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Measuring Development Results: Lessons from Ethiopia

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Abstract

Development agencies are faced with the challenge of measuring and reporting the results of their contributions to promote equitable and sustainable development. Part of this is that agencies forecast ambitious development goals and then commit themselves to measuring what they could not have achieved by the end of their programs or projects. This article uses the Ethiopian government fertilizer extension program as an example of defining the context, scope and timeframes for result measurement exercises. The Ethiopian experience suggests that it is possible to develop context-specific methods that allow the measurement of practical and measurable results.

Key words: aid, methods, region: Sub-Saharan Africa

Introduction

Measuring development results most often focuses on reporting contributions by governments, donor agencies, NGOs and other development actors to promote equitable and sustainable development in developing countries (1). Many of the initiatives, especially those planned and implemented by NGOs and donor agencies, are short-term programs and projects (two to five years in duration) that are often conceived in the context of existing national policies. But, how does one measure and communicate the results of such initiatives? This issue has taken centre stage in recent policy discussions among donors and their development partners including national governments and civil society organizations. For instance, the 2005 Paris Declaration on Aid Effectiveness called upon donors and developing countries to collaborate on the development and application of indicators to measure results to ensure mutual accountability and transparency in the use of aid resources. This issue was further reiterated during the 2008 Accra High-Level Forum that "citizens and taxpayers of all countries expect to see the

tangible results of development efforts" and that all development agencies should exercise responsibility in the translation of actions "into positive impacts" and demonstration of accountability (OECD 2008: 2).

All this can be easier said than done. Development agencies remain faced with the challenges of measuring and reporting to what extent their efforts are effective in the promotion of desirable development goals (2). First, they often lack adequate knowledge of what is meant by "results", so that what they are trying to measure could be different from what is actually happening on the ground. Even worse, by considering abstract concepts like "sustainable development" as a framework of measurement, they even encounter difficulties in understanding and measuring the results of village health, water or agriculture projects. Second, many development agencies have a tendency to forecast the achievement of ambitious development goals and commit themselves to measuring what they could not have achieved by the end of their programs and projects. Finally, existing methods for results measurement are intended to aggregate and analyze data at national, regional and internationals levels to monitor broad development goals like macro economic growth, demographic changes, education, health, political development, human rights and natural resource management (3). These methods do not serve the practical needs of development agencies for measuring the results and sustainability of two-, three- or five-year programs and projects (4).

Development agencies need to consider situationally appropriate approaches that allow them to understand processes of change and their effects on the progressive realization of development goals. They must be able to understand: 1) policy, program or project contexts (issues, actors, changing interactions/relationships and capacities); 2) scopes of result measurement exercises (how much can be done realistically in a specific time?); and 3) timeframes for measuring results at different levels (short-, medium- and long-term results). This paper aims to contribute to the understanding of such issues using the Ethiopian government fertilizer extension program in North Gondar Zone (NGZ), Amhara Regional State, Northern Ethiopia, as an example (5). In 1996, farmers in this region were trying to figure out how *madaberia* (chemical fertilizers) could be best used to increase crop yields (Mequanent 1998). Twelve years later, in 2008, they have been able to "economize" fertilizer use, such as how much fertilizer to use and for which crop variety. In this respect, one would argue that farmers' capability to make needs based autonomous choices of fertilizer use provides evidence of integration of fertilizer application into local farming practices - an indication of the effectiveness of results of the Ethiopian government extension program. This article will then use an illustrative results-based management (RMB) model to show how the results of this government program can be identified, described and assessed along with the demonstration of the seriousness and discipline required to gather and analyze data necessary for supporting the claim of "effective results".

The study is based on data collected during extensive fieldwork in 1996/97 in Lay Armachiho Woreda, North Gondar Zone (NGZ), including up-to-date information gathered during two brief visits to the same Woreda and other areas of the Amhara

Region in 2008. The first fieldwork (1996/97) documented the initial stages of fertilizer promotion efforts, which were then analyzed as part of a doctoral thesis (Mequanent, 1998). The second phase of the study (2008) sought to inquire to what extent farmers had adopted the use of fertilizers on their cropland. This inquiry involved brief and informal conversations with ordinary farmers (e.g., dropping by their fields) and open discussions that included Kebele (local) and Woreda officials, as well as relatives and friends who came to see the author upon his arrival from the Diaspora (he is a native of the region). Many of these discussions were open and frank, yet they were limited to Lay Armachiho Woreda (study area in 1996/97). To fill this gap, the author toured other areas of the Amhara Region and seized every opportunity to engage in conversations with farmers and local officials.

