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Perspectives on Development in Arid and Semi-Arid East Africa: Results of a Ranking Exercise

Abstract:

This study investigates perspectives on development held by individuals living in arid and semi-arid areas of northern Kenya and southern Ethiopia. Overall, we find that interventions to meet basic human needs (access to water, health care and education) are the most highly desired. Projects supporting pastoral livelihoods (livestock health and marketing-oriented, restocking and conflict resolution) are second most important, followed by those that support alternatives to pastoralism (cropping, other income generating activities). Econometric analysis indicates that variation in rankings is mostly driven by variation across communities rather than across households within communities, lending support to community-based approaches to priority setting.

I. Introduction

This study seeks to understand the overall priorities expressed by people living in northern Kenya and southern Ethiopia for types of development efforts. Current approaches to development often emphasize the importance of local community participation in decision-making. Stressing local participation follows from a belief that development projects that are defined locally will better meet the needs of intended beneficiaries and potentially place them in more direct control of both the process and the outcomes of the projects (Chambers, 1997; Dongier et al., 2002). This study investigates individuals' development priorities in order to gain a better understanding of how such individual perceptions relate to priorities and projects defined at the community level and beyond.

Our first step was to understand past experience with development projects. Understanding future priorities takes place by first seeking to understand peoples' past experience with and perceptions of the success or failure of previous development projects. It is quite likely that their perceptions of the desirability of future development projects is grounded in both what they have seen implemented in the name of development and how they assess the outcome of these efforts.

Second, we sought to understand how individuals who reside in the communities would prioritize development activities for the future. In authentically community-driven development programming, such priorities should affect both the types of projects that are funded and implemented as well as which development agencies are active in a particular area. Furthermore, knowledge of community-level priorities provides a useful check as to whether donor and government funded development interventions indeed

reflect grassroots desires, as so often claimed. For example, Swallow (2005) shows in a comparison of national-level development priorities with village-level priorities elicited using focus groups in western Kenya, the gulf between stated local priorities and top-down funding allocations can be great.

Third, it is essential to understand the extent to which "the local community" has a homogenous view of development priorities. A growing literature attempts to assess the outcomes of community participation in development.[1] A key concern in much of this literature is that community based approaches may encounter difficulties due to heterogeneity in the community. For example, Mansuri and Rao (2004) note that community-based and -driven projects implemented by the World Bank have not been particularly effective at targeting the poor, which is an important goal for the donor community. Pozzoni and Kumar (2005) also review World Bank community-based and -driven interventions, and find that weaker social groups may be excluded by such interventions.

For this study, we investigate whether heterogeneity in the socio-economic status and experience of individuals within the community leads to conflicting views of local development priorities. While decentralization and the move to participatory methods allows greater local control over development efforts, unless heterogeneity is carefully addressed, the view of "the community" as expressed in group meetings and by local leaders may in fact be the view of local elites who may not accurately represent the broader community (Michner, 1998; Kumar and Corbridge, 2002; Bardhan, 2002; Conning and Kevane, 2002; Platteau and Abraham, 2002; Platteau and Gaspart, 2003; Mansuri and Rao, 2004; Barrett et al., 2007). To the extent that their views are not

representative, a group process or local authorities' declarations may not be the most reliable means of prioritizing development projects in the community. However, it is also possible that there is relative consensus about development priorities in spite of underlying heterogeneity. There has been limited empirical research on development priorities, including in arid and semi-arid areas of Africa, which would allow understanding both the priorities and the extent to which these priorities are shared within a community.[2] This is a curious lacuna given the considerable emphasis donors, governments and nongovernmental organizations (NGOs) have placed on community-based approaches to development in recent years. It would seem essential to know what interventions target populations believe have and have not benefited themselves and their neighbours, what projects are their highest priority for future investments, and what, if any, systematic variation exists between and within communities in such retrospective and prospective assessments. Yet the literature offers precious little that speaks to these issues directly. This paper presents our effort to begin to address this gap.

II. Study Area and Methodology

The research presented here is part of the much larger Pastoral Risk Management (PARIMA) project that conducted intensive research in each of five communities in southern Ethiopia and six communities in northern Kenya. Selection of the study sites occurred after one year of preliminary research that identified the general characteristics of sites throughout the larger study area (Smith et al. 2000; Little et al. 2001). The eleven sites were purposively selected to represent different community characteristics in terms of ethnic majority, market access, and mean rainfall / potential for rainfed cultivation that are broadly representative of the types of

communities found in the PARIMA study area. Basic information on the sites is presented in table 1. A site name corresponds to the administrative unit of a *qebele* in Ethiopia and a location in Kenya. The broader project, survey instruments and data collection methods are described in Barrett et al. (2004).

[insert table 1 here]

The 11 sites range from quite arid areas with minimal agricultural potential and poor market access to semi-arid locations with more diverse agricultural options, better access to markets, or both. Although the arid and semi-arid lands (ASAL) of east Africa seem to many outside observers a relatively homogeneous landscape of peoples and livelihoods, like others who have studied this region (Little et al., 2001, 2006), we find that our sample captures quite a diversity of economic, sociocultural, political and natural environments, as well as institutional histories and experiences with external development partners. This makes it an especially attractive setting for studying variation in subjects' perceptions of past development interventions and their prioritization of future ones.

The names of thirty households in each site were randomly selected from the official list of residents of the area. These households were interviewed with a baseline instrument in March-April 2000, then quarterly from June-July 2000 until June-July 2002. These repeated surveys provide information on household herd sizes, consumption, and activities that we use in this paper. Between these quarterly survey rounds we fielded specialized surveys to further explore specific topics. This paper exploits data from one such module fielded between quarterly rounds in 2001 in Kenya and 2002 in Ethiopia.

As indicated above, we had been conducting socio-economic research in the communities presented in this study for two years or more at the time the development ranking exercise was fielded. While the longer-term survey work focused on household behavioural patterns and well-being dynamics, we were repeatedly asked by development agents how our research might improve development project identification, prioritization and design in the survey area. Feeling that the views of the people we had been interviewing should guide our answers to questions about project prioritization, we decided to use the established sample and set of trained enumerators in residence to approach this question. We thus directly asked those people intended to benefit from project interventions what they thought about priorities for development efforts.

The questionnaire used in the development rankings survey module was developed by first conducting open ended interviews with key informants (usually a grouping of chiefs, elders, women's group presidents, politicians, and schoolteachers). The informants were asked to describe the main types of development interventions that had taken place in the community since Kenyan independence in 1963 or since 1960 in Ethiopia. The specific intervention categories revealed in these discussions were used in the questionnaire fielded among the 310 household heads in the sample.

This process identified 16 distinct categories of development project interventions in these communities in the past: Livestock Health; Livestock Marketing; Water; Human Health and Sanitation; Education and Literacy; Crop Agriculture; Herd Restocking; Natural Resource Management (NRM); Alternative Income Generating Opportunities; Savings and Credit; Improvement of Transport Infrastructure; Improvement of Other Services such as electricity and phones; Wildlife Management; Conflict Resolution and

Security; Institutional Development such as cooperative training or civic education; and Emergency Food Assistance. Individual respondents were also given the option to identify any other type of development project intervention that they felt we had omitted (an option taken by only two respondents). For each category of interventions identified in the survey, a few clarifying examples were offered. For example, in introducing "livestock marketing" interventions, we listed auctions, livestock marketing cooperatives, crisis-period livestock purchasing, and livestock market infrastructure development as examples.

