

Précis

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Agricultural Extension The Kenya Experience

THE TRAINING AND VISIT (T&V) SYSTEM OF agricultural extension service management was introduced in Kenya by the World Bank in 1982. Two Bank projects, the First and Second National Extension Projects (NEP I and II), supported the program until 1998, and had two main goals: institutional development of extension services and sustained increases in agricultural productivity. The effectiveness of the approach has been the subject of much debate. A recent study by the Operations Evaluation Department (OED) set out to determine the impact of the projects.

In interpreting the study findings, it is important to distinguish between the rationale for extension services *per se* and the outcomes that resulted from the design and implementation of the two projects in Kenya. While there continues to be demand for extension services, the evaluation found limited progress in institutional development and an extension approach that was neither efficacious nor financially sustainable.

The Kenyan system lacks a focus on farmer empowerment. It is based on a traditional top-down, supply-driven approach that provides little or no voice to the farmer. While NEP I made some positive contributions in its early years, there is no evidence of a significant or sustained impact on agricultural productivity. A positive return to the expenditures on the extension service could not be established.

Background

Rural and agricultural development is integral to any strategy to alleviate poverty and promote broad-based growth in Kenya. To this end, the government adopted the T&V system of agricultural extension in 1982 with support from the World Bank. The performance of the extension system has been challenged ever since.

The debate on the effectiveness of Kenya's extension system is part of a broader discussion of the cost-effectiveness of the T&V approach. The disagreement centers on the returns to the heavy investment of borrowing countries in the T&V system. But despite the large investment and the important role of agricultural extension in the Bank's development strategy for Africa, few attempts were made to rigorously measure the impact of its projects.





An extension agent meeting with Kenyan farmers. Photo courtesy of World Bank Photo Library.

The debate in Kenya was prompted by the lack of visible results in agricultural performance. The high estimated returns to T&V extension in Kenya, put forward by one of the few studies on the economic impact of T&V, further fueled the controversy. Both donors and nongovernmental organizations (NGOs) have been sharply critical of current extension practices, and seek reforms to make the system more demand-driven and accommodating of alternative ways of reaching farmers.

The OED evaluation adopted an empirical approach to assess the impact of NEP I and II. A household survey was undertaken to revisit households surveyed in 1982 and 1990 to create a panel data set. These data were complemented by an extension staff survey, existing secondary statistics, beneficiary assessments, and reports and other documents. The evaluation was based on a conceptual impact model (see figure 1) that underpinned the design of NEP I and II. Following the results-based management framework, the key indicators for the expected outcomes and results were measured, and related to the projects' input and output indicators.

Institutional Development

Agricultural extension in Kenya dates back to the early 1900s, but its only notable success was in the dissemination of hybrid maize technology in the late 1960s and early 1970s. In 1982, when T&V was introduced, the extension system suffered from a number of deficiencies. It was a mix of ad hoc project components, lacking a consistent national strategy. These arrangements were expensive and ineffective. Despite a well-established line of command down to the frontline extension worker, and staff numbers presumed to be adequate at the time, the service was judged to be performing well below its potential. In addition, although women made up almost

one-third of farmers, and most farmers (81 percent) were smallholders, extension efforts focused on men and large landowners.

A key objective of NEP I and II was to develop institutional arrangements to deliver agricultural services to smallholders efficiently and effectively. The goal was to develop a cadre of well-informed, village-level extension workers who would visit farmers frequently and regularly to provide relevant technical messages, and bring farmers' problems to the attention of researchers. The extension staff was to receive regular training, with much-improved research-extension linkages. Begun as a pilot in two districts in 1982, the project was rapidly expanded to cover about 90 percent of Kenya's arable land.

