

The views expressed here reflect those of the author and do not necessarily state those of Katalyst.

Case Study

Enhancing the Supply-side of the Maize Market

Prepared by

Alan Gibson

The Springfield Centre for Business in Development
United Kingdom

June 2006

Enhancing the supply-side in the maize market

Contents

Preface

Summary

1. Introduction	1
2. The overall market	1
2.1 The overall problem: continuing low production	2
3. Market performance: the underlying causes	3
3.1 Immediate causes: weak knowledge and information	3
3.2 The underlying systemic causes: weak private sector capacity	3
4. Acting to build the market: intervention design and implementation	7
4.1 Bringing in new ideas	7
4.2 Identification of key partners	9
4.3 Awareness and knowledge-building	10
4.4 Building ownership and sharing costs	10
4.5 Bringing in others (crowding in)	10
4.6 Building on intervention synergies	11
4.7 Outputs achieved	11
5. Developing the market: changes from interventions	12
5.1 Wider changes in the maize sector	12
5.2 Producers	12
5.3 Retailers	14
5.4 Farmers	15
5.5 The poor	15
5.6 Winrock International	17
6. Key lessons and conclusions	18

End notes

Annexes

Annex 1: The KATALYST approach to market development

Annex 2: Other KATALYST-WI activity in the maize sector

List of Tables, Figures and boxes

Table 1	Key issues in the maize sector	4
Table 2	Key intervention outputs (events and participants)	11
Table 3	Key changes at the producer level	13
Figure 1	Greater Rangpur	1
Figure 2	Maize production and consumption, 1997-2003	2
Figure 3	Key sources and flows of knowledge and information in the maize market related to (1) organic compost, (2) STA and (3) contract farming	4
Box 1	Influencing and developing partners	8
Box 2	The partners: leading and innovative businesses	9
Box 3	Contract farming leads to maize sharecropping: the case of Kona Mohammed	16
Box 4	The (wealthy) farmer's perspective	17
Box 5	So what's in it for the poor?	19

List of Abbreviations Used

NGO	Non-Government Organization
WI	Winrock International
DFID	Department for International Development
SDC	Swiss Agency for Development and Cooperation
SIDA	Swedish International Development Agency
STA	Short Duration T-Aman
DAE	Department of Agriculture Extension
BRRRI	Bangladesh Rice Research Institute
BDS	Business Development Service
CIMMYT	International Maize and Wheat Improvement Center
MAB	Maize Association of Bangladesh

Preface

The Context

Poverty alleviation efforts in Bangladesh need to be accelerated to tackle the low rates of human development in this country of 140 million people. Economic growth – vital for poverty reduction – is based on the private sector which comprises of 6 million SMEs, and contributes to 25% of national income.¹ The millions of commercial farmers also play a key role. These enterprises continue to grow but face increasing competition from a more global market place. Therefore improving the competitiveness of selected sectors where the poor participate as producers, employees and consumers is essential for both private sector growth and impacting on the poor.

The Project

KATALYST, which started in 2002, is supported by DFID, SDC and Sida. It is implemented by Swisscontact and GTZ International Services and partners with the Ministry of Commerce. KATALYST is currently promoting more than 35 markets in 18 sectors comprised of services such as accounting, marketing and quality management services; manufacturing sectors such as plastics, furniture and agro-tools and machinery and agricultural sectors like pond fishery, vegetables, maize and poultry.² It also works with business associations to improve the enabling environment for businesses. The project has nationwide activities but has a special focus on areas in and around Dhaka, Faridpur, Rajshahi, Rangpur, Bogra and Jessore.

The Case Studies

KATALYST identifies the key constraints to competitiveness in these sectors and promotes mechanisms to improve the setting-up and running of businesses and/or access to a range of business services. Instead of providing direct support to small enterprises, it takes a systemic view and intervenes to stimulate the private sector to provide these solutions.

The project developed this series of case studies to share with the wider community what we do to promote sectors, why we do it, the strategies we use and impact we have achieved. The cases also illustrate the potential of the market development approach and the challenges faced in its implementation.

This case study looks at a variety of market development interventions undertaken by KATALYST in Maize, its impact on market actors, their business models and the maize farmers. KATALYST and Winrock International had a partnership whereby Winrock's know-how on maize was combined with KATALYST's market development approach. Issues related to such partnerships are also brought up in this case.

