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Introducing Results-based Approaches in Agriculture: Challenges and Lessons Learnt

Summary

Increased and more effective public and private investments in the agricultural sector are needed to achieve the goals of ending hunger and reaching food security by 2030. Results-based approaches, which are innovative financing modalities that link payments to pre-defined results, are potentially powerful tools for overcoming the food security challenge.

Results-based approaches promise several advantages over traditional aid modalities, to include a greater focus on results, better accountability systems and improved incentives. They can also be an important tool for accelerating innovation and leveraging additional resources from private investors for agricultural and food security interventions.

While widely applied in the health and education sectors, only few experiences with results-based approaches in agriculture exist, and the suitability of the sector for the instrument is debated. Our briefing paper contributes to this debate by: laying out the challenges to implementing results-based approaches in the agricultural sector; introducing the Five Rural Worlds model (5RW) (OECD, 2006) as a framework for analysis of targeting and interdependencies; and summarising first experiences from pilot programmes.

We briefly review three pilot interventions representing different types of results-based approaches: results-based aid (a contract between governments) in Rwanda, results-based finance (a contract between a funder/host-country government and a service provider) in Zambia, and development impact bonds (DIBs) (a contract between a funder, a service provider, and a private investor) in Peru.

The analysis of the three pilot programmes shows that results-based approaches have the potential to foster innovation in agriculture and to play an important role in improving food security in developing countries.

Results-based aid programmes can provide additional incentives for partner country governments to focus on agricultural innovation and on reducing hunger and malnutrition in the long run. Results-based finance programmes, by offering economic incentives to service providers or private companies, can help to overcome market failures and foster the adoption of new technologies. DIBs are a novel way to engage private actors in addressing development challenges.

However, our analysis also shows that implementing results-based approaches in agriculture is challenging because of the complexity of measuring and achieving results in the sector. First, desired outcomes such as increased yields or incomes are highly variable and influenced by external conditions (e.g. weather and world market prices). Second, agriculture is a productive sector. Market forces and private actors play a much more important role in agriculture than in health or education. Improving agricultural productivity and food security relies on the decisions of millions of farmers and enterprises. Hence, designing results-based incentives and deciding whom to target is much more complex than in sectors dominated by the government.

Using the 5RW model, which distinguishes between five types of rural actors, ranging from chronically poor households to large commercial agricultural enterprises, we find that results-based approaches should take into account interrelations between the RWs.

Introduction

Increased and more effective public and private investments in the agricultural sector are needed to achieve Goal 2 of the Sustainable Development Goals (SDGs): to end hunger, achieve food security and improved nutrition and promote sustainable agriculture by 2030. There are almost 800 million hungry people worldwide, most of them living in rural areas. It is estimated that USD 125 billion are needed annually to achieve SDG-2.

To address this financing gap, development actors are searching for innovative financing instruments and policy reforms. Results-based approaches can make a key contribution. They link payments to pre-defined results and promise to incentivise greater aid effectiveness while documenting development progress. There is growing interest in results-based approaches among funders and implementers of agricultural programmes. This paper contributes to the debate on whether results-based approaches are suitable instruments in the agricultural sector, and on how they should best be implemented (Janus & Holzapfel, 2016).

Challenges to results-based approaches

While widely applied in public service delivery (health, education, water, infrastructure, etc.), there is little experience with results-based approaches in the agricultural sector. There are three major challenges that are specific to the agricultural sector.

First, there is a limited degree of control over key results. Total production levels (crop, livestock, fish), or smallholder income from agricultural production are common outcome indicators of agricultural development programmes. These indicators, however, are highly variable over time and subject to a variety of external factors, such as climate variability and changes in world market prices.

Second, measurability is a challenge. Due to the indicators' high variability, it can take several years until trends in production levels can be detected. In addition, measurements are often inaccurate, particularly in developing countries with large populations of smallholder farmers. Measuring smallholders' crop areas, production, crop value and income is demanding because of ill-defined or non-existing plot boundaries, intercropping, non-standardised measurement units, high shares of subsistence production and post-harvest losses.

Third, agriculture is a productive sector. Therefore, private actors and their ability to innovate, as well as market forces, play an influential and dynamic role. In comparison, services in the education and health sector are predominantly provided, financed and/or regulated by the government. The government is also involved in the agricultural sector through, for example, research and extension services, but development depends more on the individual decisions of the millions of farmers and enterprises.