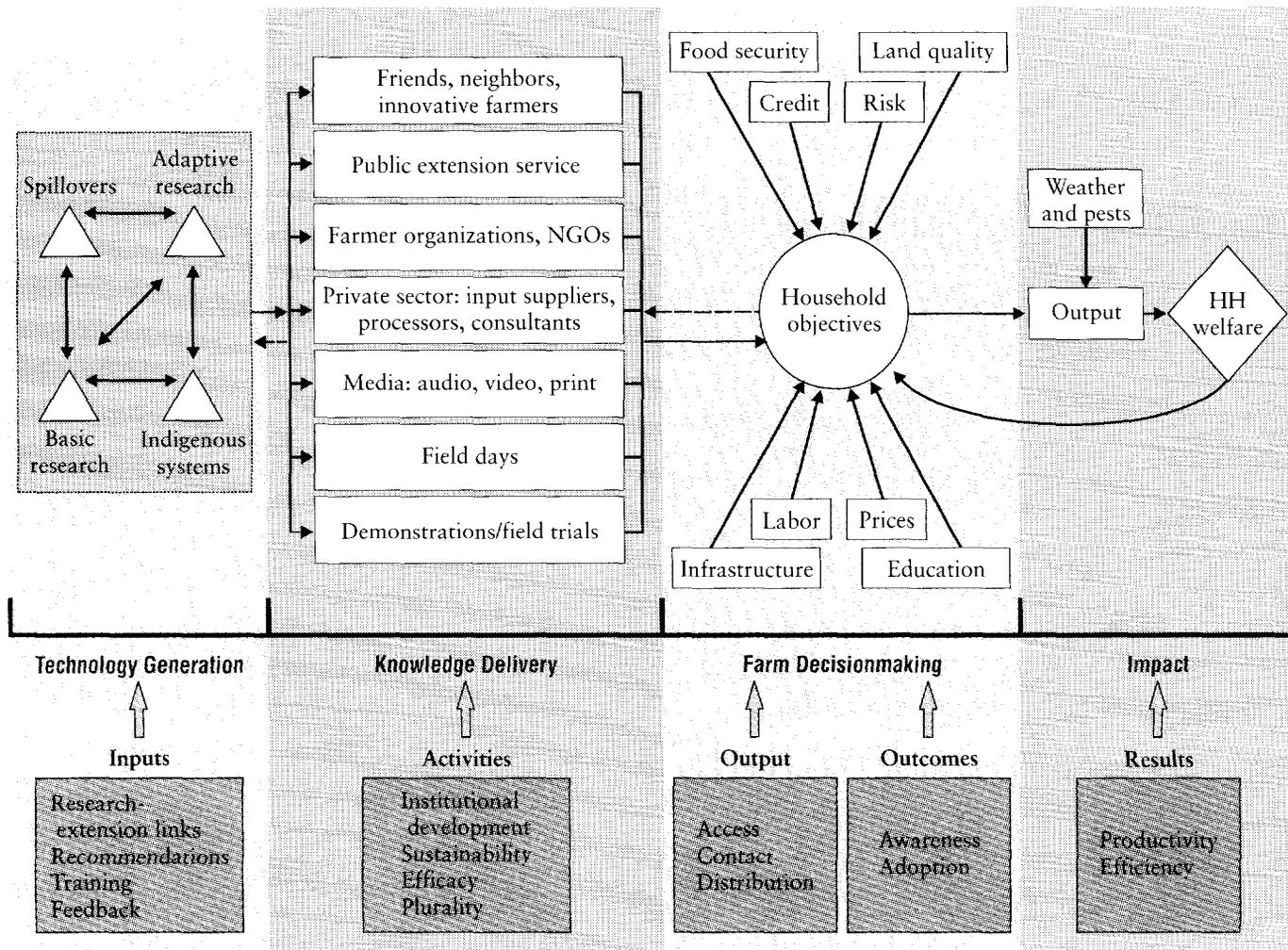
The projects succeeded in putting an integrated national system in place, improving staff quality through training, and establishing better research-extension linkages. The influx of large sums of development and operational funds energized the service and raised staff morale in the early years. The increase in staff served to reduce some of the earlier biases against women, young farmers, and remote areas. But new biases were introduced in favor of more educated farmers and more productive and better-off areas.

Overall, project outcomes suffered because of poor project implementation arrangements and weak management. Most critically, the new system proved to be financially unsustainable. Poor financial arrangements compounded the problem of inadequate budgetary resources, and many of the problems of the previous extension system have persisted. The current system is significantly more expensive, but hardly more efficient. Over one-half of the staff who were in service in 1982 believe that the system is less effective now than it was before; only one-third consider it to be more effective.

Key institutional features of NEP I and II were poorly developed. Inappropriate incentives and the failure to incorporate mechanisms to give farmers a voice have led to a lack of accountability and responsiveness to farmers' needs. This is evident in the mismatch between what farmers want (advice on complex practices) and what they actually get (simple agronomic messages), as well as in the methodologies preferred by the farmers (demonstrations) and the extension agents (home visits).

