



BRIEFING NOTE

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SKILLS FOR AGRICULTURE

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1. INTRODUCTION

Agriculture is central to rural economies throughout the developing world, and agricultural growth has a powerful effect on rural livelihoods. There is, however, evidence that a lack of appropriate skills training is an important constraint on agricultural growth, particularly for small farmers.

This briefing note looks at how training can support agricultural growth and rural development. It provides an overview of common approaches to training for rural development and presents evidence that training can improve agricultural outcomes. It then discusses the increasing range of skills required to support rural livelihoods, and outlines key challenges in enabling farmers to put training to use.

2. AGRICULTURE, POVERTY AND CHANGING RURAL CONDITIONS

Not only does agriculture constitute a large proportion of GDP in many developing countries (see text box), it is also the primary source of income and subsistence for many of the poorest and most vulnerable individuals and households.¹

Given that many of these regions are predicted to remain predominantly rural at least until 2020, improvements in agricultural productivity are critically important in creating rural growth and reducing poverty. East Asia and the Pacific provide the strongest example of this: here, the agricultural improvements of the 'Green Revolution' succeeded in nearly halving rural poverty rates between 1993 and 2002.² Increased income in the agricultural sector has also been shown to increase the overall levels of economic activity in others areas, and studies show a significant knock-on effect from agriculture on local non-farm economies.³

The City & Guilds Centre for Skills Development is an independent, not for profit research and development body which is committed to improving the policy and practice of work related education and training internationally. We work with organisations around the world - principally with policy makers, employers, practitioners and learners - to share knowledge and help to lead the debate on policy and practice, aiming to achieve our vision of a world in which all people have access to the skills they need for economic and individual prosperity. We are part of the City & Guilds Group.

¹World Bank (2007a). Cultivating Knowledge and Skills to Grow African Agriculture.

World Bank, (2007b). World Development Report 2008: Agriculture for Development.

Staatz, J. and Dembele, N. (2008) Agriculture for Development in Sub-Saharan Africa.

International Labour Organisation (2007) *Key Indicators of the Labour Market 5th Edition*

²World Bank, (2007b). World Development Report 2008: Agriculture for Development.

³World Bank, (2007b). World Development Report 2008: Agriculture for Development, p. 7.;

Irz, X., Lin, L., Thirtle, C. and Wiggins, S. (2001) Agricultural productivity growth and poverty alleviation.



In sub-Saharan Africa (excluding South Africa) 60-80% of the population is employed in agriculture, producing 30-40% of GDP. Similarly, in South Asia, agriculture contributes between 22-28% of GDP and employs around 60% of the labour force¹. In South East Asia, the Pacific and East Asia the percentage of the population employed in agriculture is between 40-50%, with estimates of around 20% employment in the sector for Latin America and the Caribbean.¹

The primary effect of increased commercialisation of agriculture has therefore been increased pressure on land use, as commercial farmers expand, and a reduction in the share of the market available to smallholders, making traditional semi-subsistence farming practices increasingly unviable.

The development of skills to improve agricultural productivity and help farmers cope with the changing agricultural landscape is therefore key to supporting agricultural development and improving rural livelihoods.

3. AGRICULTURAL EXTENSION

Practical training for farmers is widely known as agricultural extension. Agricultural extension can be broadly defined as the development of agricultural knowledge and skills among farmers, aimed at increasing their productivity and realising other desirable changes, such as the formation of cooperative marketing arrangements. Extension's goals include:

- transferring knowledge from global, national and local researchers to farmers
- helping farmers clarify their own goals and assess opportunities
- educating farmers about decision-making processes
- promoting desirable agricultural development.⁴

Both the content and methods of extension vary quite widely. For example, different extension efforts have included training in the use of integrated pest management, the take-up of improved seed varieties and tilling methods, the provision of market prices and the integration of agriculture and conservation.

Extension may be funded publicly or privately, and delivered in a range of ways:

- **Training & Visit approaches** involve demonstrations for selected farmers, who then share their learning with others. This method was widely employed in extension programmes up until the mid 1990s.
- **Participatory training approaches, such as farmer field schools**, involve farmers in defining the problems and developing the training solutions themselves. These have been most widely used in East Asia.
- **Decentralised approaches** are publicly funded and delivered, but responsibility is transferred to local governments, in an effort to make trainers more accountable to farmers.
- **Fee-for-service approaches** allow farmers to approach extension service providers directly with problems and questions, and pay for the service either privately or using publicly funded vouchers.⁵

4. POSITIVE OUTCOMES OF AGRICULTURAL EXTENSION

Extension training can help farmers improve their livelihoods in several ways: increasing awareness of good practice, raising productivity, improving management practices and raising efficiency.