This paper does not claim to advance innovative thinking in development results measurement. Its intent is to contribute to the debate in this area by sharing the Ethiopian experience. Even then, one may argue that fertilizer adoption alone cannot be considered as an indication of sustained technical change in Ethiopian agriculture or that the issue itself is insufficiently complex to warrant a discussion on an important subject like results measurement. The fact is that fertilizers are critical to increasing crop yields in Ethiopia where land is highly degraded. The cost of purchasing fertilizers has also continued to increase. These two factors have determined farmers' initial receptivity to the idea of fertilizer use and the pace at which they have integrated fertilizers into their normal routine of production decisions. The remainder of this paper presents a brief illustrative framework to help understand the issues in development results measurement in the context of the Ethiopian government fertilizer extension program. This framework is then used to describe and assess the results of the program, and share the lessons learned.

Measuring Development Results

Scope does not permit us to review the large body of literature on the monitoring, evaluation and analysis of the effectiveness of development efforts in developing societies (Altman and Bamartt 2007; and Owen 2006). Suffice it to say that there is a consensus that the role of development agencies is transferring skills, knowledge and material resources to support poor and marginalized communities in developing countries to build their productive capacity and uplift themselves out of extreme conditions of poverty. The role of results measurement is thus to measure and report progresses in the realization of desired development goals. The task starts with gathering reliable data from a variety of sources including baseline surveys, research, administrative data, expert opinions, events reporting (media) and other sources. These data are aggregated and analyzed to assess the performances of development initiatives against benchmarks (standards of progress) or targets (specific goals) that were set during the planning of those initiatives.

The three variables (data, benchmarks and targets) then constitute what are called indicators of results measurement. Hence, the United Nations (UN) (2007) identifies 96 broad indicators articulated around 14 themes and 44 sub-themes. The UN (2006) has

another 58 indicators for measuring progress towards the achievement of Millennium Development Goals (MDGs). A volume by Hák, Moldan and Dahl (2007) discusses various indicators that measure results in different sectors of development. Varieties of such indicators are used by international and regional organizations, research think tanks and other entities to monitor development trends and issues worldwide. However, as pointed out earlier, the same indicators do not address the needs of many development agencies including national governments to assess the results of two- three- or five-year programs and projects that are specifically focused on supporting sectorial and multi-scale (local, regional and national) initiatives. As Hulse (2007: 13) rightly points out, too often development efforts are "claimed to be {effective and) sustainable when neither objectives nor the criteria of assessment are declared, where there is little evidence that progress is systematically determined ".

This article considers the results-based management (RBM) model developed by the Canadian International Development Agency (CIDA) (2008) to illustrate a framework that defines development results at different levels (Figure 1). Development results are defined at four levels according to increasing impact:

> **Outputs** - the goods and services produced through a combination of inputs of labour, technology and material.
>
> **Immediate outcomes** - noticeable changes in awareness, skills, knowledge and other capacities necessary for social and economic production.
>
> **Intermediate outcomes** - significant changes in institutions, practices, behaviours, technologies, relationships and other systemic changes.
>
> **Ultimate outcomes** - the achievement of stated goals which bring about lasting impacts on society.

These results at different levels mutually reinforce each other to sustain changes and work towards the achievement of desired development goals. This is indicated by an arrow in the upper part of Figure 1 and labelled as "progressive realization of development goals" (a constant momentum of change). The results continuum in Figure 1 also identifies two result measurement parameters labelled as "formative stage" and "adoption stage", so as to indicate different timeframes necessary for identifying and measuring results. The directions of arrows indicate increasing complexities in the measurements of variables (inputs, results and indicators) over time. To explain, the formative stage for the Ethiopian government fertilizer extension program had been characterized by the transfer of new ideas that raised farmers' awareness of the benefits of new agricultural technologies and critical resources in the form of material and technical assistance to promote fertilizer application. Ongoing extension support, easy access to fertilizer purchase loans and other forms of complementary support were critical to encouraging Ethiopian farmers to consider fertilizer application and eventual adoption in their normal routine of production decisions. The measurement variables for

results produced during this formative stage (outputs and immediate outcomes) consist of baseline data, administrative data and information gathered during brief field visits to assess to what extent the government's fertilizer promotion campaign had resulted in cognitive and technical changes in society. At this stage, perhaps the government could have (if it desired) influenced results by increasing resources to provide more awareness education or deliberately discriminating in favour of certain groups (e.g. women) to correct existing unequal social and economic relationships (e.g., women were less likely to attend awareness sessions).