Given the nature of the subject, we were very careful to make sure in the introductory script to the module and in informal meetings in the communities that people understood this was not the first step in our launching of a development project.[3] When asking questions about development interventions, we wanted to be clear that we were not promising that such interventions were forthcoming from us. Rather, we told them we hoped to provide some useful information that could potentially shape future efforts conducted by others.

[Insert table 2 here]

Table 2 presents summary statistics on individual and household characteristics of the household head respondents, by community. Data from the baseline and repeated rounds of the surveys were combined with that from the development rankings module. The age of respondents was asked in the development module, and the average was similar across communities, ranging from 44 to 53. The proportion of households headed by women at the time of the development module varied widely across communities, from only 4% in Qorate to 55% in Logologo.[4] Although the years of formal education

from the respondents were uniformly low, the percentage of households in which any member had received any formal education as reported in the baseline survey varied widely across sites, from 7% to 92%. Household size from the baseline module is roughly comparable across sites. From the repeated surveys we computed a set of household averages over the rounds preceding the development module. We use average herd sizes, recorded in tropical livestock units (TLU)[5], which range widely across the region, from relatively small herds averaging 3.5 TLU in Ngambo to 38.3 in Kargi. Two-week household cash expenditure was reported for a bundle of commodities commonly purchased in this area (reported here in Kenya shillings)[6]. The share of household cash income obtained from salary and the share from livestock sales over a three month period are presented to give a sense of the sources of livelihoods in these communities.

III. Past Experience with Development Projects

We asked each individual to describe in detail any activity that had personally impacted him or her for each of the broad categories of development projects listed above. Figure 1 reports the proportion of respondents who reported that they were personally affected by these different types of development interventions.

[Insert figure 1 here]

Respondents were asked when the activity took place, what type of organization implemented it, and a brief description of how it affected them as an individual. Respondents were asked for up to three separate interventions in each category. For each intervention, we asked which type of agency provided the services: government (GOV), church mission (MIS), non-governmental organization (NGO) [7], or other (OTH) that they

could specify. These categories emerged in survey pre-testing as the categories commonly used in these communities when describing who provided the development intervention. Assignment to a category reflects a person's perception as to who provided a particular development intervention. We did not attempt to verify the accuracy of these perceptions, although we do think an interesting topic for future research would be to investigate how accurately people identify the agency ultimately responsible for funding and / or implementing a development activity in their community.

[insert figure 2 here]

Overall, 55% of interventions were attributed to the Government, 28% to NGOs, 12% to missions, and 5% to other sources. There is notable variation across sites within each country, as illustrated by figure 2. The sites that tend to be best served by Governments are on or near major transport routes (loosely reflected in table 1 by the 'market access' description). Missions are much more prominent in Kenya, largely in the more remote areas. The main contributor to the 'other' category is one community-generated project in Ethiopia.

[insert figure 3 here]

In addition, the identified sources of development aid are strongly related to the types of projects implemented. For example, figure 3 illustrates that wildlife management and the provision of services like electricity and telephones are viewed as entirely government provided.[8] In contrast, an intervention like restocking is viewed as entirely NGO and Mission provided. Different types of organizations appear to specialize in different kinds of projects.

The final question about past projects asked respondents if there had been any development efforts that harmed the community and / or them personally.[9] In the total sample, 18% of respondents said that a project had harmed the community and 8% said that they had been harmed personally as a result of a development intervention. Examples of the reported negative impacts of projects were: fertilizer application rates that were too high and thereby burned plants; people who were given the wrong medicine in health centres; restocked animals that brought diseases; a borehole where impure water poisoned and killed animals; the introduction of *prosopis*, an invasive woody species that has taken over pastures and harmed local livestock economies; and the loss of grazing land to natural resource management projects and wildlife.

IV. Retrospective Development Rankings

Respondents were asked to rank which five past interventions they had experienced had been most helpful in their communities and five which had been most helpful to them personally.[10] Ranks were normalized on a scale from 0 (not ranked) to 1 (ranked as most beneficial).[11] The normalized ranks for community and personal impact are positively and significantly correlated for all intervention types except institutional development and alternative income generation. Food aid exhibits the highest positive correlation between personal and community impact across all types of interventions (ρ=0.69). Paired t-tests of the 310 rankings by type of intervention indicate that the community ranking was significantly higher than the personal ranking for education (t=2.9) and livestock health (t=2.0). For all other types of interventions the community and personal rankings are not significantly different using a paired t-test at the 5% level.

[insert figure 4 here]

Figure 4 presents the mean normalized rankings for past interventions from highest to lowest ranked as perceived by household heads for both community and personal impact. This figure reinforces the message that the ordering of the rankings for the community benefit and the personal benefit are similar. The figure also suggests there are three tiers of rankings. Human health, water, education, livestock health, and food aid rank in what can be thought of as the first tier; livestock marketing, conflict resolution, and cultivation are in the second tier; and the other eight interventions ranked in the lowest tier.

[insert figure 5 here]

Of course, given the nature of the question, the overall rank mixes elements of individuals having no exposure to the intervention (for which a rank of zero is assigned) and low rankings for the perceived benefits (they have experience but give it a low ranking). Figure 5 controls for these different impacts, contrasting the percent of respondents being impacted by an intervention as reported in table 2 with the personal benefit ranking and the community benefit ranking of those who did experience the intervention on a [0,1] scale. The first tier of interventions (water, human health, food aid, education and livestock health) remain clear leading performers in terms of both breadth of exposure and ranking conditional on exposure.

Nonetheless, some types of interventions that are not commonly experienced in the area are ranked relatively highly by the few who did experience them. In particular, livestock marketing, wildlife management, and alternative income generation are accorded personal benefit rankings in the same range as water and education by the

relatively small group who has experienced these interventions (although this last category should be viewed with caution given the extremely small group of three respondents who had past experience with alternative income generation). In contrast, transport improvement, natural resource management, and services such as electricity and phones are accorded low scores for personal benefit. In terms of ranking for the benefits to the community, livestock marketing's rank compares well with the top categories ranked, and transport improvement, natural resource management, and alternative income generation are assigned relatively low scores.

V. Prospective Development Rankings

We next asked respondents to look to the future in a further ranking exercise of prospective interventions. We asked them to rank all 16 categories of interventions in terms of which offer the greatest potential to improve their own lives and those of the people in their community. If they felt a given intervention had no potential to offer benefits, the item is given a zero score. In this exercise, households were allowed to rank as many items as they desired. The average household ranked 12 out of the 16 categories for both personal and community benefit. (In this case, four would have been assigned a value of zero.) Ranks are again normalized by the total number of categories ranked and placed on a [0,1] scale. These are displayed in Figure 6.

[insert figure 6 here]

The rankings for potential benefit at the community and personal levels are positively and significantly correlated, ranging from a high of $\rho=0.79$ for food aid to a low of $\rho=0.35$ for livestock health. There is no statistically significant difference for the

community and the personal rankings for any intervention except food aid, where benefits to the community are ranked significantly higher than benefits to the individual (t=1.96).

