重大理论正在倡导转向多元农业推广模式，其中公共和私营部门，包括非政府组织（NGOs），组成合作组织提供推广服务（Anderson & Crowder, 2000）。随着政府在东非的财政支持减少，公共部门不可能提供所有必要的支持和服务。NGOs在这一领域具有巨大的潜力；事实上，它们已经在扮演至关重要的作用，特别是在半干旱地区（Hargrave, 1999）。本文探讨了非政府组织在东非半干旱地区的推广作用。其中包括“技术转移”模式与NGO偏好的“农民第一”模式的比较。非政府组织的优缺点也进行了研究。

背景

半干旱东非有许多与农业生产相关的问题。有许多限制生产食物的因素，特别是在高潜力区域，各种技术已经显著地提高了食物生产。贫瘠的土壤、低频不稳定的降雨和害虫灾害都在一定程度上使在半干旱地区农业耕作变得困难。此外，资源是有限的。许多半干旱地区远离市场和信用等服务，以及基础设施不足。半干旱地区被进一步特征为成年妇女和儿童的营养不良（McMillan & Sanders, 2001）。战乱，不幸的是这种生活在半干旱地区的人口以及与作物周期的冲突（Greijn, 2000）。半干旱地区的人口增长特性非洲也在干区发生，导致了环境退化和加剧了这些地区的问题（Sanders et al., 1996)。结构调整项目（IMF和世界银行）也减少了公共部门的投资。结果是国家服务无法满足农民的需求，导致寻找其他潜在的参与者，与私营部门

研究和扩展的不良记录也导致政策制定者对这些地区的兴趣降低。一个策略是通过研究和扩展在半干旱地区发展新品种。这些技术的扩散在半干旱地区并没有得到成功，因为新品种并没有显著提高产量（Sanders et al., 1996; p. 29）。进一步复杂化的问题是早期扩展模式和最近由世界银行设立的培训和访问（T&V）模式的失败。这些模式在半干旱地区并没有成功，因为新品种并没有显著提高产量（Sanders et al., 1996; Gautam, 2000）。结构调整计划在实施时，由国际货币基金组织和世界银行也帮助解决这个问题通过减少投资公共部门。研究和扩展的记录部分也被政策制定者转向这些地区。一个策略是通过研究和扩展在半干旱地区发展新品种。这些技术的扩散在半干旱地区并没有得到成功，因为新品种并没有显著提高产量（Sanders et al., 1996; Gautam, 2000）。结构调整计划在实施时，由国际货币基金组织和世界银行也帮助解决这个问题通过减少投资公共部门。研究和扩展的记录部分也被政策制定者转向这些地区。一个策略是通过研究和扩展在半干旱地区发展新品种。这些技术的扩散在半干旱地区并没有得到成功，因为新品种并没有显著提高产量（Sanders et al., 1996; Gautam, 2000）。结构调整计划在实施时，由国际货币基金组织和世界银行也帮助解决这个问题通过减少投资公共部门。研究和扩展的记录部分也被政策制定者转向这些地区。一个策略是通过研究和扩展在半干旱地区发展新品种。这些技术的扩散在半干旱地区并没有得到成功，因为新品种并没有显著提高产量（Sanders et al., 1996; Gautam, 2000）。结构调整计划在实施时，由国际货币基金组织和世界银行也帮助解决这个问题通过减少投资公共部门。研究和扩展的记录部分也被政策制定者转向这些地区。一个策略是通过研究和扩展在半干旱地区发展新品种。这些技术的扩散在半干旱地区并没有得到成功，因为新品种并没有显著提高产量（Sanders et al., 1996; Gautam, 2000）。结构调整计划在实施时，由国际货币基金组织和世界银行也帮助解决这个问题通过减少投资公共部门。研究和扩展的记录部分也被政策制定者转向这些地区。一个策略是通过研究和扩展在半干旱地区发展新品种。这些技术的扩散在半干旱地区并没有得到成功，因为新品种并没有显著提高产量（Sanders et al., 1996; Gautam, 2000）。结构调整计划在实施时，由国际货币基金组织和世界银行也帮助解决这个问题通过减少投资公共部门。研究和扩展的记录部分也被政策制定者转向这些地区。一个策略是通过研究和扩展在半干旱地区发展新品种。这些技术的扩散在半干旱地区并没有得到成功，因为新品种并没有显著提高产量（Sanders et al., 1996; Gautam, 2000）。结构调整计划在实施时，由国际货币基金组织和世界银行也帮助解决这个问题通过减少投资公共部门。研究和扩展的记录部分也被政策制定者转向这些地区。一个策略是通过研究和扩展在半干旱地区发展新品种。这些技术的扩散在半干旱地区并没有得到成功，因为新品种并没有显著提高产量（Sanders et al., 1996; Gautam, 2000）。结构调整计划在实施时，由国际货币基金组织和世界银行也帮助解决这个问题通过减少投资公共部门。研究和扩展的记录部分也被政策制定者转向这些地区。一个策略是通过研究和扩展在半干旱地区发展新品种。这些技术的扩散在半干旱地区并没有得到成功，因为新品种并没有显著提高产量（Sanders et al., 1996; Gautam, 2000）。结构调整计划在实施时，由国际货币基金组织和世界银行也帮助解决这个问题通过减少投资公共部门。研究和扩展的记录部分也被政策制定者转向这些地区。一个策略是通过研究和扩展在半干旱地区发展新品种。这些技术的扩散在半干旱地区并没有得到成功，因为新品种并没有显著提高产量（Sanders et al., 1996; Gautam, 2000）。结构调整计划在实施时，由国际货币基金组织和世界银行也帮助解决这个问题通过减少投资公共部门。研究和扩展的记录部分也被政策制定者转向这些地区。一个策略是通过研究和扩展在半干旱地区发展新品种。这些技术的扩散在半干旱地区并没有得到成功，因为新品种并没有显著提高产量（Sanders et al., 1996; Gautam, 2000）。结构调整计划在实施时，由国际货币基金组织和世界银行也帮助解决这个问题通过减少投资公共部门。研究和扩展的记录部分也被政策制定者转向这些地区。一个策略是通过研究和扩展在半干旱地区发展新品种。这些技术的扩散在半干旱地区并没有得到成功，因为新品种
emerging as one important provider of services. The private sector’s profit motive for services is thought to make it more efficient. However, this sector tends to ignore areas such as dry lands where there is little chance of profit. The public sector is therefore still needed to advocate and intervene in areas where the private sector has no interest. The key problem here is that with the decrease in government spending, it is unlikely that the public sector extension will have the means to fully undertake the necessary support and services in the often-remote semiarid areas. This is where non-governmental organizations play a key role.