Furthermore, the illustration in Figure 1 implies that, as farmers acquired more knowledge and experience, they would act independently of government agents (extension workers) to make decisions based on their own individual needs to apply fertilizer input. The government could have little influence on how each individual farmer allocated fertilizer inputs during cultivation seasons or whether each farmer consumed the same or different amount of fertilizers each year. The government must conduct a study like this one to document and analyze evidence of changes in material conditions and knowledge capacities of farmers including increases in crop yields. For this study, the indicators for intermediate and ultimate outcomes (at adoption stage) are formulated based on discussions with farmers and government officials in 2008. Other similar studies could include surveys and more in-depth observations of the overall impact of the Ethiopian government fertilizer extension program.

The discussion in the next section provides details that inform the arguments presented above. Suffice it to note that, with the exception of governments and local and national NGOs, many development agencies are external aid organizations that plan and implement programs and projects with life spans of no more five years. These agencies should then be concerned with measuring and reporting on results produced at formative stages (figure1). Too often, the tasks of measuring results are made more difficult when development agencies use results-based logic models and other similar planning approaches to forecast the achievement of ambitious development goals and then commit themselves to measuring what they could not have achieved by the end of their programs or projects. Evaluation exercises would later find "no signs" of effective results. The agencies would promise to do better next time, even though they remain faced with the same constraints.

Figure 1. Results Continuum for the Ethiopian Government Fertilizer Extension Program

Progressive realization of development goals

Formative stage (easily controlled variables) — **Adoption (variables difficult to control)**

Need	**Actors**	**Capacity**	**Outcome**	
Inputs →	**Awareness** →	**Action** →	**Autonomous choices**	
Activities 1.Training and preparing extension workers. 2. Launching awareness raising campaign. 3. Recruiting model farmers and designing demo sites. 4. Setting up systems for fertilizer distribution and purchase loans. 5. Providing ongoing extension support.	**Outputs** 1.Exension workers trained and dispatched to rural areas. 2.Information sessions organized for farmers. 3. Model farmers trained and suported to design demo sites. 4.Fertilzer delivered and purchase loans provided. 5. Ongoing extension support.	**Immediate outcomes** 1. Farmers increased their awareness of the benefits of fertilizer application. 2. Farmers tried fertilizers on their crop fields.	**Intermediate Outcome** 1. Farmers sought to economize fertilizer use to minimize costs and maximize benefits.	**Ultimate outcome** **1.** Integration of fertilizer application into local farming methods. 2. Increased agricultural production.
Baseline data 1.Low crop yields 2.Low or no uptake of fertilizer input 3.Lack of or limited government support	**Indicators (1994-1996)** 1. At least one extension worker assigned to each Kebele to provide ongoing extension support. 2.15,490 demo. plots designed/model farmers recruited. 3. 30, 917 quintals of fertilizers distributed* 4. Birr 197,255 loaned to farmers.**	**Indicators (1994-996)** 1. Fertilizer consumption increased by 1060 quintals in 1994 to 29,857 quintals in 1996. 2. Site visits and interview with farmers indicated that they were learning fertilizer application through trial and error.	**Indicators (2008)** 1. Discussions with farmers indicated that they have sought economize fertilizer use to minimize costs and maximize benefits. 2. Discussions with farmers indicated that they had gained practical knowledge and experience of fertilizer application according to their needs.	**Indicators (2008)** 1 Discussions with local officials indicated reduced need for extension support and advice. 2. Crop production increased from 8.1 million quintals in 1997 to 12,513,157 quintals in 2008 (increase of 64%).

*1 quintal = 100 kg. ** At current rate, US $1 = 11 Ethiopian Birr.