[insert figure 7 here]

Figure 7 contrasts the coefficient of variation (the standard deviation divided by the mean) and the mean ranking for the different priorities according to the benefits expected at community level. This figure illustrates that higher ranked projects tend to have less variation about them, i.e., there is relatively broad agreement as to what interventions offer the greatest expected benefits to the community: human and livestock health, water and education. With only a few minor exceptions, there is a strong inverse relationship between the mean ranking and the relative dispersion around this mean as captured by the coefficient of variation. Thus every type of project has its champion(s), but the core around which there is widespread agreement is small and nearly universal across these quite heterogeneous sites in both countries.

VI. Comparing Past Experience with Perceived Prospective Benefits

Table 3 compares the breadth of past experience with interventions, the ranking of impact of past interventions, and the ranking of prospective impacts of the same types of interventions. These are ordered in the table following the latter ranking. The key message of Table 3 is that the highest development priorities in these pastoral areas are in no way driven by the agroecology and associated livestock-based primary livelihood of these systems. Rather, the highest priorities revolve around meeting basic human needs like access to water and health care. These are the interventions that residents say most

benefited them and their communities in the past and are their highest priorities for the future. Education is seen as the fourth highest priority for the future and is the fifth most commonly experienced and fifth most helpful in the past. There remains unmet need in these areas as well as a solid track record of past performance.

[insert table 3]

A second group of largely livestock-related topics follows these basic human needs interventions. Livestock health projects are ranked third across all three measures. Efforts to improve livestock marketing and herd restocking are accorded a higher ranking for potential benefits in the future than specific past interventions were given. Following the basic human needs identified above, support to the livestock economy that is the region's backbone comes in as a second priority. Conflict resolution also falls in this second group. To the extent that conflict resolution is particularly critical to pastoral production (Haro et al., 2005), it fits well with the other livestock interventions, although conflict resolution and security are critical to human health and safety and to broader development ventures as well.

Non-livestock related income generation activities are roughly the third group in table 3. Cultivation is the sixth highest ranked item for future potential and alternative income generation is in tenth place. Non-livestock based activities are identified as having a role to play, although it would appear that people place lower priority on these types of interventions than on traditional, livestock-oriented livelihood support and on meeting basic human needs related to health, water and education.

The types of intervention in the lower part of the table are relatively consistent across ranking exercises. These also tend to be areas where people have very little

experience, so it could be that they are given low rankings since respondents do not have a good sense of the potential benefits. If this is the case, then development agencies attempting these types of activity should plan an initial period of extension to explain why the proposed program is beneficial. However, it may also be the case that people have enough experience with such efforts to have doubts about their relative benefits. For example, since over a quarter of the respondents reported experience with natural resource management or wildlife management interventions, there is reason to think that they have some substantive basis to formulate their evaluation that these have been relatively less helpful than other types of interventions and offer lower prospects for future benefits.

There are some notable changes between the rankings of the benefits of past interventions and the potential benefits of projects in the future. Although alternative income projects that had been carried out impacted very few people and were ranked low, the ranking for the potential of these projects is six places higher. Livestock marketing, cultivation, and restocking interventions are also judged more beneficial in the future than they were ranked in the past, with each moving up two places. Notable decreases in rankings of those for past experience to future potential include food aid, moving down five places, transport improvement declining four places, and wildlife management falling two places. Food aid and transport improvement were experienced relatively widely in the past yet ranked low as having potential future benefits. Follow-up questions revealed that respondents felt that if other priority needs were met, there would be less need for food aid in the future. People anticipate that food aid will have a future benefit to the community as it remains in the middle rankings, but it moves out of the top five. The

transport improvement may reflect the fact that much of the experience with transport improvement was related to food for work interventions that did not lead to long lasting changes to the transport infrastructure and the fact that only one household in the whole sample owns a vehicle.

This discussion of rankings of potential future benefits has focused on the unconditional means of the sample of 310 household heads. However, given the heterogeneity of household and individual characteristics across and within sites, it might be important to go beyond these means. Recall that Figure 7 suggests there is considerable variation about the means in some cases.

[insert table 4]

One important source of this variability is differences across the sites. Table 4 presents the top five interventions by site, ranked according to their expected future benefits to the community. The variation across sites is clearly evident. Four of the 11 communities ranked education as the intervention that would benefit their community the most in the future, while 4 ranked water highest. Human health and livestock health-related efforts also show up high in the rankings for most communities. But in some places herd restocking is high, in others it is conflict resolution, in still others cultivation of savings and credit initiatives. The unconditional means plainly mask lots of variation.

Why such variation in rankings across sites? Is it purely due to geographic differences? Is there also much intra-site variation? If most variation is geographic, then this supports the hypothesis that community-based project identification and prioritization may be effective in development programming in this region. If, on the other hand, variation is mainly due to the heterogeneous characteristics of people living

in the sites (table 2), with much intra-site variation among households as well, then there may be little agreement within a community as to what past interventions have proved effective and what prospective interventions are the highest priority.

In order to investigate this issue, we apply multivariate regression methods to the development rankings, using information on respondent-specific characteristics as well as site dummy variables as explanatory variables. Given the nature of the data, we use a doubly censored estimation, a tobit with lower and upper bounds at 0 and 1, respectively. Tables 5 and 6 present estimation results for each of the items ranked in the top five overall for potential future benefits to the community.[12]

[insert tables 5 and 6]

With a few exceptions, the results suggest that individual and household characteristics are not very influential in determining development rankings. The only impact of gender is that female household heads rank human health interventions as having a lower potential future impact for the community. We find this counterintuitive result puzzling and cannot explain it. Households with larger herds and with lower expenditures anticipate greater community benefits from health care. Those more reliant on salary income rank water and education lower, likely reflecting their superior access to such (generally town-based) services. These results merit further investigation in other contexts, as those with greater salary income are also more likely to be local elites and thus key points of contact for development agencies.

One of the most important findings of tables 5 and 6 is that the community-specific dummy variables account for most of the variation in how the different interventions are viewed. There are statistically significant differences across sites for all

of the development interventions. These site dummies are jointly overwhelmingly significant, while household and individual characteristics are jointly statistically insignificant in explaining rankings of most prospective development interventions (Table 6). Overall, these results suggest that community level definitions of development priorities which pay some attention to differences across households within the community could arrive at a reasonable approximation of community members' priorities.

VII. Evidence on Development Priorities by Development Agencies

To what extent are development agencies honouring the priorities expressed by the residents of these arid and semi-arid communities? We investigate spending patterns by two development agents in Kenya to compare their development priorities with those of the communities.

The Government of Kenya's policy, as stated in their draft National Policy for the Sustainable Development of Arid and Semi-Arid areas of Kenya (2004), is notable in explicitly recognizing that past efforts have been inadequate and calling for a renewed commitment to development in the arid and semi-arid lands (ASAL) of Kenya. This document committed the government to spend 217 billion Kenyan shillings, 10% of its annual revenue, on ASAL development over the following ten years.

