Proceedings of

The Roundtable Consultation on Agricultural Extension for Strengthening Sustainable Agriculture and Farmers' Participation in Value Chains in Asia

March 15-16, 2012, Beijing

Hans P. Binswanger-Mkhize and Yuan Zhou

March 2012

Introduction

Because of concern about global food supplies and inclusive growth, there is currently renewed interest in agricultural support services, including especially in agricultural extension. Extension has a complex history and a mixed record of success. The purpose of this Roundtable, jointly hosted by the Chinese Academy of Agricultural Sciences (CAAS) and the Syngenta Foundation for Sustainable Agriculture (SFSA), was to discuss what has and what has not worked in agricultural extension, and to foster learning from the experience of China, India, Indonesia and Vietnam. It brought together senior experts from the four countries and international specialists at the Beijing Friendship Hotel on March 15-16, 2012. The importance of extension was emphasized in the opening addresses of Ren Wang (Vice President, CAAS) and Marco Ferroni (Executive Director, SFSA). Extension and agricultural technology innovation, feature highly on the 2012 No.1 Document of the Central Government of China (CPC, 2012), which pledges to ensure incentives and capacity building for the extension agents throughout the country. Improved transfer of new and relevant technologies are required to meet farmers' growing and diversifying needs in agriculture across the Asian countries.

The Roundtable dealt with the following topics: (i) Public Agricultural Extension: Pursuing Intensification, Diversification, Income and Sustainability Goals, (ii) Private Agricultural Extension, the Game-changing Emerging Trend, (iii) Partnerships and Pluralism in Extension, and (iv) Putting Cell Phones to Good Use: Mobile Solutions in Extension. Case studies were presented as well as some comparative experience including an impact evaluation study about public extension reform in China. Two breakout session focused on "How to Raise the Coverage and Impact Effectiveness of Agricultural Extension" and "How to Build Demand-Driven and Financially Sustainable Extension Solutions to Support Farmers' Participation in Value Chains", respectively. The Rapporteurs prepared the proceedings based on the presentations, the summaries of the breakout sessions, and the daily summaries of conclusions reached.

The Role of Technology in Agricultural Development

It is essential for low income countries which are heavily dependent on agriculture to increase agricultural productivity. It allows agricultural productivity to catch up with rapidly growing non-agricultural productivity, and thereby releases labor from agriculture. Productivity growth is also needed to provide for the rapidly increasing demand for food and agricultural raw materials, to increase agricultural trade, and to enable rural areas to become a demander of goods for the industrial sector.

Evenson and Fuglie (2010) measured TFP* growth for 87 developing countries and showed that it has been accelerating significantly. The widely held notion that productivity growth has slowed down is therefore not born out. The authors also measure the capacity to innovate new technologies of these countries (as the number of researchers/1000 ha of agricultural land), and the capacity to master the new techniques (measured by the number of agricultural extension agents/1000ha and years of education of males above 25 years). Marginal improvements to research capacity, were associated with faster TFP growth. However, marginal increases in extension-schooling, without commensurate improvements in research capacity did not improve productivity performance. This means that increases in extension-schooling will improve technology only to the extent that

*Total Factor Productivity (TFP) is the difference between growth of an index of output and growth of an index of inputs.

the country also invests in research. This is an important issue when evaluating the productivity of extension programs.

Systemic Issues for Agricultural Extension

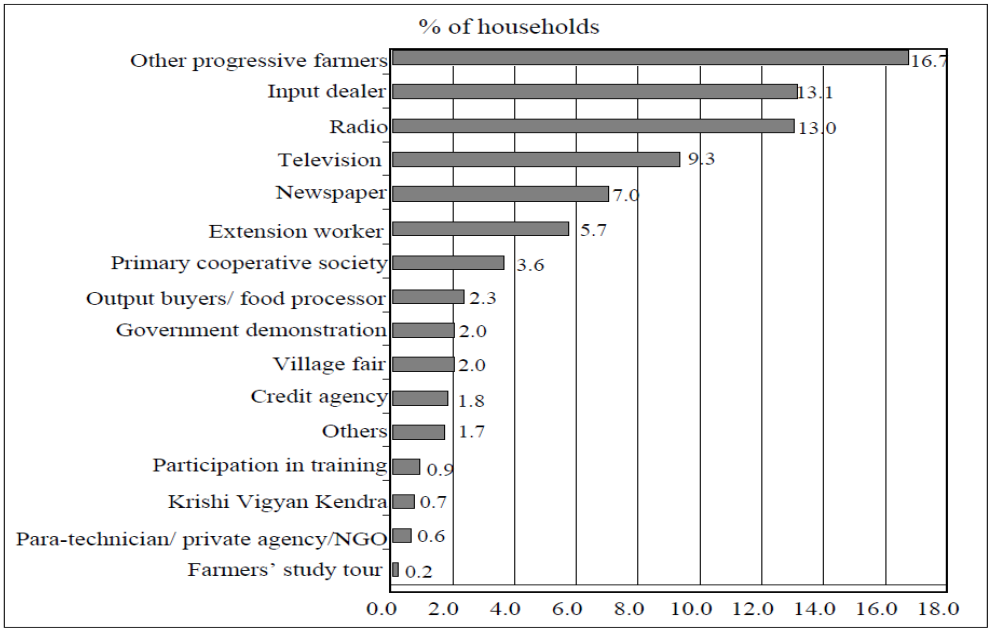
Heterogeneity and growing information requirements