The Ethiopian Government Fertilizer Extension Program

The recent decade has seen a growing effort to promote the wider application of fertilizers in the African agriculture with the aim of increasing productivity and enabling the continent feed itself (AGRA 2009). Nonetheless, a comprehensive study by Morris, Kelly, Kopicki and Byerlee (2009) shows that a number of factors have contributed to the slowing down of the rate of fertilizer application in the African smallholder agriculture, such as inadequate knowledge of efficient fertilizer use, high prices, "low level and high variability of crop yields" and lack of rural infrastructures, research and extension services. Studies elsewhere, such as the one by Maiangwa (2007) in Nigeria, also show that farmers' educational levels, non-farm income, age, farm size and other household socio-economic factors are important in influencing the rate of adoption of fertilizer use. Africa has a lot to learn from both positive and negative experiences of other developing regions that have used fertilizers and other modern agricultural inputs to achieve food self-sufficiency (Djurfeldt, Holmén, and Larsson 2005 and AGRA 2009).

Fertilizers are critical inputs in highland Ethiopia where land degradation has caused steep production decline and permanent conditions of food insecurity including periodic famines. The Ethiopian government responded to this problem by initiating a nation-wide fertilizer promotion program in the early 1990s. Studies show that Ethiopian farmers have been faced with more or less the same constraints experienced by farmers in other parts of Africa including the problem of timely delivery of fertilizers and rising prices (Tesfahun, Adgo and Yassin, n.d.; and Spielman 2008). However, a comparison of the experiences of 30 African countries for the period 1996-2002 shows that Ethiopia is among the countries where there has been a large increase in "fertilizer intensity" (Morris, Kelly, Kopicki and Byerlee 2009: 23). Their study also indicates that the government's large scale fertilizer promotion efforts have worked.

The discussion of issues identified in the African and Ethiopian context above is beyond the scope of this article. Yet, the importance of some of the issues in fertilizer adoption would be obvious below as we attempt to apply the results-based management (RBM) model developed in the previous section to describe and assess the results of the Ethiopian government fertilizer extension program. Data for this study were collected during an extensive field work in 1996/97 in Lay Armachiho Woreda (district), North Gondar Zone (NGZ), Amhara Regional State, Northern Ethiopia (Mequanent 1998), and two brief visits of the same Woreda and other areas of the Amhara Region in 2008. The data are organized under the two results parameters - formative and adoption stages - identified in Figure 1.

Formative Stage (awareness and action)

The government's fertilizer extension program in North Gondar Zone (NGZ) started in 1994 with an awareness raising campaign. Woreda (district) representatives of the ruling party and newly recruited extension workers went around local areas to explain the government's policy which included providing new technologies (fertilizers) and

technical and organizational support (extension). By 1995, each of the thirty-one Kebeles in Lay Armachiho Woreda had an extension worker whose primary task was to go around the villages to identify and recruit farmers who could be encouraged and supported to try fertilizers on their own crop fields (6). Those crop fields would later become demonstration sites where extension workers prepared carefully staged demonstrations of fertilizer application for farmers. One report showed that the number of demonstration sites for NGZ as a whole had dramatically risen in 1995/96 to 14,430, from 1,060 a year earlier (NGZ Department of Agriculture 1996).

The government facilitated the delivery of fertilizers to farmers. As one may expect, priority was given to farmers who were willing to try fertilizers and had potential to become model farmers. By 1994/95, 1,060 quintals (one quintal = 100 kg) of fertilizers had been distributed to model farmers and this increased to 14,430 quintals in 1995/96 (NGZ Department of Agriculture 1996) (7). By1995, the government had started distributing fertilizers to ordinary farmers, which amounted to 15, 427.5 quintals. The dramatic increases in the amount of fertilizers distributed to both model and ordinary farmers in 1995/96 clearly shows the intensification of the fertilizer promotion campaign during the early stage of the government program.

Finally, the government also helped farmers obtain loans for purchasing fertilizers by processing their loan requests and forwarding them to the government-owned Commercial Bank of Ethiopia and Development Bank of Ethiopia. By 1995/96, the Commercial Bank had disbursed loans worth Birr 722,555 and the Development Bank Birr 125,000 (at current rate, US $1 = Birr 11) (NGZ Department of Agriculture 1996).