A second development agent is the World Bank-financed Arid Lands Resource Management Project (ALRMP), based in of Kenya's Office of the President. A recent World Bank (2003) project appraisal document describes the second phase of the ALRMP. Over the seven years of the second phase, US$38.9 million will be spent on

natural resource and disaster management; US$24.2 million on community-driven development; and US$14.8 million on support to local development. The funds for community-driven development are partially spent on holding a participatory integrated community development processes in each community that lasts for two weeks. This process is used to identify development needs and provide training of the community development committees that manage these projects. We obtained reports that describe level of 2003-2006 funding for each project defined as a result of this process(ALRMP-Marsabit, 2005a; ALRMP-Marsabit, 2005b; ALMRP-Samburu 2006) for Samburu and Marsabit Districts, where both ALRMP operates and we had study sites.

[insert table 7]

Table 7 contrasts the priorities as revealed by the funding patterns of the Government of Kenya's strategy, the ALRMP funding allocations to different types of projects, and the results of the development ranking exercise for the Kenya sub-sample. The Government of Kenya's strategy does not match closely the development rankings expressed by respondents in the communities surveyed. The majority of funds are to be spent on public infrastructure, which was not highly ranked by survey respondents. Far behind public infrastructure, the remaining funds for water, human health, and education are only 6-8 percent of the overall budget each. This is hardly consistent with these communities' clear emphasis on basic human needs.

The ALRMP rankings come much closer to those elicited within these communities by our surveys, most notably in the domain of supporting education. But relative to survey-based measures of pastoral populations' preferences, ALRMP appears to overemphasize education, herd restocking and alternative income generation and to

underemphasize human health and water development. The community-driven approach followed by ALRMP appears relatively better than the Government's regular strategic and budgetary planning in identifying high priority interventions that coincide with those expressed by intended beneficiary populations. However, it is worth noting that the cost of running the participatory integrated community development meetings and the training of the community development committees together accounted for 21% of total project expenditures. Community participation in development has benefits, but these also clearly come at a cost.

VIII. Conclusion

Decentralization and community participation are currently major themes in development policy. Yet there is scant systematic evidence on individuals' assessment of the relative performance of different development interventions nor of prioritization among alternative prospective projects. This paper presents novel evidence on these assessments by residents in arid and semi-arid areas of northern Kenya and southern Ethiopia.

The clear and striking outcome from the analysis of the survey data is that basic human needs interventions in human health and water are the most highly regarded past interventions and the most desired future projects, nearly universally. Education and livestock health projects are also highly ranked, both retrospectively and prospectively. Indeed, rankings of past project performance and future desirability are roughly consistent, suggesting that respondents either prioritize projects based on assessed past

performance, that there remains considerable unmet demand for services that have proved especially successful in the past, or both.

Projects that advance alternative livelihoods to pastoralism receive significantly less support than either basic human needs or pastoral livelihood support interventions. Combined with the strong correlation between rankings of past interventions and prioritization of future projects, the empirical evidence suggests that the natural tendency of donors and development agencies to want to innovate may be somewhat misplaced in this setting. These results should temper development agencies' common instincts to focus interventions on supporting specific, often non-traditional livelihoods rather than on familiar, direct improvements to living conditions based on improved health, education and water services delivery.

Econometric analysis indicates that variation in respondents' rankings is mostly between communities rather than across households within communities. Household and individual characteristics explain very little variation in either retrospective or prospective development rankings. This strong finding lends support to community-based approaches to priority setting in this area, as within-community differences appear modest. However, we would caution that while we find there is generally agreement about the priority interventions, we do not have information on whether there is broad agreement on how a given intervention should be designed or implemented. It could be that heterogeneity poses significant problems for project design and implementation rather than identifying project thematic focus, a topic we wish to identify as meriting further investigation.

The priorities of the communities as represented in these mean rankings and the current allocation of funds by the Government of Kenya's plan are not easy to reconcile. Locating the origin of this divergence is yet another topic meriting further research. It is possible that the infrastructural emphasis seen in the Government of Kenya funding allocations is justifiably viewed by policy makers as a precondition for the other types of development investments. The community driven development results of the Arid Lands project do seem to match rather well the survey findings. It would seem that this effort has been largely successful in identifying the types of interventions that reflect community priorities, at least as reflected in our survey results.

In closing, we would stress that our findings are a result of asking people at a given point in time in select communities about their priorities amongst a list of possible project categories and investigating their responses. It is possible that there are types of interventions that do not get highly ranked or even placed on the list because people have little experience on which to base their evaluation. It may be that the benefits of certain larger scale efforts, like infrastructure, are not well understood by people in the communities. It may be that priority setting at community meetings leads to different outcomes due to the process of deliberation, which differs from averaging across individual responses as done here. That said, any development effort in these areas will take place in the context of the perceptions we outline in this study and should thus be aware of the broad patterns that exist. And while we do realize there may be limits to peoples' understanding of the potential benefits of different types of projects due to lack of information or understanding of the potential impacts, we also suggest it probably

makes some sense to listen closely to what people in these communities identify as having the potential to have the greatest impact on improving their well being.

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Table 1: Site Descriptions

Site Name	Market Access	Ethnic Majority	Agricultural Potential	Annual Rainfall (mm/year)
Kenya				
Dirib Gumbo	Medium	Boran	High	650
Kargi	Low	Rendille	Low	200
Logologo	Medium	Ariaal	Medium-Low	250
Ng'ambo	High	Il Chamus	High	650
North Horr	Low	Gabra	Low	150
Sugata Marmar	High	Samburu	Medium	500
Ethiopia				
Dida Hara	Medium	Boran	Medium	500
Dillo	Low	Boran	Low	400
Finchawa	High	Guji	High	650
Qorate	Low	Boran	Low	450
Wachille	Medium	Boran	Medium	550

Table 2: Respondent and household characteristics by site

	N	Age of HH Head	Current Female HH Head (1=yes)	HH Head years educ.	HH any formal educ.	HH size (no.)	Ave. TLUs	Ave. 2 Week Expend. (KShs)	Ave. Salary Share of Income	Ave. Livestock sale share of income
Ethiopia										
Dida Hara	30	53	23%	0.1	33%	5.7	17.6	796	0%	53%
Dillo	30	47	27%	0.6	13%	6.8	12.2	419	2%	49%
Finchawa	29	52	34%	0.2	52%	10.2	11.0	1794	0%	65%
Qorate	28	53	4%	0.2	7%	7.3	14.0	409	0%	53%
Wachille	30	48	43%	0.1	13%	13.1	9.7	1034	0%	46%
Kenya										
Dirib Gumbo	29	49	28%	0.6	86%	6.1	4.9	563	11%	24%
Kargi	26	48	42%	0.6	42%	4.9	38.3	399	7%	37%
Logologo	29	48	55%	0.9	66%	6.4	12.2	1251	33%	19%
Ng'ambo	26	44	35%	2.5	92%	6.7	3.5	1530	23%	19%
North Horr	26	49	20%	0.0	44%	5.4	20.6	521	7%	35%
Sugata Marmar	27	46	36%	1.1	54%	6.8	18.9	1131	8%	25%
Source	*Development Ranking Survey*			*Baseline Survey*			*Repeated Survey*			