The Five Rural Worlds and results-based approaches

Households and enterprises in rural areas range from large-scale to subsistence farms, microenterprises and chronically poor, landless households. The OECD (2006) distinguishes between five types of rural actors, the 5RWs:

- **Rural World 1** – large-scale commercial agricultural households and enterprises;
- **Rural World 2** – traditional agricultural households and enterprises that are not internationally competitive;
- **Rural World 3** – subsistence agricultural households and micro-enterprises;
- **Rural World 4** – landless rural households and micro-enterprises; and
- **Rural World 5** – chronically poor rural households, many of which are no longer economically active.

These types of rural households and enterprises all interact. Relationships can be antagonistic or synergistic (Brüntrup, 2016). The 5RW model provides a useful analytical framework for development programmes because it considers poverty relevant groups (RWs 3 to 5), while simultaneously acknowledging the role that larger, non-poor farms and enterprises (RW 1 and partly 2) can play in the growth process.

The 5RW model can be used to systematically analyse who benefits from interventions and to explore spillover effects on non-targeted households and enterprises. The model is also used to assess the extent to which results-based approaches impact rural dynamics, and to identify how targeting of one rural group affects the livelihoods of others. When designing results-based approaches, there are three options for reaching particularly poor and food insecure households (RWs 2 to 5). The first option is to directly offer incentives to poverty-affected groups (RWs 2 to 5) (e.g. conditional cash transfers). The second option is to motivate RW 1 to provide goods and services to RWs 2 to 5. The third option is to link disbursements to indicators that ensure a focus on particularly vulnerable, food insecure and poor groups (RWs 2 to 5).

Pilot programmes

We analyse three different pilot projects (see Table 1) that demonstrate the diversity of actors involved in results-based approaches. The projects operate at different scales and vary in their approaches to targeting and helping food insecure and poor people.

Program for Results (results-based aid)

The World Bank Programme for Results (PforR) in Rwanda is a USD 100 million loan and is the first PforR in agriculture. The programme incentivises the Rwandan Ministry of Agriculture and Animal Resources to increase and intensify the productivity of the agricultural and livestock sectors, and expand the development of value chains. Funding is triggered through seven disbursement-linked indicators (DLIs). The pilot project funds a nationwide government reform that affects 7.5 million farmers, 80% of whom are subsistence oriented. The DLIs are taken from Rwanda's

Table 1: Results-based programmes to promote agriculture and food security

Type of results-based approach	Specific model	Example	Funders	Incentivised actor	Focus
Results-based aid (RBA)	Programme for Results (PforR)	**Rwanda** Agricultural sector reform - USD 144 m - 2013-2016/18	World Bank UK Department for International Development (DFID)	Partner country government (Rwanda / Ministry of Agriculture)	Country-wide agricultural sector reform with results-based payments
Results-based finance (RBF)	Pull-mechanisms AgResults Initiative	**Zambia** Biofortified maize - USD 7 m - 2012-2019	Australia, Canada, UK, US, Bill and Melinda Gates Foundation	Private sector companies (Zambian millers and seed companies)	Introducing provitamin A enriched maize to fight vitamin A deficiency
Development Impact Bond (DIB)	Social impact investing	**Peru** Smallholder farmers - USD 110,000 - 2014-2015	Common Fund for Commodities (CFC) Schmidt Family Foundation	Schmidt Family Foundation	Strengthening cocoa and coffee production of Asháninka families

Source: Authors

national agricultural development plan and incentivise key drivers of agriculture like irrigation, soil protection and rehabilitation, and productivity enhancing technologies.

The programme takes a careful approach towards outcome orientation. Only one of the seven DLIs measures an outcome (average productivity levels of cassava, coffee and milk), and accounts for 15 per cent of total disbursements. Four DLIs measure key outputs that contribute to the overall objectives of the programme (terraced land area, irrigated area, technology adoption rates and agricultural financing). The remaining two indicators measure activities that are expected to be essential for ensuring the smooth operation of the programme and for achieving results (improvements in the management information system and agricultural policies).

To account for external factors influencing productivity, the programme only requires the government to achieve 75 per cent of the target to trigger full payouts. This rate is lowered to 40 per cent in years when crop insurance payouts are made.

The effects of the programme cut across the 5RWs. However, the PforR does not specifically target poor and food insecure households with its incentives. Research has shown the difficulties of previous Rwandan national agricultural policies in reaching the poorest. The PforR could therefore benefit by addressing the concerns of landless and chronically poor households (RWs 4 and 5) more systematically.

