examining various methods for classifying households as credit constrained. The tentative title is, "Direct Questions or Consumption Insurance? A Simple Test of Credit Constraints Using Data from Bukidnon, Philippines."

We will produce qualitative and quantitative research papers characterizing rural financial markets in Bukidnon, including changes in the demand for and supply of financial services over the two study periods.

We will hold seminars on qualitative study findings and rural financial markets findings. We intend to submit a proposal for additional funding for analysis. This likely will be submitted to the Asian Development Bank and Southeast Asian Ministers of Education Organization Regional Centre for Graduate Study and Research in Agriculture.

BASIS CRSP Outreach

PROFILE

Targeted Policy Information

BASIS delivers policy information through targeted conferences and workshops, solicited by USAID Missions and Washington Bureaus, on topics of BASIS expertise. Several such activities occurred in 2003 and will continue in 2004:

- Land Policy, Administration and Management in the English-speaking Caribbean
- Paving the Way Forward: An International Conference on Best Practices in Rural Finance
- New Business Models for Delivery of Rural Financial Services in Southern Africa.
- Land Law and Policy Assessment for Rwanda
- Enhancing the Land Access of Poor Households to Broaden the Base of Economic Growth (Mexico and Central America).

Also, BASIS research findings are delivered directly to policymakers. The individual projects in countries such as Ethiopia, Kenya, Kyrgyzstan, Madagascar, Malawi, and Russia engage in intensive policy dialogue with government agencies and NGOs. The work in these countries feeds directly into current discussions about land, water, labor, and finance, as well as broader poverty issues. Interactions with policymakers occur throughout the project cycle to facilitate engagement in design, implementation, findings and recommendations.

BASIS CRSP Policy Conferences

In 2004, BASIS will hold the first of its *Policy Conferences*: "Combating Persistent Poverty in Sub-Saharan Africa." These conferences will deliver development strategies and inform the broad policy community by integrating themes and findings from the projects in the BASIS research portfolio. By drawing on expertise gained from the projects, the conferences serve as the primary vehicle for cross-regional synthesis and learning.

Mission Outreach

BASIS provides ongoing support to USAID missions as they address emerging opportunities in economic growth, agricultural development, and trade. The following are examples of this outreach.

South Africa: BASIS regularly meets with the Pretoria mission as part of a USAID-sponsored project to establish rental markets for cropland in the communal areas of KwaZulu-Natal. BASIS has provided information to both the mission and the Department of Land Affairs to help inform the ongoing debate about South Africa's land reform process. Information gathered by BASIS research has proved vital to this process.

Ethiopia: BASIS has a long-term working relationship with the Ethiopia mission and contributed to the development of a 5-year strategic plan for the country. A recent disaster relief project in Ethiopia was based, in part, on the asset accumulation work done by BASIS researchers.

Kyrgyzstan: BASIS contributed project outputs to an assessment team that visited Kyrgyzstan to identify funding priorities. BASIS works closely with mission staff, who have indicated that the research information is very useful for their work.

Madagascar: BASIS works with the mission through the Ilo Project and the Landscapes Development Initiative Project. These projects contribute to the breadth of research in the region.

Kenya: BASIS regularly meets with mission staff to update them on the research and new findings. Information supplied to REDSO in Nairobi contributes to the development of new strategies for the region.

Angola: BASIS helped facilitate a consultation on land policy with the mission.

Moldova: BASIS will provide advice on rural financial services and mobilization of remittances from productive investments and savings.

WORKSHOP ON LAND POLICY, ADMINISTRATION AND MANAGEMENT IN THE ENGLISH-SPEAKING CARIBBEAN

March 2003

Principal Investigators

J. David Stanfield: Land Tenure Center, University of Wisconsin-Madison, USA

Collaborating Institutions and Researchers

Land Tenure Center, University of Wisconsin–Madison, USA: Christine Elholm, Don Esser

Terra Institute, Ltd., USA: Lynn Burns

ACT Consulting Associates, Trinidad and Tobago: Allan N. Williams

PROFILE

The Caribbean workshop was a direct outgrowth of a consultative process on land policy and administration that began with the World Bank's "Regional Workshop on Land Issues in Latin America and the Caribbean," held in Mexico in 2002 as part of the process to create the Bank's policy research report: *Land Policies for Growth and Poverty Reduction*. At the Mexico workshop, participants (especially those from the English-speaking Caribbean countries) indicated that the workshop had not served their needs. Therefore, this new workshop was designed.