Table 3: Contrasting Rankings

	Past Experience	Past rank Community	Future Rank Community
Human Health	2	2	1
Water	4	1	2
Livestock Health	3	3	3
Education	5	5	4
Livestock Marketing	9	7	5
Cultivation	10	8	6
Conflict Resolution	7	6	7
Restocking	11	10	8
Food Aid	1	4	9
Alternative income	16	16	10
NRM	8	11	11
Savings and Credit	14	12	12
Transport Improvement	6	9	13
Other Services (Elec. / Phone)	13	14	14
Wildlife Management	12	13	15
Institutional Development	15	15	16

Table 4: Top Five Ranked Future Benefits to Community by Site

	First ranked	Second Ranked	Third Ranked	Fourth Ranked	Fifth Ranked
Dida Hara	Water	Conflict Resolution	Education	Livestock Health	Human Health
Dillo	Education	Water	Restocking	Alternative Income	Livestock Marketing
Finchawa	Education	Livestock Health	Human Health	Water	Savings and Credit
Qorate	Education	Institutional Development	Human Health	Livestock Marketing	Food Aid
Wachile	Water	Livestock Health	Human Health	Savings and Credit	Livestock Marketing
Dirib Gumbo	Water	Human Health	Livestock Health	Education	Cultivation
Kargi	Human Health	Water	Livestock Health	Conflict Resolution	Food Aid
Logologo	Water	Food Aid	Human Health	Conflict Resolution	Education
Ngambo	Livestock Health	Water	Education	Cultivation	Human Health
North Horr	Livestock Marketing	Livestock Health	Human Health	Education	Food Aid
Sugata Marmar	Education	Human Health	Livestock Health	Water	Livestock Marketing

Table 5: Regression Results of Ranking of Future Interventions for the Community
(Doubly censored tobit estimator)

	Human Health	Water	Education	Livestock Health	Livestock Marketing
Dida Hara	0.5805 ***	0.5930 **	0.7769 ***	0.2302	0.0975
	(0.1643)	(0.2415)	(0.1989)	(0.1630)	(0.1996)
Dillo	0.6616 ***	0.5498 **	0.9690 ***	0.3276 **	0.4302 **
	(0.1676)	(0.2451)	(0.2032)	(0.1666)	(0.2037)
Finchawa	1.0105 ***	0.3291	1.1531 ***	0.6391 ***	0.2515
	(0.1658)	(0.2422)	(0.2037)	(0.1648)	(0.2014)
Qorate	0.5622 ***	-0.3145	0.9132 ***	-0.3449 **	-0.0031
	(0.1636)	(0.2440)	(0.1973)	(0.1662)	(0.1990)
Wachille	0.9910 ***	0.8765 ***	0.7070 ***	0.5543 ***	0.5954 ***
	(0.1638)	(0.2417)	(0.1971)	(0.1620)	(0.1983)
Dirib Gumbo	0.8391 ***	0.8692 ***	0.7683 ***	0.4490 ***	0.2847
	(0.1639)	(0.2439)	(0.1982)	(0.1625)	(0.1992)
Kargi	1.0173 ***	0.5012 **	0.4252 **	0.4372 ***	0.2193
	(0.1655)	(0.2395)	(0.1978)	(0.1625)	(0.1991)
Logologo	0.8609 ***	0.7825 ***	0.8004 ***	0.3338 **	0.4029 **
	(0.1625)	(0.2395)	(0.1962)	(0.1608)	(0.1969)
Ng'ambo	0.6329 ***	0.5301 **	0.7595 ***	0.4044 **	0.1783
	(0.1677)	(0.2461)	(0.2029)	(0.1661)	(0.2045)
North Horr	0.9986 ***	0.2899	0.8264 ***	0.6013 ***	0.6772 ***
	(0.1639)	(0.2373)	(0.1959)	(0.1609)	(0.1980)
Sugata Marmar	0.8342 ***	0.3322	0.8542 ***	0.3446 **	0.3896 **
	(0.1611)	(0.2355)	(0.1950)	(0.1597)	(0.1955)
TLU Herd Size ($x10^{-1}$)	0.0152 ***	0.0077	0.0045	-0.0020	0.0062
	(0.0058)	(0.0083)	(0.0068)	(0.0056)	(0.0068)
2 week expend.($x10^{-3}$)	-0.0340 *	0.0145	-0.0320	0.0169	-0.0104
	(0.0195)	(0.0293)	(0.0233)	(0.0199)	(0.0236)
Salary % income	0.0264	-0.2196 **	-0.1880 **	0.0791	-0.0385
	(0.0699)	(0.1002)	(0.0801)	(0.0677)	(0.0852)
Livestock % income	-0.0906 **	0.0711	-0.0121	-0.0122	0.0747
	(0.0440)	(0.0661)	(0.0532)	(0.0455)	(0.0543)
Household size	-0.0046	0.0027	-0.0017	0.0053	-0.0135 **
	(0.0044)	(0.0067)	(0.0053)	(0.0044)	(0.0054)
Formal ed. Any member	-0.0235	0.0296	0.0253	-0.0126	0.0145
	(0.0327)	(0.0474)	(0.0385)	(0.0323)	(0.0394)
Female indiv.	-0.0803 ***	0.0071	-0.0386	0.0209	-0.0125
	(0.0304)	(0.0449)	(0.0360)	(0.0302)	(0.0371)
Age ($x10^{-2}$)	0.1591	0.7827	0.1393	1.0847 *	1.2068
	(0.6331)	(0.9323)	(0.7633)	(0.6268)	(0.7669)
Age2($x10^{-4}$)	-0.1394	-0.5940	-0.1843	-1.0379 *	-1.1060
	(0.6152)	(0.9136)	(0.7381)	(0.6092)	(0.7448)
Education level indiv.	0.0008	-0.0029	-0.0142	0.0033	-0.0090
	(0.0077)	(0.0111)	(0.0091)	(0.0076)	(0.0095)
Disturbance Standard Dev.	0.2240 ***	0.3137 ***	0.2611 ***	0.2220 ***	0.2754 ***
	(0.0101)	(0.0174)	(0.0128)	(0.0104)	(0.0125)
Pseudo R^2 (Decomp.)[13]	0.52	0.57	0.52	0.49	0.46

***, **, * indicate statistical significance at the 1%, 5% and 10% levels, respectively.
Standard errors in parentheses.

Table 6: Joint significance (Wald) test statistics: Community Future Ranking

(p-values)	Site dummies	HH characteristics	Individual characteristics
Human health	.000 ***	.051 *	.119
Water	.000 ***	.119	.674
Education	.000 ***	.234	.463
Livestock health	.000 ***	.680	.510
Livestock marketing	.000 ***	.161	.337
Conflict resolution	.000 ***	.093 *	.187
Restocking	.000 ***	.760	.466
Food aid	.000 ***	.388	.523
Cultivation	.000 ***	.184	.274
Alternative income	.000 ***	.091 *	.277
Savings /credit	.000 ***	.187	.241
Transport imp.	.000 ***	.166	.598
NRM	.002 ***	.122	.831
Institutional dev	.000 ***	.005 ***	.573
Other services	.000 ***	.074 *	.304
Wildlife management	.000 ***	.169	.094 *

***, **, * indicate statistical significance at the 1%, 5% and 10% levels, respectively.
Site dummies are for all 11 sites.
Household variables: expenditure, income share from salary, income share from livestock sales, household size, any member with formal education , herd size (TLU).
Individual variables: female, age, age squared, education of individual.