NGOs as Extension Providers in Semiarid Regions

As donors considered various options, NGOs emerged as a sector with several comparative advantages over the traditional extension providers (Kanyinga, 1993, p. 53). International donors did not initially recognize and fund NGOs nor include them in the development and research process (Hargrave, 1999; Sanders & McMillan 2001; Omolo, Sanders, McMillan, & Georgis, 2001). However, during structural adjustment, donors became interested in NGOs because they were non-governmental, and there was a desire during these reforms to cut down on the massive public sector (Mbati & Ngechu, 1999). That, plus a shift in development thinking to decentralization and privatization resulted in more attention being given to NGOs (Post & Ole, 1999).

NGOs, with their flexible and cost-effective techniques, grassroots-level contacts and penchant for sustainable projects are now at the forefront in many donors’ eyes (Kanyinga, 1993). Because of their commitment to social welfare, NGOs have been involved for decades among marginalized peoples in community development projects. NGOs have now rapidly expanded to fill the void left by the state and have had an increased demand for their extension services (Omolo et al., 2001, p. 18). This is particularly true in semiarid parts of East Africa where the state extension presence is limited. They provide a whole range of services, from provision of seeds and tools to technology generation and diffusion. Because NGOs are already working extensively in semiarid areas, they will play a critical role in the new pluralistic model, as private extension will not get heavily involved in semiarid areas and the state cannot afford to (Umali & Schwartz, 1994; Esele et al., 2001; McMillan & Sanders, 2001; Omolo et al., 2001). Kanyinga explains the key role of NGOs in extension:

In the context of declining state investment and reduced capacity, specifically in the delivery of basic social services, a search for viable institutional actors that can adequately cope with the emerging problems and fill the evolving lacuna in the development space has started. The private non-profit voluntary sector has won the attention of both governments and the lending institutions in this regard. The importance of non-governmental organizations (NGOs), particularly in local development, has increased as the state’s development role has tailed off. (Kanyinga, 1993, p. 53)

Two Extension Paradigms

NGOs bring both strengths and weaknesses to the table in terms of extending agricultural technologies to farmers in semiarid areas. Instead of using top-down, “transfer of technology” (TOT) methodologies for diffusion as the state so often has done, NGO methods are along the lines of the “Farmer First” (also known as FF and Beyond FF) approach: participatory, demand-driven and client-centered.

In the TOT approach, technologies are generated at research stations and diffused to farmers using the extension service (Put, 1998). Technologies are spread vertically in this top-down approach. Not only technologies but also intangibles such as power, prestige and skills are located at these centralized stations (Put, 1998). The TOT approach is biased toward better-endowed farmers whose fields and infrastructure are like those of the research stations (Chambers & Ghildyal, 1986).

TOT has been a strong model because it has been very successful in some areas and instances, such as the Green Revolution, where tremendous increases in crop production were achieved in the 1960s and 1970s. It has been successful also in the United States, and so scientists from there have little reason to doubt the model (Chambers & Ghildyal, 1986). However, risk-prone areas such as semiarid zones are extremely complex, making it difficult for research on a well-endowed station to come...
up with appropriate technologies. Because the technologies are not adapted to specific low resource contexts, the transfer of technology approach is not adapted to specific areas such as semi-arid (Put, 1998, p. 6).

Farmer First, on the other hand, is a very different model in its view of farmers and scientist (Table 1). It is a “bottom-up” approach. It sees farmers as part of the entire process of technology generation, providing essential input and assisting in the design and evaluation of new technologies. These models both begin and end with the farming family and farming system. The farm, not the research center, is the central location to the model. Therefore it is believed that a farmer first approach will generate more appropriate technologies to farmers in low-resource areas such as semi-arid.

Table 1

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<tr>
<th>Philosophy of TOT and Farmer First</th>
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<tr>
<td>Factor</td>
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<tr>
<td>Diffusion of technology</td>
</tr>
<tr>
<td>Farmer’s role</td>
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<tr>
<td>Scientist’s role</td>
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<tr>
<td>Extensionists’ role</td>
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<tr>
<td>Determination of research priorities</td>
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<tr>
<td>Main research location</td>
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<tr>
<td>Explanation of non-adoption</td>
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Note. Adapted from Chambers and Ghildyal, 1985; Scoones and Cousins, 1996; and Scoones et al., 1996.

Farmer First and related models have been utilized heavily by non-governmental development agencies. Farmer First and Beyond FF supporters believe that the transfer of technology model is not necessarily geared towards the needs of resource-poor farmers in semi-arid regions. There seems to be a bias towards crops grown in the higher potential areas, and the higher potential areas themselves.

Comparative Advantages & Weaknesses of NGOs

NGOs have several advantages over other extension providers in addition to their methodology. NGO staffs are often better motivated due to timely provision of salaries by the organizations. Funds may be available and easier to obtain for transport and other operational costs. Bureaucracy is limited. The services are usually well managed—efficient and cost-effective. NGOs can be more flexible in their programs than the state extension system due to their size and philosophy. They are close to the ground in rural communities and usually have established credibility with them (Anderson & Crowder, 2000). The international NGOs also have important links with overseas networks. The proven accountability of many NGOs, together with their facilities, transport and personnel makes them an important partner in the development process.

On the other hand, NGOs depend on donors for support, making sustainability an issue. The time frame of NGO programs is often too short-lived, being dependent on funding and donor timetables. They are limited as far as the geographical area that they cover (Ameur, 1994). NGOs all have diverse philosophies behind the services that they provide, leading to different values and emphases in their service. It was also found that some NGOs were not good at giving feedback on the new technologies introduced (Omolo et al., 2001, p. 26; Sanders & McMillan, 2001). Some NGOs are lacking in capacity in terms of staff, facilities and technological expertise.