Table 1 summarizes Kenyan policymakers' views about the projects' strong and weak points. In response to operational difficulties and a lack of new technical messages, some field staff have gone back to the old sys-

Figure 1: Impact Model



Note: Broken line: feedback from farmers to decisionmakers. Solid line: delivery of time-bound "messages" by extension workers from researchers to farmers. HH: household.

tem of disseminating messages through public meetings, or *barazas*, and working with alternative providers, such as NGOs, the private sector, and other projects. These actions represent a rational response to prevailing circumstances, but they are far from the intended project outcomes. They are also ad hoc arrangements and do not represent any systematic or conscious effort to exploit alternative institutional options to make the system more effective.

Beneficiary Assessment

The study drew on a participatory assessment of extension services by Actionaid Kenya and the findings of a 1994 participatory poverty assessment to complement the qualitative findings from the household survey done for this evaluation. The findings from the structured questionnaire survey and the participatory assessments are consistent.

Comparing their current situation to that of 10 to 15 years ago, most farmers noted a decline in their quality of life and in agricultural productivity. At the same time,

access to extension has remained unchanged, although many perceive the quality of extension service to have deteriorated. The poor, in particular, have little access to information.

Extension cannot be expected to reach every farmer—hence, the need for selectivity and reliance on farmer-to-farmer dissemination. The results, however, indicate poor targeting and a lack of responsiveness. Instead of working with representative groups of farmers, the extension workers generally target the better-off and those who can afford the new technologies. Not surprisingly, more of the better-off farmers consider extension advice to be relevant to their needs. Poorer farmers are less satisfied. They want advice on less costly technologies, marketing, and diversification, along with information about crops that the wealthier farmers do not grow.

Efficacy: Quantity and Quality of Contact

NEP I and II sought to improve the effectiveness of extension services by using contact farmers, and later

Table 1: Local Perspectives on the Strengths and Weaknesses of NEP I and II

<i>Weakness</i>	<i>Strength</i>
Extremely broad objective	Wide coverage
Top-down planning still strong	All types of farmers included
No specific target	Strong staff training
Weak farmer participation	Professionalism developed at district-officer level
Low staff motivation	Strong frontline extension workers
Weak monitoring and evaluation	Procurement of transportation and office accommodation
Excessively supply-driven messages	
Donor dependent	
Low flexibility	
Low accountability	

Source: Ministry of Agriculture, Livestock Development and Marketing.

contact groups, as the points of regular and systematic interaction with the farming community. However, most farmers surveyed think that information is less available now than it was 10–15 years ago.

The level of outreach is well below that anticipated. Few, even among the select group of contact farmers (including contact group members), interact with extension agents on a regular basis and in a setting prescribed by the project design. In the study sample, only 7 percent of contact farmers, and 2 percent of all farmers, regularly meet with extension agents at least once a month in their own or a neighbor's fields. Similar results on low outreach are also obtained from the 1990 survey of the same population, indicating limited efficacy not only at the end of NEP II, but also at the end of NEP I. The service was expected to make regular field visits to 10–15 percent of the farmers on a biweekly basis, or 20–30 percent on a monthly schedule.

In addition to direct contact, the T&V methodology relies on indirect dissemination through contact between farmers. The expected effects of the spread of information from contact to noncontact farmers appear to have been limited because of poor communication between the two groups. Farmers get most of their information from public fora, primarily *barazas*, a practice that NEP I and II were supposed to change. *Barazas* are useful for broadcasting simple messages, but are not conducive to substantive interaction on technical problems. The data on farmer-extension contact suggest little improvement in staff productivity or systemic efficiency.

Despite the low level of contact, farmers who receive extension messages rate them as useful and applicable. A majority, however, even among contact farmers, have not actually applied the extension recommendations, which raises questions about the relevance of the advice provided. These findings also highlight the problems in interpreting frequently used, but often poorly defined, indicators such as the term *useful*.