Table 7: Contrasting Priorities

Priority	Development Rankings	Government of Kenya : funding allocation	ALRMP : funding allocation
1	Human Health	Public Infrastructure (roads, electricity, solar, telephone): 57%	Education: 53%
2	Water	Water: 8%	Restocking: 16%
3	Livestock Health	Human Health: 8%	Alternative Income Generation: 11%
4	Education	Livestock and Fisheries development: 8%	Health and Sanitation: 9.6%
5	Livestock Marketing	Education: 6%	Water: 4%
6	Conflict Resolution	Tourism, Trade and Industry: 4%	Cultivation: 4%
7	Restocking	Human Resource Development: 2%	Housing for the poor: 1%
8	Cultivation	Mixed farming: 3%	Natural Resource Management: <1%
9	Food Aid	Conflict and Disaster Management: 3%	Food Aid: <1%
10	Alternative income Generation		Veterinary: <1%

Figure 1: Percent of Respondents Personally Effected by Past Activities

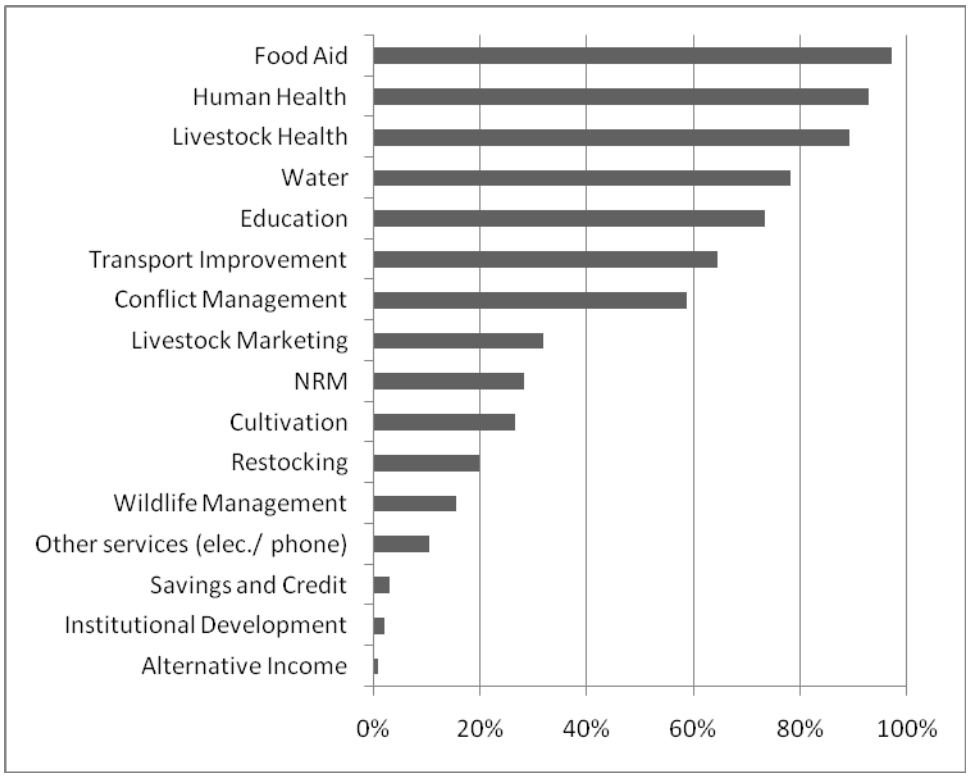
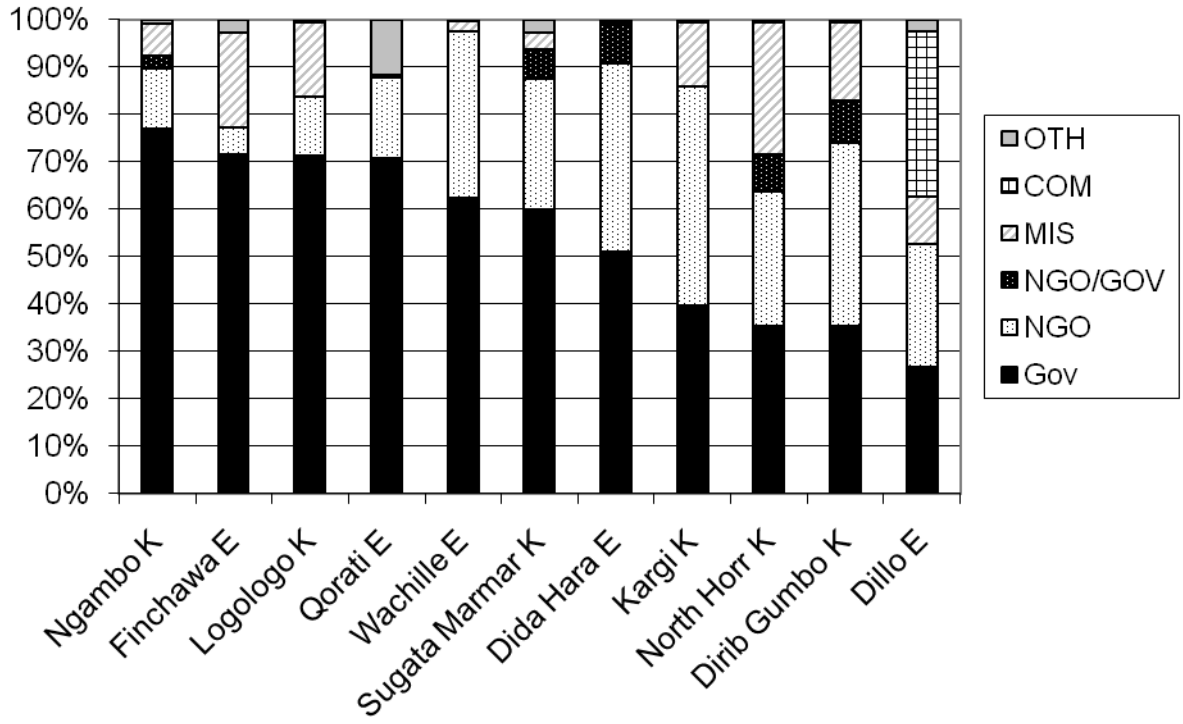