AgResults (results-based finance)

AgResults is a $118 million multi-country initiative that is funded by several donors: Australia, Canada, UK, USA, World Bank and the Bill and Melinda Gates Foundation. AgResults incentivises agricultural innovations through "pull mechanisms", offering results-based incentives for promoting agricultural technologies. There are six AgResults pilot projects, including the Zambia Biofortified Maize Pilot Project. The project, which will last seven years and cost USD 7 million, provides incentive prizes to seed and milling companies (RW 1) as a means of promoting the introduction of biofortified provitamin A (PVA) maize into commercial rural (RWs 2-5 as consumers) and urban markets. Up to 250,000 children in Africa die each year from vitamin A deficiency. The sustained adoption and market introduction of PVA maize is a cost-effective way to reduce fatalities from vitamin A deficiency.

The Zambia project aims to increase both the supply and demand of PVA maize. To increase supply, incentives are set for seed companies to produce, promote and sell improved maize seeds to farmers. To increase demand, millers are incentivised to increase the amount of milled PVA maize meal they sell to consumers. Both indicators are outcome indicators that are influenced by external factors. The amount of seeds and maize meal that can be sold depends on demand by farmers and consumers, which must be stimulated by the companies. In addition, achievement of the minimum sales threshold by millers depends on whether there is sufficient supply of PVA maize.

The Zambia project is a good example of a results-based approach that engages private actors in RW 1 to provide a good that is intended to benefit the poor and food insecure in RWs 3-5. However, there is one important shortcoming: the focus on industrial millers means that only those consumers who have access to markets where PVA maize is sold, and those who have the resources to buy refined maize meal, can benefit significantly. This design flaw means that the urban poor and the rural poor, especially those in geographically isolated areas, may only be partly reached.

Development Impact Bond

The DIB in Peru, from 2014 to 2015, aimed to benefit indigenous Asháninka families in the Peruvian Amazon

region (RWs 2 and 3) by strengthening and modernizing their cocoa and coffee production. The initial impact investor was the Schmidt Family Foundation (RW 1), which provided an upfront investment of USD 110,000. The Rainforest Foundation UK (RFUK) was the service provider and the United Nation's Common Fund for Commodities (CFC) was the outcome funder, paying back the investor depending on the results. The main problem addressed by the DIB was an outbreak of *Hemileia vastatrix*, a fungus that causes "coffee leaf rust" and can reduce coffee production by 50 per cent. The goals of the RFUK were to build facilities for planting new saplings of fungus-resistant coffee strains, to improve infrastructure for the processing of cocoa, and to rehabilitate 20 ha of coffee plantation.

The DIB's stakeholders involved agreed on four indicators that would trigger disbursement: an increase in coffee supply, improved cocoa yields, a larger amount of cocoa bought and sold, and the establishment of new coffee plots. The yield indicator proved to be set too high, it was not achieved and no payouts were made. Yields were much lower than expected due to a serious pest outbreak in 2015, and although there was a provision in the project agreement to adapt conditions according to unforeseen circumstances, this provision was not triggered.

The Peru DIB is the smallest of the three interventions reviewed in this paper. It was implemented for about one year, targeting one community of Asháninka people in the Ene River region. The target group was 40 smallholder coffee and cocoa farmers (RWs 2 and 3). Although they own land and are agriculturally productive, the Asháninka people live in remote forest villages and are impoverished by limited infrastructure and poor quality health and education services. The DIB therefore demonstrates the potential of targeting marginalised groups.

Lessons and recommendations

The agricultural and rural development challenges of the SDGs require innovative methods to finance and deliver services more efficiently and cost-effectively. Our analysis shows that there is a strong need for flexibility in structuring interventions and adapting them to changing circumstances. This need for flexibility, however, makes large-scale adoption of results-based approaches in agriculture difficult. Finding good results measures, aligning the interests of multiple actors and dealing with unforeseen events such as droughts, pest and disease outbreaks can be challenging.

The key lesson for the results-based pilot projects, as seen through the lens of the 5RW framework, is that the complexities of rural livelihoods are insufficiently reflected in the design of the projects. Of the three programmes reviewed in this paper, only the AgResults project in Zambia applies concepts for understanding rural interdependencies. However, there is no clear strategy for reaching those consumers that suffer most from vitamin A deficiencies. In Rwanda, there is no consideration of how commercial and subsistence farming interact and impact the chronically poor. Indicators used by the programme do not ensure a focus on especially vulnerable and poor RWs. The intervention in Peru focuses on poorer RWs as the primary beneficiaries, but lacks linkages to richer rural worlds.

To address the complexities of rural development, results-based approaches in the agricultural sector could implement a more **systematic mapping of broader rural interdependencies** with the help of the 5RW concept. Interlinkages between population groups, in terms of competition or synergies, have not been sufficiently considered by the pilot projects reviewed.

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