KATALYST highly appreciates the work of Alan Gibson of the Springfield Centre who is the author of this second case study on the work of KATALYST in the maize sector in Northern Bangladesh. I would also like to thank Peter Roggekamp, Harald Bekkers of the Industry and Rural Sectors Division and the professionals of the Maize and Monitoring and Evaluation teams who assisted Alan in this case.

Prashant Rana
General Manager
KATALYST

June 2006 Dhaka

Summary

Despite favorable returns, output in the Bangladesh maize sector has been lagging behind demand, with the shortfall met by imports. Consequently, the potential of maize – still a new crop in the country – to contribute to growth and poverty reduction has not been realised to its full extent. This case deals with the experience of KATALYST and its partner, Winrock International (WI), in addressing the underlying causes of this poor performance in the Rangpur region. The results from their series of interventions show positive, significant change in the maize market system and greater benefits for key players within it – producers, retailers, farmers and the poor.

Following its market development approach to business services, the focus of KATALYST's work has been on addressing a number of core constraints – weak information flows on the “know how” of growing, poor linkages to markets, an inability to take maize into farmers' 3-crop cycle and declining soil fertility. In each case its interventions have been marked by a number of common features:

- Bringing in new ideas: identifying potential business service solutions to market constraints – contract farming, short duration T-Aman (STA) rice and more effective organic composts – that were present but had not been adopted on a large scale.
- Working with key partners: identifying partners that can champion the new idea who are at the producer level in the market, in a leading position and with appropriate motivation and credibility.
- Building ownership in the process: undertaking tasks with (and not for) partners and sharing costs to test their commitment.
- Crowding in: encouraging other input providers to invest in knowledge and information and thereby promote wider change.

A range of activities were undertaken over the 12-month intervention period, with the emphasis being on technical assistance rather than financial inputs (total intervention costs were \$81,000). Among the key direct impacts were major change and expansion in the business models of each partner (with more being invested in knowledge and information services) and more – but still mixed – adoption of new techniques by farmers.

KATALYST's work has clearly contributed to major performance improvement in the maize sector in Rangpur. Even in a context of strong growth nationally, Rangpur's share of production has increased from 13.6% to 17%. In two years, Rangpur's output grew by 140%. Farmers switching to maize from other crops have typically doubled their incomes, with those involved in contract farming often gaining more than this.

The poor have benefited – as consumers and labourers – from the general increase in activity arising from more maize growth. However, the biggest gains are for those involved in maize growing directly, often through informal sharecropping arrangements, and who constitute around 5-10% of maize farmers.

The case highlights the potential benefits from adopting a market development approach and useful lessons in relation to the “how to” of intervention, especially achieving successful collaborations between organisations. It also sets out key challenges in the process – how to ensure that the poor are at the centre of intervention strategies, how to build the learning capacity of market systems and how to crowd in other players.

1. Introduction

Although it has grown considerably in recent years, the potential of the maize sector in Greater Rangpur, Bangladesh remains to be fulfilled. Further development holds the prospect of raising incomes for many rural households as well as making a significant contribution to the balance of payments nationally. Yet, despite the apparent opportunities presented, maize output is still relatively low and Bangladesh as a whole remains dependent on imports. In order for the benefits of higher maize production to be realised, the underlying reasons for this weak supply-side response need to be addressed.

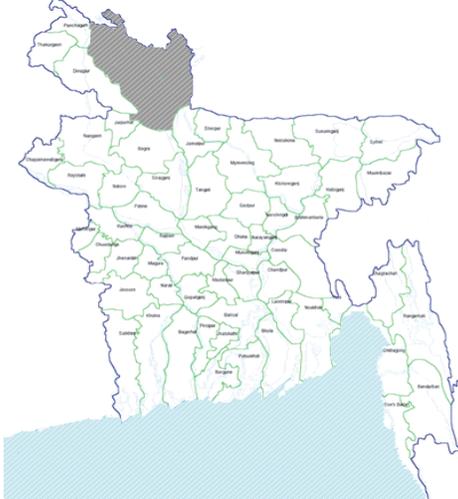
This paper sets out the experience of KATALYST in addressing the problem of a weak supply-side. It focuses on three critical areas of innovative intervention – compost production and usage, rice cropping and contract farming – where KATALYST has sought to enhance knowledge and information in the sector. In doing so, it gives details of what was done, why and how, and highlights initial changes arising from these interventions. It also draws out key learning points from the collaboration between KATALYST and its implementation partner, Winrock International (WI). In setting out KATALYST's experience, the paper's purpose is to add to learning in the wider development community.