Extension must be adapted to different crops, livestock products and farming systems, to widely heterogeneous local conditions, and to heterogeneous farmer populations: poor and prosperous, male and female, and farmers with different education levels. In addition, over the past few decades information requirements of farmers have been growing: it has to deal with the most appropriate technology options and the optimal use of inputs, and increasingly has to address sourcing of inputs and credit, where and when to sell outputs; deal with consumer and market demands, quality and safety of products; and expand from a focus on food grains to mixed farming systems, animal husbandry and fisheries. Recent thrusts include sustainable resource management and coping with climate change.

Overcoming limited coverage

Many extension systems suffer from an inability to reach a majority of farmers. In India in 2004, public extension (including the Krishi Vigyan Kendra centers) reached only 6.4 percent of the farmers, who instead mostly got their information from other progressive farmers and input dealers (17 and 13 percent respectively) and mass media (Figure 1). Other sources were much less important. Para-technicians, other private agencies and NGOs reached only 0.6 percent of the farmers. It is not surprising that input dealers are so important: they can always be found in their shops, they will provide information on the specific issue for the specific crop raised by the farmer when he most wants it.

Figure 1: Sources of information and advice of Indian farmers



Source: Derived from data reported in NSSO (2005, 7)
Note: Krishi Vigyan Kendra refers to Farmer Information and Advisory Centers.

Coverage trends in all the four countries are more or less in the following order: other farmers, input dealers, extension workers, firms contracting for output, NGOs, commercial private extension services (1[†], 26). The importance of public extension services in China stands out, where in 2006 it covered about 31% of farmers producing major grains (23). Coverage and reach of mass media varies across countries. Coverage data of private sector extension services is rarely available, but the Roundtable participants agreed that it may be the fastest growing segment of extension. Coverage of the use of information and communication technologies is growing fast. The data from India and other countries also suggests that, with few exceptions, small and marginal farmers, as well as women farmers, are generally poorly served by any of the extension providers. This is despite the growing role of women in agriculture, which is a common trend across all of the countries. Unfortunately no specific examples of how to reach them were discussed.

Finally, a barrier to improve the performance of extension systems as a whole is the paucity of rigorous impact evaluations of alternative systems, or alternative methods, which makes it very difficult to choose among competing options. At the Roundtable only one impact evaluation was presented, that of the reform of accountability and incentives system in China (23).

Enhancing accountability in extension systems

Extension systems often suffer from poor or totally absent accountability of extension agents and their local management to their farmers, which is most severe in systems where services are provided for free, or not embedded in inputs or contract relations of farmers with the private sector. Where different agencies collaborate in extension, accountability for results of the different collaborators to each other is also a major issue. Finally, government services have to be accountable to their governments, at local and/or higher levels for results and for the resources spent. How to improve accountability will be further discussed under different topics, and especially under public sector extension. Related to weak accountability is the diversion of extension agents' time to other duties than extension, which was noted in all four countries present at the Roundtable as being most severe for public extension services. Poor accountability to farmers may also translate into weak pressure from farmers on politicians to improve the systems, and poor political commitment to extension. This may arise at the level of central or provincial and state governments, or, as in Indonesia, at the level of local government when the responsibility for and financing of extension services is devolved to the local level.

