Technology Networks: Project Design and Some Preliminary Results

Keith M. Moore, Jennifer Lamb, and Lauren Moore (OIRED/Virginia Tech)

with I. Yahaha (SARI/Wa) and T. Dalton (KSU) *(LTRA-8)* ; M.A. Okurut and D. Chemusto, D. Sikuku and J. Norton (UW), J. Odera (SACRED Africa), B. Bashaasha (Makerere), R. Laker-Ojok and J. Nyachwo (AT-Uganda), and D. Shibonje (Manor House) *(LTRA-10)*; M. Marake (NUL), and D. Lambert, M. Wilcox, F. Walker, and N. Eash (UT-K) *(LTRA-9);* and yet to be identified partners in LTRA-6, 7, 11 and 12

SANREM CRSP

USAID FROM THE AMERICAN PEOPLE

Goal: Promote innovation and scaling up of conservation agriculture production systems (CAPS) for smallholders

Objectives:

- Identify knowledge and attitudes (technological frames) concerning agricultural production practices held by network actors;
- Describe the structure of information and physical resources flows between these actors
- Determine critical network pathways and opinion leaders facilitating technological change among farmers and their service sector partners.

Methodology:

- Collaborate with LTRA's for household sampling of agricultural networks
- Utilize snowball sampling and key informants to conduct survey of Agricultural service sector actors
- Conduct factor Analysis (Principle components) is separately by sex and community on the 20 items associated with
    - Conventional Agriculture,
    - Risk Averse Agriculture
    - Conservation Agriculture
- Determine local agricultural production orientations.

At the site level:

- Track information and resource flows using UCINET 6 software
- Visualize and present network analyses to local partners

At the multi-site level:

- Compare network case studies
- Assess the differential impact of each network's structure and functioning

Proposed Activities and Publications:

- Survey of agricultural service sector actors in Lesotho, Ecuador, and Bolivia summer 2011
- Accepted paper for the World Congress on Conservation Agriculture on Northern Ghana

The SANREM CRSP is made possible by USAID and the generous support of the American people through USAID Cooperative Agreement No. EPP-A-00-04-00013-00.

Examination of Shared Understandings of Agricultural Production in Northern Ghana

Technological frame items factored for men and women farmers

1. Land is one's heritage to be preserved for future generations
2. Farm labor should be replaced by more efficient herbicides and machines
3. Engaging in multiple productive activities is always better than doing just one
4. Farm income should always be reinvested to grow the business
5. One should maintain a permanent crop cover
6. It is better to grow staples within the household or community than purchase them.
7. Applying chemical pesticides is always necessary
8. Farm production is necessary to feed the family
9. Inorganic fertilizer is best to improve soil quality
10. Spreading crops and inputs across multiple plots is always necessary
11. Planting decisions are always based off of current market prices
12. Timely weeding (before setting of seed) is important to a successful harvest
13. Crops should only be grown for sale
14. Crop residues should only be fed to livestock and poultry
15. Tillage causes land degradation
16. One should always strive to grow the most on one's land.
17. The staple crop should be planted on the majority of the land *every* growing season
18. Rotating crops is always best practice
19. Land preparation for crop production begins with plowing.
20. Earning off-farm income is more important than a large harvest

Mean factor scores for men and women's agricultural production orientations according to their belief that tillage causes land degradation (numbers in parenthesis refer to the technological frame items to the left factored separately for men and women.)	Tillage causes land degradation					
	Men			Women		
	Agree	Neutral	Disagree	Agree	Neutral	Disagree
Farming is a capital intensive business (4 + 7 + 9 + 11)	3.5[c]	3.5[d]	3.8[cd]			
Farming requires both staple crops and livestock (14 + 17)	3.6[a]	3.5[b]	2.9[ab]			
Extensive diversification of crop production is important (10 + 16)	3.6[d]	3.0[d]	3.3			
Market participation is necessary for sustainable farming (8 + 13)	3.3[ab]	2.9[a]	3.0[b]			
Farming is a cash-cropping business (4 + 11)				3.4[c]	3.5	3.8[c]
Farming requires growing staple crops and supporting livestock (14 + 16 +17)				3.6[ab]	2.8[a]	3.1[b]
Technological innovation is important for agriculture (2 + 9)				3.7[a]	3.8	4.1[a]
Local food security is important (6 + 8)				4.1	4.0	4.2
N	83	33	84	66	29	62

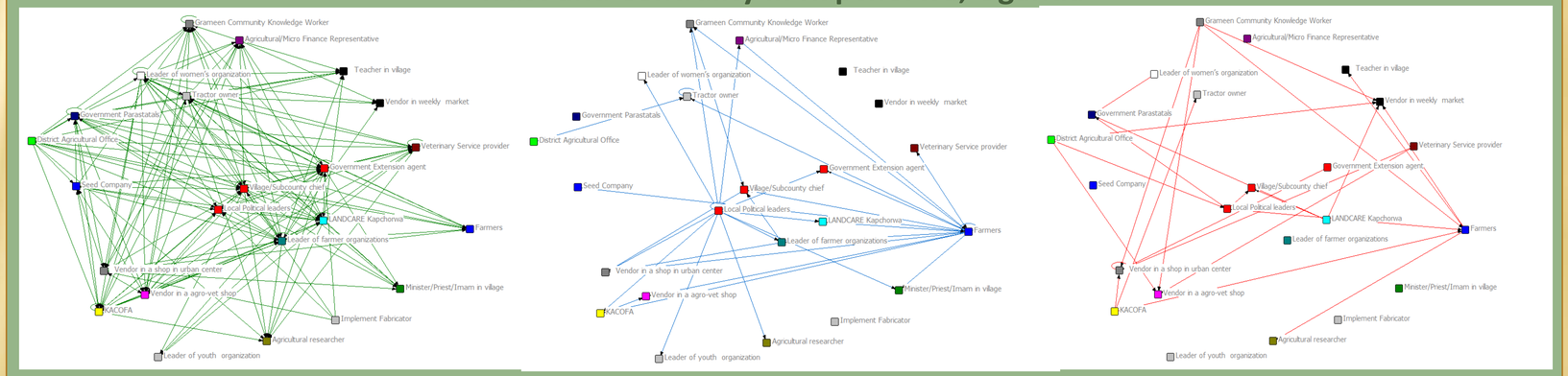
Note: "a" and "b" signify that the associated means are statistically different at the .01 level; "c" and "d" signify that the associated means are statistically different at the .05 level. Composite scores measured on a scale from 1 to 5, with higher scores signifying agreement with the technological frame concept.

Initial finding from Northern Ghana: Men's and women's belief that tillage causes land degradation is significantly correlated with, but not integrated into, their overall agricultural production orientations.

Technology Network Activities in East Africa:

- Technology network data collection in conjunction with LTRA-10 baseline
- Approximately 80 n survey of service sector actors in:
    - Kapchorwa, Uganda
    - Tororo, Uganda
    - Bungoma, Kenya
    - Kitale, Kenya
- Currently developing network maps for publication and sharing with the LTRA 10 team in fall 2011
- Left, Technology Networks GRA Jennifer Lamb interviews a crop insurance representative in Kitale

Trust and Centrality in Kapchorwa, Uganda



1. Always Trusted Relations 2. Mostly Trusted Relations 3. Mistrusted Relations

Initial finding from Kapchorwa, Uganda: Networks in Kapchorwa are dense with high reported levels of trust. Network actors that have the greatest control over information pathways are among the least trusted.