The consequences of an incident in 1996 help illuminate the limited effectiveness of the extension service. A majority of the contact farmers (60 percent) failed to notice any change in the delivery of extension services in

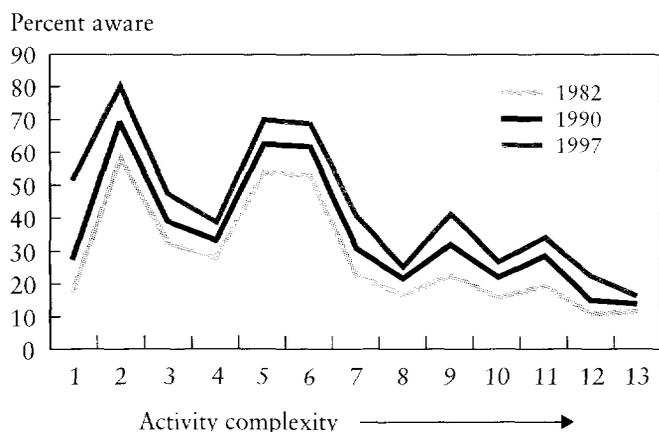
1996, when field work was seriously disrupted by a lack of funds, a result of the suspension of NEP II disbursements, for almost the entire year. As may be expected, the proportion of noncontact farmers failing to note a change was higher (88 percent).

Outcomes

Farmer awareness of new crops and techniques is an essential first step toward their adoption. The farmers surveyed, however, demonstrate a very uneven knowledge of extension messages (see figure 2). Awareness is high for simple agronomic recommendations, particularly for maize, but falls significantly—among both contact farmers and noncontact farmers—for non-maize crops and for more complex practices, reflecting the continuation of the pre-1982 bias in favor of maize and simpler messages. In addition, data do not reveal any significant impact of extension activities on the underlying dynamics of the diffusion process. Less sophisticated messages that are amenable to quick diffusion through informal channels and messages that have been known for some time have continued to spread. The less well known and the more sophisticated messages still register low levels of awareness and adoption. A finding of considerable importance is that a high percentage of those who are aware of a recommendation have adopted it (over 80 percent for even the most complex practice). Thus, while resource constraints may be important, the primary impediment to adoption seems to be lack of information.

The early focus on simpler messages and on the primary subsistence crop, maize, may be justified. Over time, however, one would expect extension advice to graduate to more sophisticated practices. This has not occurred, either for lack of focus in extension efforts or lack of staff skills, or perhaps both.

The projects' lack of impact on awareness and adoption of recommended practices indicates limited potential for impact on agricultural productivity. This, in turn, implies low cost-effectiveness for the T&V approach as applied in Kenya. The major share of the cost stems from the projects' focus on high-frequency, face-to-face contact, which is particularly suited to the

Figure 2: Timing of Awareness

Source: OED survey.

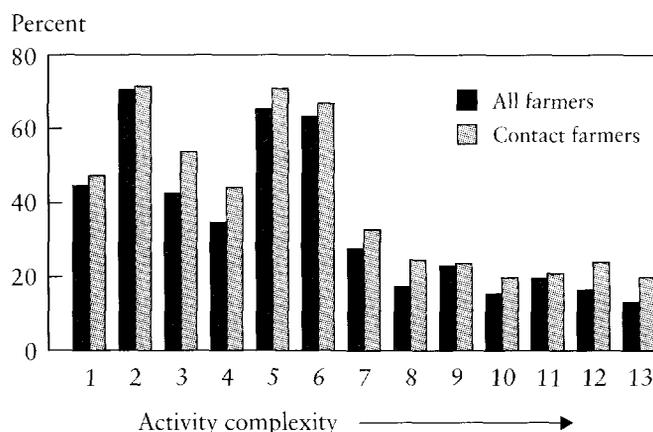
delivery of sophisticated and context-specific advice. The continued preoccupation with simple messages indicates that the projects' design features were not fully exploited.

Results

The most direct way to measure impact is to relate the supply of extension services to farm productivity. Changes in productivity can occur through improved efficiency or technical change. With the data available, the evaluation could not establish a significant positive impact of the supply of extension services, either on farmer efficiency or on farm productivity. It also found that areas that were relatively more productive in 1982 have shown little change, while the less productive regions have performed better. It is likely that the more productive regions may have reached an upper limit, and with little new technology forthcoming, their productivity has stagnated. The continued focus of extension efforts in these areas is thus likely to have yielded low returns. At the same time, the less productive farmers and areas have been catching up as new technology has reached them. It is possible that the extension service may have played an early positive role in disseminating simple technological messages to previously neglected areas, but this could not be established conclusively with the available data.