Demand-driven extension and enhanced financial sustainability

Many presentations and a breakout session with two groups discussed how to build demand-driven and financially sustainable extension solutions. FAO first introduced a distinction between needs based extension and the much more narrow notion of demand based extension (14), where demand is associated with a willingness to pay. The report on farmer demand in Tamil Nadu included a willingness to pay study and found that such willingness may be present if the information is of good quality (26). Full or partial cost recovery from farmers may also improve accountability, targeting of services to problems faced by specific farmer groups. And it can contribute to the financial sustainability of services. However, a breakout session also noted that articulation of demand and partial payment for services is not enough to reform systems unless combined with accountability and incentives.

[†] Here the number refers to the number in the list of presentations on the Annex.

Speakers also suggested that articulating demand successfully requires the promotion of farmer organizations. The willingness and ability to pay is related to the income gains from the value chain/enterprise, and its level varies greatly across different types of farmers ranging from subsistence farmers to commercial farmers. Aggregation of produce through groups could enhance the willingness/ability to pay of the farmers belonging to the group. The fee-for-service model requires identifying extension providers and regulatory responsibility for certifying them on the part of the government, and enhanced capacity of farmers organizations, as well as necessary enabling environments (such as rural infrastructure and access to market information).

On the other hand cost recovery may make targeting to poor farmers and women very difficult, and may not be justified in the context of the provision of advice on themes which have a public goods character, such as natural resources management. Targeting to poor farmers may be resolved by stratifying farmer groups and implementing differential services/recovery schemes for each group. Reaching poor farmers in a system with cost-recovery can also be solved by giving vouchers for extension services to the poor farmers. However, Feder et al (2011) show that until today experience with vouchers has not been encouraging. Thus cost recovery does have a role to play, but it is more limited than often assumed.

Increasing pluralism and partnerships in extension services

Pluralism of service providers is now a widely recognized response to the rising complexity of the information requirements of farmers, as well as the rapidly growing involvement of the private sector, non-governmental organization and famers' associations in agricultural development all across the developing world. Different partners are likely to have different comparative advantages in agricultural extension. However, many forms of advice are public goods, which the private sector has little incentive to provide, and therefore such extension has to be either provided by, or co-financed by the public sector. The private sector will also have little incentive for working in poor agroclimate zones, on crops, or with farmer groups where it can make no or little money.

The literature into the allocation of functions to different providers distinguishes among different providers, and between the financing of services and the provision of services, as shown in Figure 2. In the columns we see who finances, ranging from government to farmers, NGOs and farmer organizations. In the rows we see the providers of services, the government, the private sector, NGOs and farmer-based organizations (FBOs). The shadowed rows and columns provide all the six combinations in which the private sector or NGOs are involved either in financing or provisioning of extension services. Of these the most important modality today is cell (8) *Embedded services:* companies provide information with input sale or marketing of products, and with a profit motive in mind.

Figure 2: Options for the provision and the financing of extension services

	Financing the Service			
Provision of the service	**Public sector**	**Farmers**	**Private companies and NGOs**	**Farmer-Based Organizations FBOs**
Public-sector organizations	(1) Public-sector extension services provided free to farmers	(4) Fee-based public-sector extension services	(7) Private companies or NGOs contract extension agents from public-sector	(10) FBOs contract staff from public-sector extension agencies

Private-sector companies and NGOs	(2) Publicly funded contracts to private services or NGOs; vouchers	(5) Private-sector companies or NGOs provide fee-based extension services	(8) Embedded services: Companies provide information with input sale or marketing of products	(11) FBOs contract extension agents from private service providers or NGOs
Farmer-based organizations (FBOs)	(3) Publicly funded contracts to FBO providers	(6) Extension agents hired by FBOs, farmers pay fees	(9) NGOs fund FBOs to hire agents that provide free services	(12) FBOs hire agents and provide services free to members