By 1997, many farmers were actively experimenting with fertilizers on certain crops like wheat and *teff* (local millet). As they encountered problems, many of them paid frequent visits to model farmers to seek information independent of extension workers whom they suspected were making exaggerated claims about the benefits of fertilizers. Farmers had also an opportunity to exchange information and views during *mahaber* (religious association) meetings and other social gathering (Mequanent 1998). In fact, some farmers had become disappointed with the results either because they misapplied the DAP-urea mix, failed to follow the advice of extension workers or found fertilizers inappropriate to local conditions. For example, they said that “fertilizers burned the soil” (increased soil temperature) and this affected the yield of crops like barley and wheat that were harvested in the months of September and October (when there was no rainfall). Others complained that they were left with little profit after repaying fertilizer purchase loans, especially after the government decided to remove the subsidy. Reactions like these made government officials anxious, yet they kept reiterating their key messages that fertilizers would increase crop yields. Ultimately, given the chronic soil degradation and declining land productivity in the region, farmers got more and more hopeful about the benefits of fertilizers. It was also evident from the farm fields of model farmers that fertilizers had potential to double and even triple crop yields.

Adoption stage (autonomous choices)

In 2008, there were opportunities to follow up with few of the model farmers identified in the 1996/97 fieldwork in Lay Armachiho Woreda. One of the model farmers had lost two-third of his land during the 1996/97 land redistribution (Mequanent 1998) when the government confiscated his land accusing him of collaborating with the previous Marxist-military regime. Although he later got most of his land back, he had become more focused on specializing in the production and sale of a lucrative cash crop called *gesho* (used to make local liquor) , instead of farming (8). Another model farmer was aging and had come to rely on his grand-son-in-law for support. Still another model farmer was more interested in expressing his pride in the education of his children who were employed by the government and helping him. Instead, the "star" (model) farmers were mostly younger farmers who were little known to this author in 1996. And they were not supported by the government; they were self-made successful farmers. Demonstration sites managed by the Ethiopian government rural development agencies were still intact in 2008, but these sites were used to stage demonstrations of improved crop varieties and other agricultural techniques such as irrigation and soil and water conservation, instead of promoting fertilizer application. Government officials said that there were still extension service delivery activities, but they have become more demand-driven, which meant responding to individual requests for assistance in controlling pests, animal husbandry, crop production and irrigation techniques. They said that the focus of government priority has shifted from fertilizer application to land use management, crop research and promotion of irrigation techniques and non-farm income generation activities.

By 2008, farmers had acquired sufficient experience and knowledge of fertilizer application. They said that they were rather concerned with how to economize the application of fertilizers in order to minimize costs and maximize benefits. As one may expect, topography and history would play a larger role in their decisions. To explain, as a mountainous region, land quality in Northern Ethiopia varies with the slightest change in elevation. In fact, land is traditionally classified as *meda* (flat land = high quality), *gedele* (sloppy = poor/high quality) and *chincha* (sandy = poor quality). The traditional *rist* system and successive government land redistribution policies in the late twentieth century took account of this reality in the equitable allocation of land for the population (9). While this practice has resulted in the fragmentation of landholdings (farmers owning plots of land in different localities), it has allowed farmers to plant different crops and reduce the risk of crop failure. This landholding system has also played into farmers' innovation to economize fertilizer use in the following way.

Assume that a farmer owns one and half hectares of land consisting of four plots. The amount of fertilizer input that the farmer needs would depend on soil conditions, market incentives and returns (crop yields). Consequently, the farmer's production decision would be based on the analysis of five factors: 1) he has good land that does not require a fertilizer, so that he could use manure, straw or any natural fertilizer; 2) he would consider applying fertilizers on plots that have sandy soils (poor land quality); 3) he

would consider applying fertilizers only if he plants high value crops like beans, *teff* and wheat; 4) last time he got little in return (incentive), since he had to repay fertilizer purchase loan (no incentive); and 5) he wants to plant crops (using crop rotation) that do not require fertilizer. For example, traditional beans, oil seeds and similar crops grow easily on sandy soils if there is enough moisture (good rain). This way, the farmer successfully economizes the application of fertilizers in crop production.

Available information suggests that there has been an increase of national fertilizer consumption in Ethiopia. For instance, Ethiopia imported 530,000 tones of fertilizer during the 2009/10 agricultural season, compared with 177,000 in 1996 (IFA 2010). More importantly, the Ethiopian government has been encouraging farmers to consider local alternatives such as natural fertilizers. For example, in 2008, farmers in the Amhara Region prepared twenty-eight million cubic meters of compost, which also helped them to save over 1.2 billion Birr (about US $110 million) that would have been spent on fertilizer purchases (Capital 2010). A report from North Gondar also indicates that, from 2006/07 to 2007/08, farmers have produced close to two million cubic meters of compost (NGZ Department of Agriculture, no date). Such trends can be considered as further evidence of the extent to which farmers in the Amhara region and other parts of Ethiopia have successfully embraced fertilizer technology as a means to improve agricultural productivity.