- **Extension contact is an important means of increasing awareness of current good practice in rural communities.** Godtland, Sadoulet, de Janvry, Murgai & Ortiz (2004), for example, used survey data from Peru to assess the impact of a pilot extension exercise designed to increase potato farmers' knowledge of pest management techniques. They found robust evidence that participation in the programme significantly increased participants' knowledge of pest management relative to the comparison group, and that this knowledge was likely to improve productivity.⁶

⁴ van den Ban, A. and Hawkins, H. (1996) *Agricultural Extension*, 2nd ed.

⁵ Anderson, J. and Feder, G. (2004) *Agricultural Extension: Good Intentions and Hard Realities*.

⁶ Godtland, E., Sadoulet, E., de Janvry, A., Murgai, R. and Ortiz, O. (2004) *The Impact of Farmer Field Schools on Knowledge and Productivity*



- **There is evidence that extension activities raise productivity, particularly where improved technology is available.** Alene & Manyong (2005) found that extension contact had a positive, statistically significant effect on productivity among cow-pea farmers in northern Nigeria who were using improved technology.⁷ Training both increased productivity following the introduction of new technology, and promoted the adoption of new technologies and methods in the first place. Although the value of extension depends heavily on the presence of an enabling environment, studies like this show that extension can nevertheless have a significant effect on productivity in the appropriate conditions, and that it is an important complement to the availability of new technologies.
- **Extension can also improve management practice, raising efficiency for given levels of technology.** Dinar, Karagiannis & Tzouvelekas (2007) evaluated the effects of extension in a sample of farms in Crete, and found that extension had a statistically significant effect on both how close technology and management practices were to 'best practice'.⁸ Their study suggests that improvements in efficiency due to better management practices are a significant part of the overall impact of extension.

Proving the impact of training is challenging as the effect of extension on productivity depends heavily on the broader environment. It interacts with other factors such as climatic conditions, the availability of capital to fund changes in production methods, and the condition of rural infrastructure. Evenson's (2002) review of the growing body of literature nevertheless found that the majority of impact studies showed a statistically significant correlation between extension and yield, controlling for factors such as labour, water and fertiliser. Evenson argued that the studies conducted up to the point of review support the ability of extension programmes to make a large development impact, and suggested that 'the evidence for economic impacts of research and extension programmes is probably more complete and comprehensive than the evidence for many other development programmes'.⁹

This view has been broadly accepted by international agencies. The World Bank, for example, recently acknowledged that despite the difficulties in implementing and evaluating successful extension programmes, extension helps farmers raise their productivity and incomes, collaborate with each other and with larger agricultural businesses, and benefit from technological developments, and that, as such, extension is high on the development agenda.¹⁰

5. SKILLS FOR MULTIPLE OCCUPATIONS

In addition to mastering the agricultural skills required to improve yields, farmers need business skills to cope with changing prices and agricultural conditions. Business skills are also important in creating alternative sources of income when agricultural output is unreliable in order to raise rural incomes. Palmer (2007) argues that the divide between farm and non-farm employment is largely artificial in sub-Saharan Africa and that: 'many of those working in sub-Saharan Africa, particularly in rural areas, can be said to not simply have one occupational or income-generating activity, rather their employment portfolio is complex, and likely to be made up of two, three or more income-generating activities pursued simultaneously, the composition of which changes at different times of the year'.¹¹

De Janvry and Sadoulet (2001) showed that engaging in multiple occupations is in fact the dominant path out of poverty among rural households in Latin America, and Orr and Orr (2002) found similar results in their Malawian study, where they identified that smallholders' ability to specialise in cash crops or micro-enterprise was constrained by their need to produce food crops for food security.¹²

⁷ Alene A. and Manyong, V. (2005) The effects of education on agricultural productivity under traditional and improved technology in northern Nigeria

⁸ Dinar, A., Karagiannis, G. and Tzouvelekas, V. (2007) Evaluating the impact of agricultural extension on farms' performance in Crete

⁹ Evenson, R. (2002) 'Economic impacts of agricultural research and extension'

¹⁰ World Bank, (2007b) *World Development Report 2008: Agriculture for Development*.