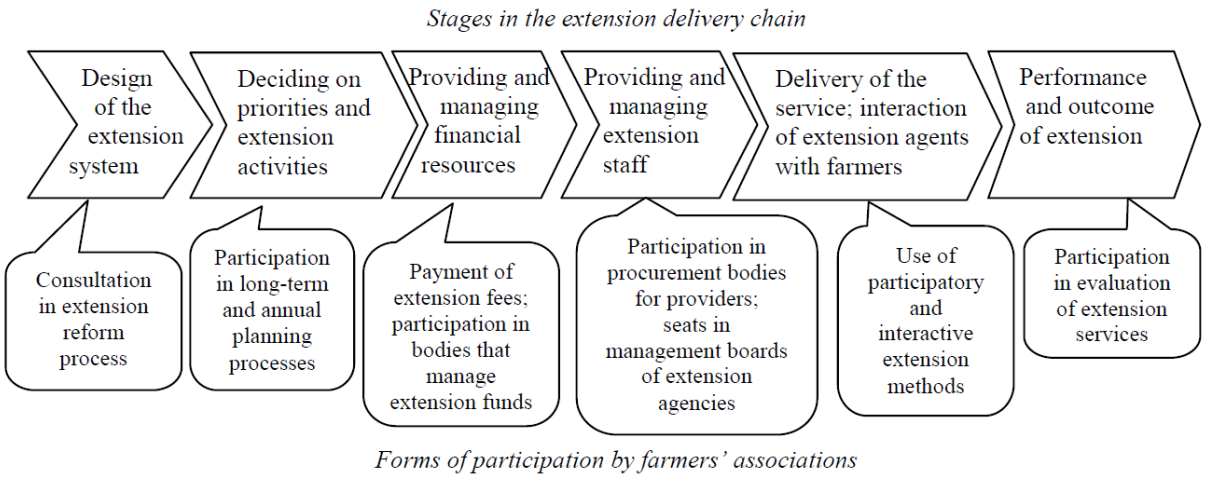
Source: Feder et al. (2011)

Public-Private Partnerships for extension are not yet well developed across the region. Nor do many systematic analyses of partnerships and complementarities exist. The experience of such partnerships promoted in Indonesia through a World Bank project is mixed (15), while partnerships in value chain management led by multinational corporations in Indonesia were more performing (13). They dealt with value chains which dealt with agricultural outputs or inputs that were specific to the multinational corporations involved. PPPs also require more appropriate financial mechanisms for government support to NGOs and farmer organizations, which need to be better studied (14).

Participation of farmers in extension

Participation often goes together with demand-driven extension, but it can be a feature of any extension system. Participation can take many forms (Figure 3): from consultations in the design of extension systems, to involvement in planning of annual or long term priorities, all the way to participation in the evaluation of the performance and outcomes of extension services. As in other aspects of agricultural, participation has helped improve performance in extension (Binswanger et al, 2010).

Figure 3: The many stages and forms of participation by farmers in extension (Feder et al., 2010)



If top-down attitudes among extension staffs and systems remain, it may be hard to implement farmers' priorities derived from participatory processes. Communities too are not immune to elite capture, and service delivery may favor larger famers or ignore women. While the social basis for community participation may be strong at the

village level, it may be more difficult to organize communities beyond villages when output marketing or the management of natural resources is involved. Feder et al (2010) show mixed evidence of the impact of participation.

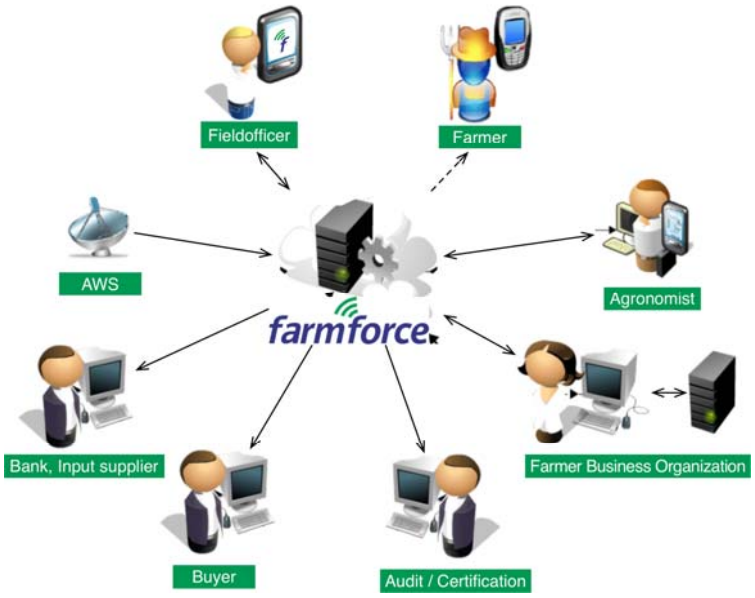
Farmer's Field Schools are an intensive, participatory approach that spread from IPM to other areas. The global evidence of impact is mixed (Feder et al., 2010). In particular, evidence of spillovers from the participants in the field schools to other farmers is negative. As a consequence, the cost of scaling up to many farmers can be very high, and many field schools have therefore not scaled up. But the IPM program of for rice in Vietnam that has reached 5 percent of the rice farmers.