A report by NGZ Department of Agriculture (no date.) shows that crop production has increased, by 2008, to 12.5 quintals (one quintal = 100kg) from 8.1 million quintals in 1997, an increase of 64% in ten years, though not the doubling or tripling of production growth as experienced by other developing countries. The consensus among farmers (in 2008) was also that overall agricultural production has increased in recent years and favourable market prices have helped them to earn more money. Some could afford to buy television and other electronic goods if they had access to electricity. However, the farmers also pointed out that the incremental gains from favourable market conditions were offset by the rising cost of fertilizers. This may mean yet more pressure for farmers to innovate their farm practices to minimize costs and maximize the benefits of fertilizers including considering local alternatives such as composts. Nonetheless, when this author toured some of the areas in the Amhara Region in 2008, it was clear that rural farmland has been fully utilized to the extent of reaching the limits of its "carrying capacity". The application of more and more fertilizer dosage could result in "diminishing marginal productivity", a situation where productivity reaches its highest peak and then stops growing or grows very slowly. For now, it can be concluded that the government has successfully promoted fertilizer application among smallholder farmers in the Amhara Region.

Lessons Learned

The Ethiopian government fertilizer extension program was a nation-wide initiative as part of the government's comprehensive rural development policy. This study used an

illustrative RBM model to assess the effectiveness of this program in North Gondar Zone (NGZ), Amhara Regional State, Northern Ethiopia. Covering a period of twelve years, the study has attempted to provide adequate data necessary for identifying, describing and assessing results including: the effectiveness of the government's awareness raising campaign in the promotion of the benefits of fertilizers; farmers' cautious approach to considering the use of fertilizers (a process of technical/cognitive change); the emergence of innovative farmers that overtook the role of model farmers (evidence of wider diffusion of knowledge and skills in fertilizer application); shift in government priority from fertilizer extension to other areas of rural development (evidence of reduced need for extension support); and overall production growth (evidence of benefit of fertilizer application). Overall, the success of this program was measured by the capability of farmers to make needs based autonomous choices of fertilizer use. This also demonstrates the effectiveness of the Ethiopian government effort to "modernize" the traditional farming system and increase agricultural productivity.

The measurement of development results can be influenced by one's own values and goals, so that one could apply a different analytical method to analyze all the information described here and identify more results in the context of social, organizational and other changes. The intent of this paper has been stated earlier as an attempt to contribute to the understanding of one aspect of development results measurement. In this respect, the lessons from the Ethiopian study can have broader relevance in terms of the measurement of effective development results of large and small development initiatives of short and long durations.

First, in line with the thesis of this article, the Ethiopian experience has shown the importance of defining and measuring results using situationally appropriate approaches that allow the proper understanding of contexts, timing and scopes for results measurement. This allows development agencies to aim for the measurement of practical and measurable results. For example, as noted earlier, agricultural development in Ethiopia could encompass complex, interrelated and overlapping strategies like technological change (inputs and ploughing equipment), resource management (soil, water, land, etc), infrastructure building (transport and storage), labour productivity (education and health services) and safety nets (insurances). Thus, in measuring the effectiveness of the Ethiopian government rural development policy, it is important to focus on the particular aspects of each of these strategies, instead of lumping them together under "sustainable agricultural development" and getting bogged down with too many measurement variables that one has no adequate influence or control. This paper focused on fertilizer adoption, which is one aspect of technical change in the Ethiopian smallholder agriculture. There is no doubt that Ethiopia still remains faced with the problem of food insecurity and decision-makers, particularly outsiders, may assume that a decade of government efforts to promote the application of fertilizers have not worked well. This regional study has shown that the fertilizer extension program has been successful.