NGOs have also been criticized for failure to develop methods for monitoring and evaluating their performance, providing accountability and conducting strategic planning (Edwards & Hulme, 1996). Although many larger international NGOs are required by donors and/or their philosophy to be accountable, this issue remains a crucial and too-often weak component of NGO extension.
NGOs are extremely diverse, so much so that it is hard to generalize as far as their strengths and weaknesses. Non-governmental organizations today are such a mixture of characteristics and forms as to have almost lost their meaning. However, in spite of their limitations and because of their strengths, many NGOs in semiarid East Africa have established themselves as important players in the extension scene.

A New Model for Extension?

With the inability of past research and extension models in the semiarid areas to effectively assist in development, stakeholders have been considering the reasons for such failures. There were obvious flaws with the research and extension approach in dryland areas. What then is the best model for extension programs working in semiarid zones today? Purcell and Anderson (1997), Picciotto and Anderson (1997), and Umali and Schwartz (1994) have advocated the pluralistic extension model. Here the role of the state becomes that of a facilitator for the many other actors involved in extension such as NGOs, farmers’ groups and private extension (McMillan & Sanders, 2001). In pluralistic extension systems—“coalition systems,” according to Anderson and Crowder (2000)—multiple partners work together, acknowledging that each does not have all the necessary skills or knowledge for the job. Instead, they build on each other’s knowledge, skills and strengths.

NGOs are not a “magic bullet,” able to solve the problems of agricultural development, and possessing no flaws. Nor can NGOs effectively provide extension services without the assistance of the state and other players. The state has the advantage of formal linkages with research and other stakeholders. They already have well-trained personnel and infrastructure in place. The public sector also has a wide geographic coverage. Private services also have advantages such as efficiency and links to input providers.

In spite of their disadvantages, however, NGOs and their extension programs are crucial players in the semiarid areas. The question that arises is how best to use them. NGO extension programs can be encouraged by the state through both official recognition and technical assistance (Kandie, 1997). The state can utilize NGOs through outsourcing and cost-sharing, while at the same time cutting their own costs (Gautam, 2000). Some NGOs already use the ministry of agriculture staff, who are trained in extension and have access to technology, yet have no funds for travel and operational expenses. It is fairly common for government extension agents to work through alternative providers such as NGOs and the private sector (Gautam, 2000). In East Africa there are also examples of “contracting in,” where NGOs actually finance state extension services (Anderson & Crowder, 2000; Omolo et al., 2001). Bilateral organizations such as GTZ (German Technical Cooperation) and SIDA (Swedish International Development Agency) and also the Food and Agriculture Organization of the United Nations have provided financing through various programs in Kenya. By working together, extension providers can cover more ground, avoid duplication and, most importantly, reach the low resource areas such as the semiarid zones.

Conclusion

In light of past failures and current conditions, what is the best way forward in providing extension services to small-scale farmers in semiarid zones in East Africa? This paper argues that the best model when considering the present economic state, the needs of low-resource farmers and present providers in the area is a pluralistic model that capitalizes on the strengths of all players and in which NGOs play a crucial role. The new approach includes “coalition systems” between autonomous and equal partners, who acknowledge the skills and knowledge of other players and work together to make extension effective (Anderson & Crowder, 2000).

State and NGO extension should work together efficiently in the model, bringing together the technical expertise of public extension and the NGOs’ ability to mobilize communities. Other research and extension players such as farmers, universities, private companies, community-based organizations and cooperatives can also add their strengths to the mix. Dialogue must be opened up between the various players to determine how they can best work together. Formal linkages such as memoranda of understanding between these groups will also benefit the various players. Finally, because NGOs play a key role in semiarid zones and are often mentioned in
extension models, their role needs to be better understood (McMillan & Sanders, 2001) in order to best utilize their strengths.

The problems of semi-arid East Africa are multitudinous and complex. Technology and its transfer through extension alone will not solve the problem. However, both technological innovations and sociological change must be simultaneously addressed and explored in a participatory manner by all of the players involved in order to bring about sustainable positive change.

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