The Use of Information and Communication Technology

ICT or Mobile applications are providing an expanding range of services for technology, marketing, input supply, and payment systems. Expectations differ among enthusiasts, skeptics, and pragmatists. Clearly, ICT can be used by any of the extension providers. As discussed in Ferroni and Zhou (2011), the growth of mobile applications builds on the near universal access of rural areas to cell phone, and growing access to internet. They still require improvements in content, supporting infrastructure, access to financial services and markets, and farmer education. They are, however, more difficult to use for poor and older farmers. Mobile applications encounter many problems, however, that are often quite trivial: empty batteries; no credit on the phone; message that is not relevant, not timely or not action-oriented; no proper business model, etc. (19).

Future development of ICT and mobile application is likely to involve the following trends: (a) from generic messages to customized advice, (b) Integration of technologies and information towards location based data, (c) intermediaries with farmers continue to play an important role, echoed by China (21); (d) Television and Radio remain relevant in extension, (e) Supply chain management tools will play an important role as illustrated in Figure 4.

Figure 4: Business models are emerging that systematically link the different actors in value chains (19)



Lessons Relevant to the Different Service Providers

Public sector extension

The size of public extension systems varies widely between countries. In China in 2006, there were 787,000 extension staff in the whole public extension system, including 560,000 technicians, serving about 637,000 villages. That is, one extension staff per 0.81 villages or per 283 farm households (23). The Chinese system works in all counties and townships of China, irrespective of how remote they are. Between 1998 and 2006, 31% of grain crop farmers had received services from the public agricultural extension system, with other crops/farmers receiving less coverage.

In Vietnam in 2011 the total number of public extension workers was 34,747, which leads to a strikingly similar ratio of farm households per extension worker as in China, namely on average 1 public extension worker per 280 farm households (6). Of these, almost 29,000 are stationed at the commune or village levels. In Indonesia on the other hand there are 27,961 Field Agricultural Extension Workers, while the number of villages in Indonesia is 78,198 (7). One extension worker serves 2.8 villages on average.

In India of the 143,863 positions in DoA, only 91,288 posts are filled (Chandragowda, 2011), while there are about 638,596 villages. So each existing extension officer is in charge of 7 villages. India thus has by far the smallest public extension coverage. This may partly explain why it reaches only 6.4 percent of farmers.

Poor performance of public extension has been observed in both the well-staffed system of China and the understaffed and under-resourced Indian system (23, 5). As discussed in the next section, the Indonesia system suffered greatly as a consequence of the decentralization to the districts in the early years of the Century, a problem that recent legislation on agriculture, fishery, and forestry extension systems is trying to resolve. In Vietnam only 15 percent of extension agents have professional qualifications in extension. For all systems, participants noted that their staff is often ill equipped to handle the growing range of information requirements. This leads to proposals for capacity development, improved incentives and improved accountability.

The public sector, either by providing direct services or by co-financing services of other providers, can disseminate information that has public goods character, such as information on natural resources management. It could reach small and marginal farmers directly or via contracting NGOs, although in many systems it does not do a better job in practice than private providers. The public system is therefore the only system with the potential for a truly national reach. Participants at the Roundtable therefore agreed that public sector extension needs to be adjusted to broader modern requirements, revitalized, made more demand driven, made accountable, and properly equipped and funded (2, 5, 23).

On the other hand, the participants also noted the rapidly expanding private extension services that serve primarily the better endowed regions and medium to large farmers. This means that the public systems should focus more on poorer areas and small and marginal farmers, than private extension. To better serve marginal areas, improvements in rural infrastructure will sometimes be needed.

Decentralization of public extension

This is often advocated to deal with the heterogeneity of environments, products and farmers. It has the potential to improve accountability, incentives, and coordination with other local agencies. However, a review by

Anderson (2007) suggests that it may lead to more political interference, loss of economies of scale, and poorer research-extension linkages, as for example in the case of Colombia.