¹¹ Palmer, R. (2007). *Skills development, the enabling environment and informal micro-enterprise in Ghana*.

¹² De Janvry, A. and Sadoulet, E. (2001) Income Strategies Among Rural Households in Mexico; Orr, A. and Orr, S. (2002) Agriculture and Micro Enterprise in Malawi's Rural South.



Despite the dominance of multiple occupation strategies in many areas, traditional agricultural extension activities have focused almost exclusively on the agricultural path. Extension activities which address the specific needs of the multiple-occupation rural household are therefore important. By supporting both the agricultural and entrepreneurial dimensions of their livelihood strategy they can assist those pursuing this path out of poverty.

Successful enterprise training requires an approach which addresses the many challenges of rural business development:

- Training that helps farmers to engage successfully with larger markets is particularly valuable to help them profit from new enterprises.
- Ensuring that training in both finances and marketing is directly relevant to farmers' enterprises helps them to make good use of it.
- Marketing training cannot be separated from training to support quality control, capital management and price awareness, as all these factors are required to achieve a fair price.

6. CHALLENGES FOR APPLYING TRAINING

There is, therefore, evidence that both agricultural extension and enterprise training can make a difference to rural livelihoods if it is appropriate to farmers' livelihoods. There is, however, a growing acknowledgement of the fact that this training does not operate in isolation, but rather needs to be accompanied by a range of facilitating factors in order to be effective. These include:

Secure access to capital and land

Initiating new businesses or acquiring new technologies requires access to capital, and secure access to land. Capital and land ownership provide collateral for farmers to obtain credit for the inputs needed to use training. Insecure land tenure increases the risks of investing in higher input, higher yield methods.¹³ Projects can help farmers to apply training by mediating on their behalf with community authorities and local government for access to physical capital and more secure land tenure.

Access to credit

It is widely reported that difficulty in accessing credit hinders the development of smallholder agriculture and can impact negatively on the application of skills and knowledge acquired in training.¹⁴ Without access to credit, it is difficult for poor farmers to plan. They are also unable to undertake more dynamic and diverse activities, as start-up capital is typically required to enter the market. Where they are able to access credit, poorer farmers often also face disadvantageous repayment terms. Training in financial management and links with credit providers can help farmers access affordable credit.

Supportive macroeconomic environment and adequate rural infrastructure

For training to benefit agriculture, a proper macro-economic and regulatory framework, innovative private firms and NGOs, and adequate communication and transport infrastructure are needed to support the utilisation of knowledge.¹⁵ Training that aims to help farmers lobby local governments for the facilities they need can be valuable in this regard.

Gender

Women now constitute the majority of smallholder farmers in the developing world. They face particular challenges in accessing agricultural training: many are illiterate, have heavy domestic burdens, or face opposition from family members.¹⁶ Many of the broader contextual factors required for the implementation of agricultural training also have

¹³ IFAD (2007) India: Tamil Nadu Women's Development Project.

¹⁴ See for example : Commission for Africa (2005) Our common interest: Report of the Commission for Africa.

¹⁵ Saint, W. (2005) Who understands African agriculture? Too few!

¹⁶ World Bank and IBRD (2009) *Gender in Agriculture Sourcebook*.



a gender dimension, and training needs to take this into account if it is going to make a productive and sustainable difference for women farmers as well as men.

7. IMPLICATIONS

For policy makers: Strengthening the relationships between agencies responsible for extension and local government is required to improve responsiveness to small farmers.

For practitioners: A combination of agriculture and enterprise skills should be provided to smallholders to enable them to respond to changing economic and environmental circumstances. Training needs to take into account factors which affect the use of skills, such as credit, land ownership, rural infrastructure and gender.

For researchers: Further research is required to understand the interaction between training and factors such as credit, capital, education, and gender. In particular, the collection of data on smallholders which is disaggregated by gender is vital to inform strategies for addressing women's needs.

FURTHER READING

Anderson, J. & G. Feder (2004) [*Agricultural Extension: Good Intentions and Hard Realities*](#). The World Bank Research Observer.

Christiaensen, L., L. Demery & J. Kuhl (2006) [*The Role of Agriculture in Poverty Reduction - An Empirical Perspective*](#). World Bank Policy Research Working Paper No. 4013.

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