Held in Port of Spain, Trinidad & Tobago in March 2003, the Caribbean workshop attracted 78 participants from 14 Caribbean countries, 9 regional and international organizations and 4 universities in the region. It also attracted a variety of professions, including commissioners of land, permanent secretaries, private sector representatives, physical planners and representatives of NGO. The workshop's general objectives were to:

- accumulate knowledge of the practical experiences between the various stakeholders of the countries in the region to assist the development of more effective land policies and investment programs
- develop a Caribbean perspective on land administration and management in order to ensure that the policies of international agencies reflect the realities of the region
- identify ways in which broadly agreed principles of land policy can be translated into feasible national policies and programs that respond to the specific problems confronting the countries and the region.

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Support

Add-on: USAID/Latin America and Caribbean Bureau. Matching provided by InterAmerican Development Bank and the Department for International Development, United Kingdom.

Outputs and Impact

- Establishment of a network of Caribbean professionals working on land issues.
- Identification of "next steps," which will include articulating a regional land policy position and training and capacity building.
- Presentations published in "Land in the Caribbean: Issues of Policy, Administration and Management in the English-speaking Caribbean," edited by Allan N. Williams. See http://www.mhtc.net/~terra/carib_workshop/pdf/landbook.pdf.

http://www.basis.wisc.edu/event_caribbean.html

PAVING THE WAY FORWARD:

An International Conference on Best Practices in Rural Finance

June 2003

Principal Investigators

Brian Branch, Lucy Ito, Curtis Slover: World Council of Credit Unions, Inc.

PROFILE

Held in Washington DC, June 2003, the conference brought together 400 academics, donors, practitioners, and development professionals from 50 countries to discuss successes and failures from past involvement in rural finance, and to creatively plan solutions to problems facing rural financial markets. The steady withdrawal of donors from rural finance over the 1980s was the result of hard-learned lessons about the failures of subsidized credit and the consequent dependency on external sources of funding. Yet the entry of private, unsubsidized institutions has been slow, and rural financial markets remain thin. In this environment, the productivity of the rural economy is dampened by three forces: (i) liquidity constraints, (ii) risk constraints, and (iii) savings constraints.

While growth and poverty reduction are sometimes discussed as separate goals and addressed with different policies, relaxation of these constraints holds out the promise of an interlinked approach to both growth and poverty reduction. A deep and broadly-based rural financial system can boost growth by enhancing the productivity of agricultural enterprises, address poverty by improving the financial access of low-wealth households, and relink growth with poverty reduction by assuring that small-scale producers and low-wealth households are positioned to participate in new markets and growth opportunities.

Paving the Way Forward aimed to combine proven and innovative programs into a coherent policy. Unlike earlier generations of rural finance policy, the core programming options that came out of the conference are *indirect*—they do not directly provide financial services but create an enabling environment that will induce the entry and evolution of competitive, private providers of rural financial services. The result should be a stable financial sector, independent of public subsidies and freed of the sustainability limitations that plagued earlier rural finance policy efforts.

The proposed rural finance strategy is built around five core programming areas designed to reshape the landscape of the rural economy, opening the way for vibrant rural financial markets poised to service agricultural enterprises. In addition, these innovations open the way for more effective rural microfinance institutions, helping to create rural financial markets that work for all.

1. Mitigating Risk. Correlated risk and sectoral uncertainty limit the entry of new financial institutions into the rural market. Creating instruments that protect financial institutions from some of this risk can stimulate lending in rural financial markets, especially for agriculture. Such policies will have a multiplied effect as they open the space for the entry of new and more affordably priced financial intermediation services and help liberate rural households from risk constraints that suppress their own entrepreneurial activity.

2. Improving Information Access and Management. Rural financial institutions have a difficult time gathering sufficient information about potential clients and managing that information efficiently. Improving the infrastructure for collecting, processing and sharing information will make smaller rural institutions more efficient and lower lending costs. Improving informational systems will help these institutions move along the path to financial sustainability.

3. Diversifying Products and Services. To help reduce poverty and stimulate economic growth in rural areas, effective rural financial markets would

provide a wide range of services and products including lending, savings, leasing, insurance and transfers (e.g., of remittances). While various conference papers touched on a number of these products and services, the need for expansion of savings services was highlighted as an element critical to both building institutional sustainability and meeting client needs. Innovative savings products for rural areas give local families reliable ways of making their savings more productive and help them cope with shocks. Savings instruments can relax aggregate liquidity constraints by capturing and intermediating the substantial inflow of remittances. Achieving these goals will require well sequenced efforts to enhance institutional capacity, extend the reach of effective regulation and supervision, and intermediate remittance flows.