Figure 2: Reported Sources of Past Development Interventions by Site



K means Kenya, E means Ethiopia

Figure 3: Reported Sources of Past Development Intervention by Type

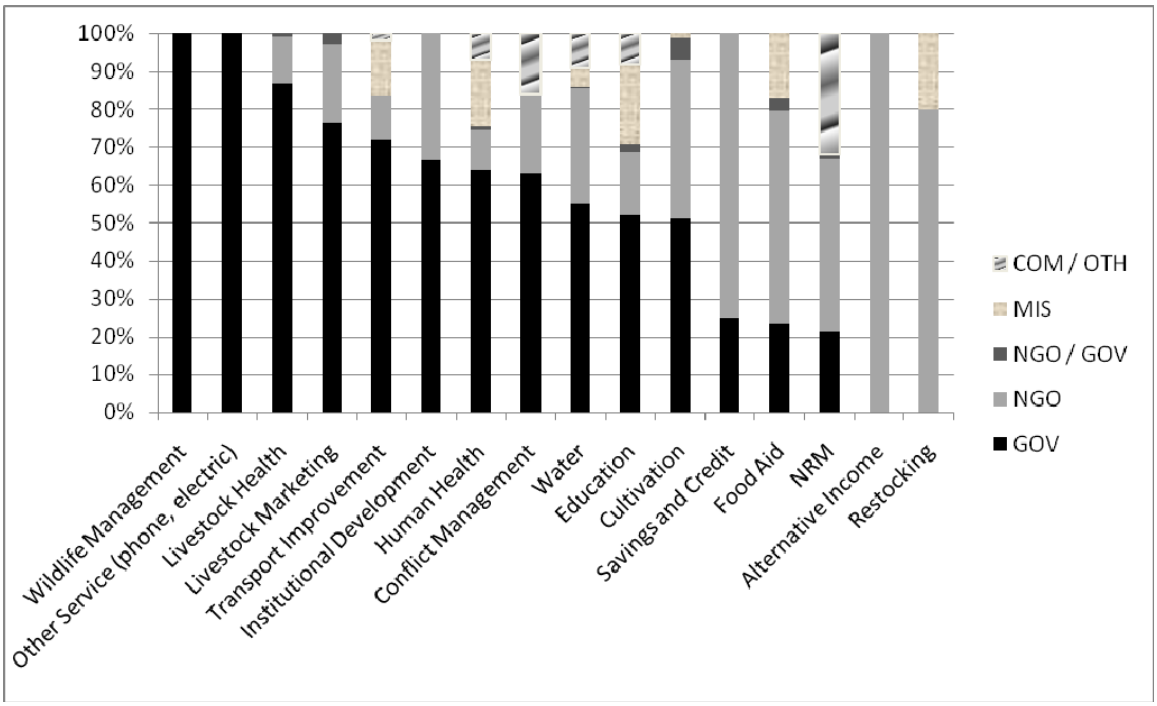


Figure 4: Overall Community and Personal Ranking of Past Interventions

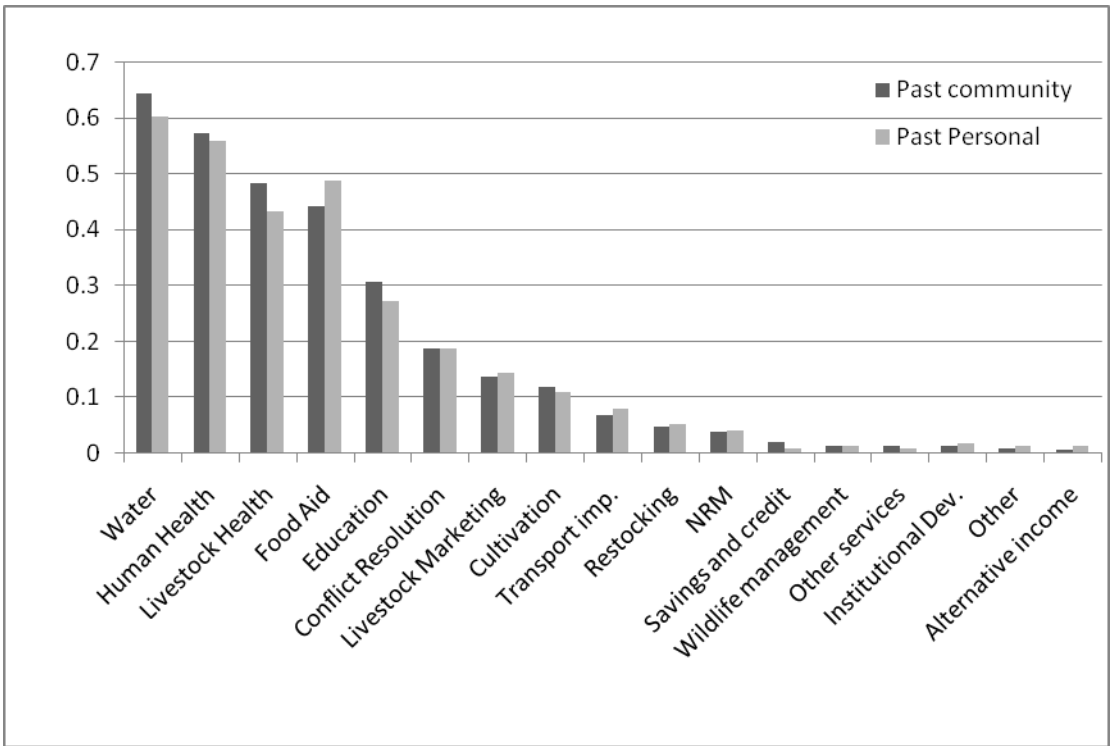


Figure 5: Ranking for Those Having Experience with Past Interventions

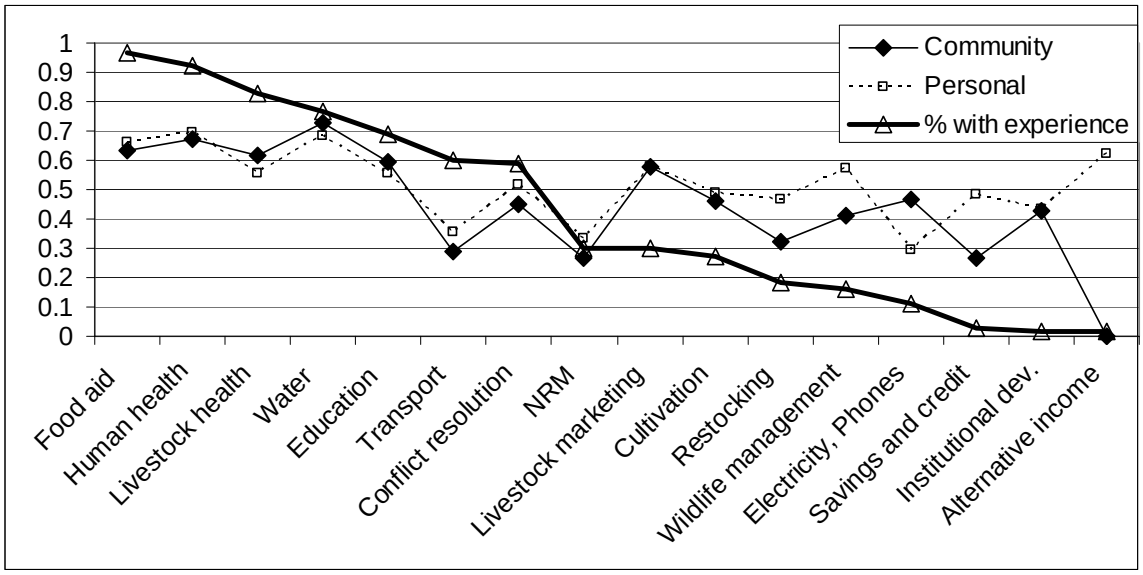


Figure 6: Overall Community and Personal Ranking for Future Interventions

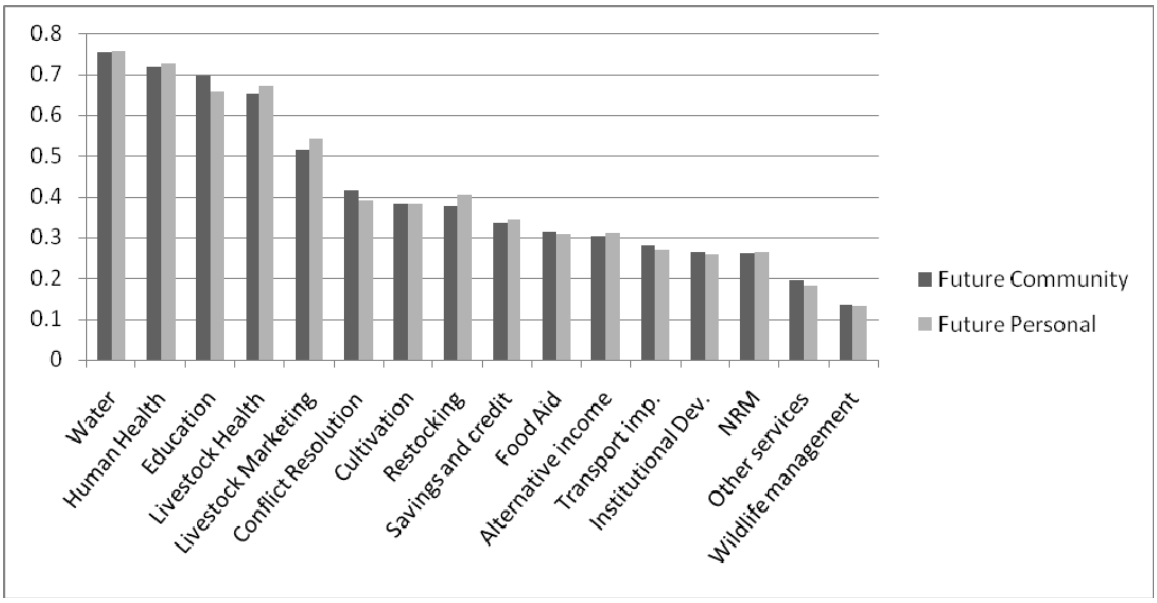
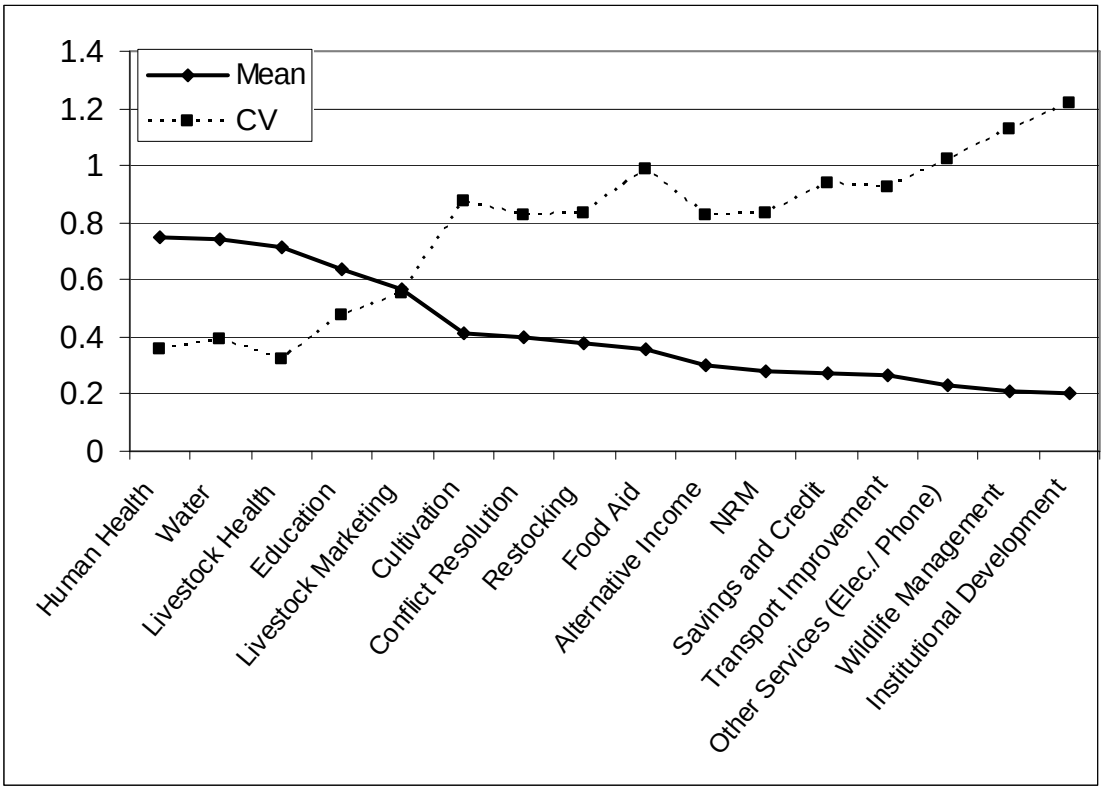


Figure 7: Mean and Relative Variation Future Community Ranking



Endnotes

[1] A sense of the diversity of research on this topic is found by considering the bibliography assembled by Andreassen and Mikkelsen (2003).

[2] A notable exception is presented by Swift and Umar (1994), where priorities in Isiolo, Kenya are found to vary depending on herder wealth.

[3] As the same project enumerators who conducted the interviews had been visiting these households with multiple surveys and multiple rounds of a survey for over a year at the time this survey was conducted, we felt some confidence that households understood this was a research effort.

[4] This mixes temporary with permanently female headed households. A female was viewed as the head if she was answering on behalf of the household if the husband was absent during the period. When we investigated the reasons for a female becoming head, death of the husband was the most common reason, perhaps not surprisingly, as there tends to be a significant age difference between husband and wife at the time of marriage. Divorce and separation were the next most frequent reason, followed by abandonment. Temporary head status was often due to the husband being away for permanent employment or being away at a livestock camp far from the town where the family resides.