In China the responsibility of agricultural extension was devolved to counties as part of the wave of rural reforms of the early 1980s. In India the Agricultural Technology Management Agency Model decentralized more authority for extension to districts, in particular the responsibility of coordinating different agencies and actors involved in research and extension, as well as planning of extension activities for each district. The participatory governance system included private and non-governmental extension providers as well as research organizations and farmers. The system was widely regarded to have performed well during its pilot years. During more recent scaling up the performance may have deteriorated, perhaps as a consequence of poor funding of the extension systems by the states which are responsible for it. This example shows that organizational reforms are not enough if underfunding persists, and if accountabilities to farmers and incentives are not reformed (24). But organizational reforms are sometimes required: for example, separate systems for crops, livestock, fisheries and forestry extension cannot work on integrated livelihoods approaches, and may have to be restructured.

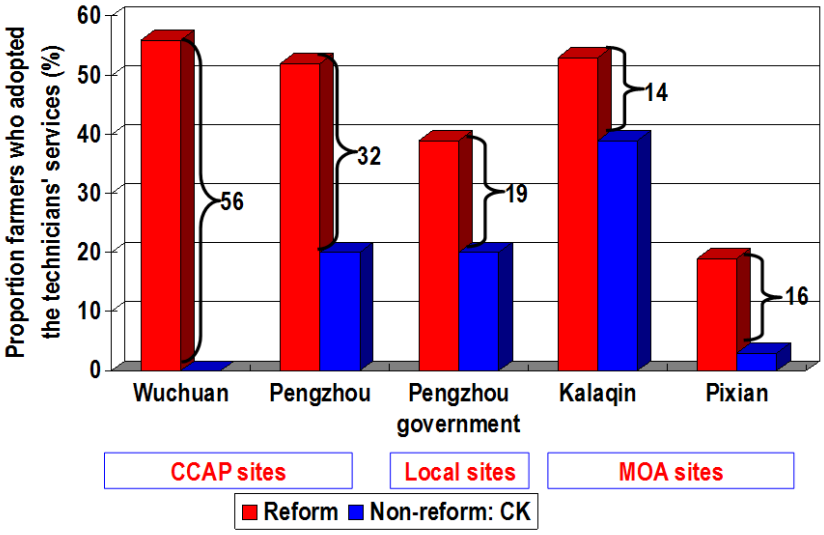
In Indonesia, the devolution to local governments at the beginning of the century led to a decline in funding associated with lack of local political commitment and other problems. The evidence on the impact of decentralization on the performance of extension systems therefore remains mixed. Clearly, it depends on how well the decentralization is carried out.

Improving accountability of public extension in China

In the middle of the last decade China implemented a remarkable experimental study of improving accountability and incentives in the public extension system (23). In five regions the 'Responsible agents' experiment selected villages treatment and control villages at random. In the treatment villages it selected extension agents at random, trained them in a broader range of extension functions than just food grains, and made them responsible for extension in three villages. The extension agents were made accountable to farmers who rated their performance. High performing agents were paid an annual bonus of up to 4000 Yuan (approximately 700 US dollars). The system did not involve institutional reform and left the decentralization to counties and townships intact. Instead it focused on accountability of extension agents to farmers and their financial incentives (23). The new system also did not change the method of providing extension much, did not introduce Information and Communication Technologies and worked mostly with known agricultural technologies. It also worked with the same extension agents, the same managers, and the same extension budgets.

The new accountability and incentives systems sharply increased the proportion of farmers reached, the promptness of services to them, and the uptake of extension advice, which is shown in Figure 5. Such accountability and incentives reforms could be a model for reforms in other systems, such as India's ATMA system.

Figure 5: Impact of accountability and incentive reform on adoption of extension advice (23)



Private sector extension

Interest of the private sector in investing in agriculture has been bursting in many countries (5, 27). Firms are motivated to enter extension for increasing sales or revenues from contract farming. A value chain approach requires highly qualified, farmer friendly extension agents, and many other complementary elements. Both the literature and the Roundtable provided examples where it works well for embedded services associated with input supply and output marketing (12, 13, 15). In addition to resolving incentives issues, this can be self sustaining and able to reach scale (China, Indonesia) (12, 15). Participants emphasized that farmers have to change too. Figure 6 shows the example of DaBeiNong in China that runs a promotion and extension force all across the country for health products and feed for pork production.

Figure 6: Capacity of private extension in supply chains (12)

Instead of being driven by profit motives, private extension can be part of Social Responsibility Program such as CropLife in China (8): these systems cannot reach scale as exemplified in China: one township per county, very few counties. To scale up, the models developed will require government involvement.