4. Strengthening the Legal Environment. A well-functioning policy and legal framework is key to the development and sustainability of the financial sector. The nature of laws that govern the financial sector, as well as the quality of the institutions that enforce those laws, will also largely determine the shape and depth of the financial sector. Of particular importance are the laws and institutions that either facilitate or inhibit secured lending by influencing the ease with which agricultural and other rural assets can be used as collateral. The legal environment for secured lending can be strengthened through collateral widening measures that codify land rights, promote legal reform for institutions, cooperatives and NGOs, and expand borrowing laws to increase the participation of poor. Improving the systems through which collateral can be provided and collected will open the door to a larger client base, while still protecting the interests of lenders.

5. Enhancing Value-chain Financing. Input suppliers, processing firms, warehouses and other commercial actors in the agricultural sectors provide critical financial services to small and medium rural producers. Enhancing existing interlinked rural finance activities and facilitating new services by these actors can expand access and ensure competitively-priced financial services.

Toward a Solid Foundation

These five strategic programming areas are intended to open the way to greater entry and sustainability of private financial institutions along the continuum that stretches from microfinance providers to conventional, collateral-based lenders who operate without extensive monitoring and supervision of their clients (so-called "arm's length" lenders). Given the importance of microfinance in assuring a financial system that provides services to a broad range of rural residents, the goal is that these programming ideas will provide the foundation for more effective rural microfinance institutions that will serve the needs of low wealth households.

The programming ideas should also help link institutions along the rural finance continuum, creating the basis for a financial services ladder. As households advance economically they can climb the ladder and move from microfinance providers to arm's length lenders, who offer larger loans at potentially more favorable rates but who require large amounts of collateral and reputational assets. A return to some principles of microfinance, in combination with the interventions listed above, creates the possibility for rural finance to evolve in a way that includes as wide a range of the population as possible. Efforts to further promote microfinance in rural areas, along with an expansion of rural and agricultural finance, should then support the financial sector-strengthening needed for broad-based economic growth.

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Support

Core funding. Matching provided by WOCCU. Add-on: USAID/OMD.

Outputs and Impact

- Papers, presentations, case studies and conference evaluation report are available at www.basis.wisc.edu/rfc.
- A synthesis paper focusing on the five areas of intervention has been drafted and will appear on the website above.

http://www.basis.wisc.edu/rfc/index.html

NEW BUSINESS MODELS FOR DELIVERY OF RURAL FINANCIAL SERVICES IN SOUTHERN AFRICA

2003

Principal Investigator

Charles Gore

PROFILE

Charles Gore was hired to investigate opportunities to create new business models with the private sector for profitable delivery of rural financial services to low-income households in Southern Africa. The core of the models would be loan delivery systems logistically supported by existing infrastructure, including electronic data management systems, and the existing client bases of proven private sector agricultural and eco-tourism companies.

The project included three missions to countries in the region, including Zambia, South Africa, Zimbabwe, Malawi, and Mozambique. The purpose was to conduct a regional market survey of existing rural finance providers, including products, pricing, client base, and constraints. This information was then used to develop a product development review, which analyzed the innovations and delivery services options in the region. Gore also looked at rural finance partnership models to reduce risk and operating costs while allowing for rapid portfolio expansion.

The goal is to contribute to partnerships that can take advantage of the deep financial services and information technology services that exist in southern Africa in order to promote progress in the microfinance sector. Growth in this sector will allow the large numbers of small agricultural producers and eco-tourism industries to access loans, which are currently unavailable to them.

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Support

Add-on: Microenterprise Development Team.

Outputs and Impact

- Results of the study were presented to USAID/Washington and the Pretoria mission.
- A draft proposal for a pilot rural trade finance program in southern Africa is being developed.

RWANDA LAND LAW AND POLICY ASSESSMENT

2004

Principal Investigator

David Bledsoe: Rural Development Institute

PROFILE

Bledsoe will travel to Rwanda to formally present his Land Law Policy Assessment, completed last year after a desk review funded by BASIS CRSP. He will present this work to the Ministry of Lands, Environment, Forests, Waters and Natural Resources (MINITERRE) and its stakeholders, and help them develop future land policies for the country. This trip to Rwanda will allow for more formal discussion of the feasibility of recommendations made in the initial analysis. Additionally, there will be the opportunity for substantial involvement of stakeholders, including civil society groups, local government representatives, farmers' associations, and members of Parliament.

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Support

Add-on: MINITERRE and USAID/Rwanda.

Outputs and Impact

- Meetings to be held with stakeholders.
- Consultations to be held with MINITERRE officials.
- Report to be delivered to USAID/Rwanda stating major findings, actions taken, and recommendations.