Second, the Ethiopian experience demonstrates the notion that results are process-oriented and long-term requiring gradual changes in thinking, values, practices, technologies, relationships and so on. It took Ethiopian farmers years to learn how to master the appropriate use of fertilizers. It then follows that the progressive realization of development goals should be defined and measured at different levels (Figure 1) in order to identify and measure what have been practically achieved over time (within one year, three years later, five years later, ten years later, and so on). Too often evaluators, researchers and planners conduct monitoring and evaluations of programs and projects based on data gathered during brief field visits and reviews of reports and planning documents. While such approaches can be relevant for assessing short-term (immediate) outcomes, they do not generate adequate information necessary for analyzing trends and issues in relation to the achievement of long-term results. This study in Gondar region assessed the impact of a fertilizer extension program after 12 years (1996-2008). Were the study initiated in 1996, it would have focused on assessing results at an immediate outcome level (Figure 1).

Finally, the Ethiopian study has shown that it is not impossible to measure and communicate development results and their sustainability. RBM models provide development agencies with flexible and adaptable approaches that allow them to measure what they have practically achieved. This article used the RBM model developed by the Canadian International Development Agency (CIDA) (2008) to develop a framework that showed the complexity and simplicity of tasks depending on the context, scope and timing of results measurement exercises (Figure 1). Be that as it may, there is a need to have adequate knowledge of what is meant by effective or sustainable results before embarking on measuring the results of efforts of development agencies which range from small community-based organizations and change agents to highly "networked" international NGOs, donor agencies and national governments. The discussion on the Ethiopian government fertilizer extension program clearly showed the seriousness and discipline required to gather and analyze data to support the claim of effective and sustainable development results. Paying brief visits to project sites and writing monitoring and evaluation reports may not tell the whole story about the contributions of development agencies to support development efforts in countries and communities. Responsible results measurement exercises are informed by context-specific conceptual and methodological approaches to focus on reporting on what has been practically achieved.

Conclusion

This article has attempted to contribute to an understanding of one approach to results measurement using the Ethiopian government fertilizer extension program as an example. The Ethiopian study has shown that it can be possible to formulate a method that identifies results at different levels and narrows down the task of results measurement to focus on what can be realistically measured over time and space. This entails that external development agencies (international organizations) that run short-term programs and projects aim to measure and report on results at immediate outcome level (Figure 1).

One may criticize this approach as being too simplistic in that it focuses on the measurement of short-term results while avoiding the difficult task of measuring long-term results. We have persisted to argue that responsible results measurement requires a focus on reporting what has been practically achieved. This argument neither advocates the confinement of results measurement exercises to short- term results nor overlooks the importance of long-term results as a measure of effectiveness and sustenance of development initiatives and accountable reporting. It is also precisely for this reason that development agencies need to consider systemic thinking and planning in the development of situationally appropriate results measurement methods.

Notes

1. Policy Analyst, Canadian International Development Agency (CIDA). The views express in this paper are author's own and do not represent those of CIDA. The paper was presented to the Canadian Association for the Study of International Development (CASID) Conference, Concordia University, Montreal, Quebec, May 31- June 2, 2010.

2. In this paper, development agencies refer to organizations which range from small community-based organizations and change agents to international NGOs, research institutes, donor agencies and national governments.

3. For example**,** the United Nations agencies aggregate large volumes of data by developing ordinal scales that assign values (1-10) to indicators and then rate those indicators against the performance of countries (less developed, more developed, etc).

4. Some of these points here also reflect the professional experience of the author with CIDA. The views are author's own and do not represent those of CIDA.

5. The 1995 constitution created a federal state consisting of eight regional states. Regional states are divided into zones and zones into Woredas (districts) which are in turn divided into Kebeles (locales).

6. NGZ is divided into fifteen Woredas. Lay Armachiho Woreda was the study area in 1996/97.

7. Note that the number of demonstration sites equals the number of quintals of fertilizers distributed. The reason is that each site was measured and designed on 0.5 ha of land which also required 1 quintal of fertilizer.

8. This policy was intended both to squeeze surplus land for redistribution and punish rural officials of the previous government. This model farmer got his land back when his nephew became the chair of the Kebele (local) Administration. According to this official

(Kebele chair), his uncle had been a victim of a smearing campaign by an ambitious former local party official (personal communication, Nov. 2008).

9. Historically, the *rist* system was used to claim land rights in Northern Ethiopia. This system required an individual to prove that he/she had an ancestor living in the area. The 1975 land reform act abolished this system and made land eligibility based on residence in the area. This policy was upheld during the 1996 land redistribution in the Amhara Region.

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