A review by Feder et al (2011) has shown that contracting private organizations for providing extension services has proven difficult in countries ranging from Uganda to Nicaragua. Difficulties stemmed from political interference in contracting, the limited ability of farmers to define priorities and monitor performance, and the paucity of capable private providers. Contracting does not appear to come cheaper than public extension. Nevertheless, contracting is still promising, but it is not a panacea.

A good example of a training program in India provides one year training to input dealers who receive a certificate. The program is now scaling up across several states (11). The government has initiated an AGRI-CLINICS program for unemployed graduates that want to become local technicians, and be involved in the sale of inputs and provision of soil tests, as well as advice for fees (11).

NGOs as providers of extension

The Syngenta Foundation has successfully used NGOs as providers of extension to small and marginal farmers, including to women in India (Ferroni and Zhou, 2011). PRADAN of India presented a program in India that has gradually moved its focus to small and marginal farmers and to women, including in the tribal areas poorly or not served by public extension. While many NGO programs remain small, the program of PRADAN has scaled up to cover 1.5 million famers (9). However, they are not planning to scale up much further, and instead suggest that scaling up will require the transfer of its lessons and methods to the public sector. An alternative would be for government to contract more NGOs to scale up services, to small and marginal farmers and women, which will require development of much more NGO capacity.

Community-based extension

Community-based extension, where participation is part of all stages of the system, is particularly suitable for areas where collective action is required, such as natural resources management, water and pest management, cooperative input supply, and output marketing. Organizing farmers into communities may even be necessary for enhancing sustainability of farming systems. To be successful, community-based extension also requires competent service providers (Feder et al, 2010). It is not surprising that many farmer-based extension organizations are focused on specific commodities. They are better able to deal with the entire value chain than other extension organizations. Starting and scaling up may require government financial support, especially for the capacity building of the FBOs. In order to play an important role in organizing value chains, the producer groups need to operate across villages and regions, which may be a challenge, as social capital may not be strong across villages.

Financing Issues

A tradeoff was noted between covering better-off farmers against concentration on very poor people: Vietnam's national system has an annual budget of only 20 million dollars. It therefore targets better off farmers (6); but the IPM program in the same country that has already been mentioned is focused on poor and medium farmers. It is financed to the extent of 15 percent of its budget from the same 20 million, and 85 percent from pesticide companies (17). PRADAN has covered 300,000 farmers for a budget of about 600,000 dollars (9); on the other hand Plantwise plans to increase coverage from 100,000 to 5 million farmers for a total cost of 50 million dollars

over 5 years (10). Thus costs of coverage differ widely. More rigorous comparisons on the cost effectiveness of truly scaled up programs are clearly needed.

On the other hand, rising national incomes in Asian countries have led to large increases in agricultural subsidies. These countries should be in the position to increase their extension budgets, both for improving the public sector system, and for co-financing of other actors. Finance of extension could come at the expense of subsidies, and would be more compliant with WTO regulation than many other subsidies.

The Way Forward

The participants clearly want to view extension again as a major issue for agricultural development. To achieve more rapid productivity growth, both research and extension need to be strengthened. There are no silver bullets or unique models that will lead to enhanced extension performance. To scale up, reach the wide range of objectives and target groups, the state has to use a wide range of approaches. These will involve both direct state provision and collaboration with, and delegation/contracting to other actors. Clearly, increasing the reach of extension and targeting it to poor farmers and women requires much stronger political commitment and in some systems more public finance. Participation of farmers and accountability to them has to improve in all systems.

Embedded extension services in input supply and contract farming by the private sector will expand rapidly, and work well for medium to large farmers in well-endowed regions. Community-based approaches hold good potential for natural resources management and involvement in managing value chains. Mobile applications will become part of, or complementary to, all other services.

To take full advantage of the move to pluralistic systems, comparative advantages and specific functions of different actors have to be well understood. If NGOs or farmer groups are to be used to reach small and marginal farmers or women, co-financing by the government will be essential. This in turn will require careful development of contracting models, and enhanced capacity in government to do the contracting, among farmers to supervise contractors, and on the part of private providers.

The Roundtable noted the following priorities for research:

i. Research on the performance of extension reform and its impact in China, and comparatively across the sub-region is needed. FAO, WB, ADB, Planning Commissions, Private sector, should be approached for support (27). This should involve careful impact evaluation of alternative approaches tried.

ii. The Chinese experiment on improving accountability and incentives of extension agents could be tried in other countries in forms modified to their particular situations.

iii. Contracting and financing systems for Public-Private Partnerships (14).