These results, combined with the low level of overall economic efficiency and a significant variation in technical efficiency among farmers, suggest that the extension resources could have been used in a more efficient manner. Extension seems to have focused on disseminating simple technical messages rather than on helping farmers make the best use of their resources.

A more rational deployment of extension staff could have been more cost-effective—it is possible that the same results could have been achieved with fewer resources, yielding potentially higher returns to the investment in extension. What was needed was a flexible

Figure 3: Adoption of Recommendations

Source: OED survey.

and responsive system. For instance, with little new technology forthcoming for the higher-productivity zones, it was no longer economical to maintain a high intensity of extension-farmer contact. Reaching out to new areas or previously uncovered farmers could have had a greater marginal impact on both productivity and poverty.

Willingness to Pay

Governments have traditionally provided extension service at no cost to beneficiaries because of its perceived nature as a public good. With limited resources to allocate among a number of alternative public services, those who make public policy need an assessment of the benefits realized from the services provided. A reliable measure of benefits would also help in considering the potential for cost-recovery measures.

In the context of extension and poor farmers, pertinent issues include their willingness and ability to pay, which one would assume would be proportional to the benefits they derive. A significant proportion of farmers surveyed indicated that they would like to continue to receive extension services, and, more important, that they would be willing to pay for them. The amount they would pay, however, is well below current government expenditures. An important finding is that, based on their current experience with the service, farmers want significantly fewer visits by the extension agent than were stipulated by the projects. Overall, a more cost-efficient approach would be to cover a larger number of farmers with less intensity, but a higher quality of contact, complemented by other dissemination approaches, such as radio broadcasts and printed media. These findings also suggest that cost-recovery, even if only partial or nominal, is a possibility that remains unexplored. Besides bringing some budgetary respite, cost-recovery offers other important benefits: it provides appropriate incentives, and it promotes pluralism by allowing alternative providers, particularly private operators, to enter the market.

Conclusions and Lessons

The rationale for providing extension services in Kenya is still relevant, but the evidence suggests that the extension approach used by NEP I and II was not efficacious.

The performance of the T&V system as applied in Kenya has been disappointing. The system as implemented has been ineffective, inefficient, and unsustainable. While the projects helped improve the system's coverage, research-extension linkages, and the skills of extension staff, the overall outreach and the quality of interaction between extension agents and farmers have been well below expectations. The evidence does not indicate a significant impact either on farmer efficiency or on crop productivity. While it is likely that the first project had some early beneficial impact, it appears to have been short-lived. A positive rate of return on investment expenditures on extension could not be established. The evaluation did reveal that there is unmet demand for extension services, and that farmers are willing to pay for them. The worth of the perceived benefits from the current services, as reflected in the amount that the farmers are willing to pay, however, is significantly lower than current government spending per farm to deliver them. Overall, the findings indicate that a more rational allocation of extension resources could have been more cost-effective.

The main lessons that have emerged from the evaluation are as follows:

- *Targeting.* Extension services need to be efficiently targeted to focus on the areas and groups where the marginal impact is likely to be the greatest. This calls
- for a more flexible system that can identify the gaps between best and average practice and allocate scarce resources more rationally. In addition, the farmers selected for interaction should represent local socio-economic conditions.
- *Information systems.* Targeting calls for appropriate flows of timely and reliable information, and hence for monitoring and evaluation. Farmers' demands should be identified, and the extension service tailored to suit local technological and economic circumstances.
- *Intensity.* Given farmers' desire for less frequent visits and the lack of sufficient technological recommendations to sustain a high level of visits, a leaner and less intensive system with wider coverage would be more cost-effective. With improved quality, demand could well increase, which reinforces the need for a responsive and dynamic system and effective targeting for maximum results.
- *Pluralism.* The use of a uniform methodology to deliver standard messages limits the system's effectiveness and efficiency. A strategy that exploits low-cost communication methods such as radio, demonstrations, printed media, and partnerships with civil society and the private sector might be more effective.
- *Client focus.* The system's central focus should be to empower farmers by giving them a voice in the extension delivery system. This can be achieved in a number of ways, such as cost sharing, farmers' organizations, and decentralization. Such alternatives should be an integral part of the delivery mechanism.

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