[5] One TLU = 1 head of cattle = 0.7 camels = 10 sheep = 11 goats following the definitions of the Range Management Handbook of Kenya.

[6] One Ethiopian Birr was worth approximately 8 Kenyan shillings at the time of the study and this rate was used for the conversion.

[7] As interpreted here, NGO is an imprecisely used term that captures a broad spectrum of funding agencies: large international donors (WFP, World Bank, UNESCO), bilateral aid (GTZ), international NGOs (CARE), and local NGOs (FARM-Africa, PISP).

[8] With regards to telephones, that was true at the time of the survey, but no longer given the rapid spread of cellular telephone service in the region.

[9] Some respondents identified a lack of development efforts, or flaws in development efforts in their answer to this question. These responses were recorded in the data set, but are treated differently so that only those that describe an effort that harmed the community or person in some way are reported here.

[10] Most respondents (83%) ranked five for both personal and community benefit. Seven percent ranked five for one category and four for the other. Six percent ranked four for both personal and community, with the remaining four percent ranking less than four for both categories.

[11] Normalization is conducted using the formula: $rank_n = \left(1 - \left(\frac{rank - 1}{\max\ rank}\right)\right)$, where rank is the rank order on the survey, and max rank is the rank order of the highest item ranked by a respondent.

[12] The results are similar for lower ranked items and for personal benefit. Those results are available upon request.

[13] Calculated as (variation in the predicted mean/(variation of predicted mean + residual variation)).