References:

Anderson, J.R., 2007. Agricultural Advisory Services, Background paper for the World Development Report 2008, Agriculture and Rural Development Department, World Bank, Washington, D.C.

Binswanger H. P., de Regt J., and Spector S., 2009. Local and community-driven development, moving to scale in theory and practice, New Frontiers in Social Policy, Washington DC, World Bank.

Birner R. and Anderson J.R., 2007. How to make agricultural extension demand-driven? The case of India's agricultural extension policy. IFPRI Discussion Paper 00729, Development Strategy and Governance Division, IFPRI.

Chandragowda, M.J., 2011. Extension Planning and Management in Agriculture and Allied Sector, Presentation to the Third meeting of the Sub-Group on Extension Planning and Management constituted by the Planning Commission, New Delhi, July 16, 2011

CPC, 2012. The No. 1 Document for 2012: Several Opinions on Accelerating to Promote Agricultural Technological Innovations to Strengthen Continuously the Capacity of Supply and Guarantee of Agricultural Products, issued by the Central Committee of the Communist Party of China and the State Council. http://cpc.people.com.cn/GB/64093/64094/16995781.html

Evenson, R.E. and Fuglie, K.O., 2010. Technology capital: the price of admission to the growth club, Journal of Productivity Analysis, 33, 173-190.

Feder, G., Anderson, J.R., Birner R., and Deininger K., 2010. Promises and realities of community-based agricultural extension. IFPRI Discussion Paper 00959, March 2010.

Feder, G., Birner, R. and Anderson, J.R., 2011. The private sector's role in agricultural extension systems: Potential and limitations, Journal of Agribusiness in Developing and Emerging Economies 1(1), 31-54.

Ferroni M. and Zhou Y., 2010. Review of Agricultural Extension in India. Background paper for the study 'Prospects of Indian Agriculture and Rural Poverty Reduction'. Syngenta Foundation for Sustainable Agriculture, Basel, Switzerland.

Annex: List of presentations

#	*Presenter*	*Title of presentation*
1	Hans Binswanger	The role of Extension and Research in the Agricultural Transformation
2	Jikun Huang	Agriculture in Transition and Implications for Agricultural Extension for Small Farms in China
3	Shengdou Chen	Agricultural Technology Extension in China
4	Dongxin Feng	Agricultural Research for Development at CAAS
5	K. Narayana Gowda	Agricultural Extension Systems in India and the Rural Bio-Resource Complex
6	Nguyen Van Bo	Vietnam agricultural public extension: status and orientations
7	Sunarru Samsi Hariadi	Public extension in Indonesia
8	Jeff Au	Industry Association Role in Agricultural Extension
9	Soumen Biswas	Extending Agriculture to the Poverty Heartland of India: What Matters
10	Qiaoqiao Zhang	Promoting effective agricultural extension - CABI's role and experiences
11	M.N. Reddy	Extension by Private Actors – Capacity Building of Input Suppliers
12	Yarong Zhao	The role and function of agriculture technology company on agriculture extension in China
13	Tantono Subagyo	The role of private sector in agricultural extension in Indonesia
14	Magdalena Blum	Pluralistic Extension Systems – characteristics and considerations
15	Pantjar Simatupang	Pluralism and partnership in extension: selected experiences
16	Kevin Z. Chen	Demand-driven Agricultural Extension Service: International Experience and Lessons
17	Nguyen Van Dinh	IPM programme in Vietnam
18	Yinhong SUN	Improving Access to Extension Services for the Poor Rural People, Experiences from IFAD China Program
19	Fritz Brugger	Putting Cell Phones to Good Use: Mobile Solutions in Extension
20	Djuara P. Lubis	Using information and communication technology for agricultural extension in Indonesia
21	Wensheng Wang	Innovation of Agro-Technique Extension System by Using 3G Information Platform
22	Zulkifli Zaini	Nutrient Manager for Rice: Indonesia Experience with ICT
23	Ruifa Hu	The Public Agricultural Extension System in China: Development and Reform
24	Rasheed Sulaiman	Reinventing public extension in India: Ways forward
25	Vo-Tong Xuan	Reinventing Agricultural Extension in Vietnam – Introducing a Value Chain Approach to Farming in the Globalization Age
26	Suresh Babu	Building Demand-Driven and Financially Sustainable Extension Solutions
27	Ren Wang	Some Take Home Messages From a China's perspective