ENHANCING THE LAND ACCESS OF POOR HOUSEHOLDS TO BROADEN THE BASE OF ECONOMIC GROWTH

2004

Principal Investigator

Michael Carter: University of Wisconsin-Madison

PROFILE

This regional conference in Nicaragua will attract 100 participants from across Central America. The conference will consist of four panels:

1. The Value of Land Access to Rural Households in the Contemporary Economy
2. Credit Markets, Land Markets, and Land Access in Contemporary Central America
3. Women's Land Rights and the Impact of Land Access
4. Best Practice Land Policy for Central America.

The final panel will be the centerpiece of the conference, presenting programs of the European Commission, World Bank, USAID, and others currently in place in the region. Discussion of how well these programs address the policy implications of earlier panels will help develop best practices for enhancing land access and growth.

After the one-day conference, presenters will be available for two days of discussion with domestic and international policymakers.

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Support

Funding from BASIS and USAID/Latin America and Caribbean Bureau.

Outputs and Impact

- Conference proceedings will be made available.
- A report titled "Beyond Titling and Land Market Liberalization: What's to be Done in the Next Generation of Agrarian Policy in Mexico and Central America?" will be drafted and available.

COMBATING PERSISTENT POVERTY IN AFRICA:

Structure, Causes and Solutions

Fall 2004

BASIS CRSP Policy Conference

PROFILE

The *BASIS CRSP Policy Conference* will bring together leading researchers, key development professionals, and policymakers through a multi-meeting format designed to result in a set of crisp, well-grounded policy and programming recommendations. A preliminary workshop was held at Cornell University in November 2003.

Prior work has shown that there is a significant amount of turnover among the poor as households exit and enter poverty. Some of this mobility can be attributed to regular movement back and forth in response to exogenous variability in climate, prices, health, etc. ("churning"). Other crossings reflect permanent shifts in long-term wellbeing associated with gains or losses of productive assets. Distinguishing true structural mobility from simple churning is important because it clarifies the factors that facilitate such important structural change. Conversely, it helps identify the constraints that may leave other households caught in a trap of persistent, structural poverty.

The goal is to distinguish types of poverty and deepen understanding of the structural features and constraints that create poverty traps. This knowledge will allow proactive steps to be taken by communities, local governments and donors to effectively combat persistent poverty in Africa.

The foundation for this conference is a set of commissioned background studies of persistent poverty and policy in East, West and Sub-Saharan Africa. These studies are unified by a focus on the ways in which households are able (or unable) to take advantage of new opportunities, as well as on ways they can recover from major shocks that limit their opportunities. Results show that while some households are able to move ahead as a result of changes such as market liberalization or new technology, other households are unable to take advantage of the changes. Similarly, while the negative effects of shocks such as drought or political crisis may be temporary for some, others are never able to recover. Are there minimum asset thresholds below which households do not have the capacity to take advantage of positive changes nor recover form negative ones? If so, this leads to a structural division of households, where some are continuously trapped below the poverty line and others have the capacity to move out of poverty, though their progress may still be quite slow.

The conference will extract policy solutions from this research, looking at ideas such a safety nets, which directly reduce the risks that drive households into poverty, and cargo nets, which provide mechanisms to help them build asset bases that lead to pathways out of poverty. These and other ideas will suggest policy changes that address asset thresholds and enable households to overcome them and move out of poverty.

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Date: Fall 2004 (exact date to be announced).

Location: Washington, DC.

Presenters and Discussants

Christopher Barrett, Department of Applied Economics and Management, Cornell University

Michael Carter, Department of Agricultural and Applied Economics, University of Wisconsin

Jane Guyer, Department of Anthropology, Johns Hopkins University

John Hoddinott, International Food Policy Research Institute

Ravi Kanbur, Department of Applied Economics and Management, Cornell University

Peter Little, Department of Anthropology, University of Kentucky

Pauline Peters, John F. Kennedy School of Government, Harvard University

Ann Whitehead, Department of Anthropology, University of Sussex

Background Papers

Barrett, Christopher. "Welfare Dynamics in Rural Kenya and Madagascar."

Barrett, Christopher and Michael Carter. "Poverty Traps and the Asset Poverty Line: Concepts and Implications for Measurement and Policy."

Carter, Michael, Michelle Adato and Julian May. "Persistent Poverty in South Africa: Severity, Sources and Solutions."

Hoddinott, John. "Malnutrition and Persistent Poverty in Zimbabwe and Ethiopia."

Little, Peter, A. Peter Castro, M.P. Stone and W. Negatu. "'Churning' on the Margins: The Social Dynamics of Poverty in Northeastern Ethiopia."

Peter, Pauline. "The Challenge of Achieving Food Security in a Poor Agrarian Country: The Case of Malawi."

Whitehead, Ann. "Persistent Poverty in North East Ghana."