The paper is structured as follows. Section 2 establishes the wider context of the overall maize sector and defines its supply-side output problem. Section 3 analyses the underlying causes of this problem. From a range of issues, it focuses in particular on weak knowledge and information services in the market system that undermine approaches to farming, crop management and use of inputs. In this context, Section 4 sets out KATALYST's approach to addressing these through a strategy of assisting a number of lead firms to innovate, introducing business ideas and building on this experience to bring others "in" to the market. The impacts of these interventions on the key market players are highlighted in Section 5. Finally Section 6 draws together major lessons and implications from this experience. Annex 1 outlines KATALYST's general approach and Annex 2 gives additional details on other activity in the maize sector.

2. The overall market

Greater Rangpur (hereafter referred to as Rangpur), located in the north of Bangladesh, is predominantly rural, one of the country's poorest regions and a priority area for KATALYST. Within Rangpur, in early 2004, the maize sector represented a logical focus for KATALYST for three major reasons.

Figure 1: Greater Rangpur



First, maize was an *important* and *growing* industry. From a low base in 1990, production nationally had increased 15-fold (and by 50% in the 2000-2003 period). Its growth had been fuelled entirely by the large rise in the poultry sector since maize is the principal ingredient in poultry feed. Bangladesh production competes directly with imports for the feed market. Strong domestic demand was manifested in high prices and relatively high returns for farmers. There are no official figures for the number of maize growers in Bangladesh but, unofficially, this was put at 100,000-125,000.

Soil and climatic conditions make parts of Rangpur especially suited for maize. Rangpur production – most of which takes place in two districts within the region – accounted for one-sixth of national output. KATALYST estimated that there were approximately 20,000 maize farmers in Rangpur.

Second, there was a major *opportunity* for further, substantial growth in the future. Growth opportunities arose from three related factors:

- Replacing imports: despite growing production, Bangladesh remained 75% dependent on imports³. This amounted to 800-900,000 metric tones (MT) per annum or approximately \$100-120 million as a direct drain on the national balance of payments. Maize produced locally was favoured generally by feed mills – and so competing with imports was an immediate opportunity.
- New poultry growth: poultry had become a principal source of protein in the Bangladesh diet; it had grown in size and importance (annual output growth of approximately 20%) and was expected to grow further.
- New markets: maize is on the periphery of the Bangladeshi diet (and there is no sign of this changing). However, maize as a feedstock for starch for the garments industry was a more practical and likely major market in the near future. One new starch plant would require up to 140,000MT of maize (30% of national production)

These factors suggested strong opportunities for further growth. Certainly, with only 2-3% of land that could be used for maize actually used for this purpose – and only in the main winter season – there was clearly scope to raise production.

Third, while the above two factors – the essential economic logic of focusing on the sector – were dominant in KATALYST's mind, the wider employment and *poverty-reducing impacts* were also taken into account. KATALYST's view was that higher returns from maize would reach the poor in a number of ways:

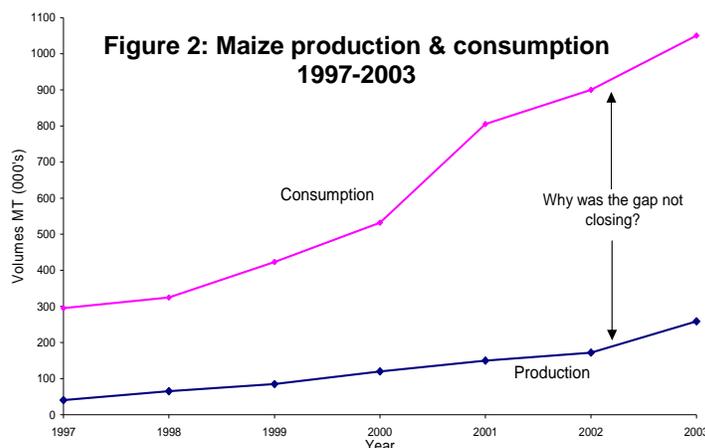
- As agriculture small-holders – from the relatively high returns to maize growing
- As labourers and employees to others: although there are no official employment figures, maize is accepted generally to be slightly more employment intensive per crop than rice and potato (although less so than tobacco and vegetables) and much more employment intensive than wheat and pulses.⁴

More indirectly – but still tangibly – KATALYST believed that improved performance in the maize industry would lead to improved feedstock and greater competitiveness for the poultry sector. three to five million people⁵ were estimated to be involved in the poultry sector, so indirectly there were potentially many more beneficiaries. And, of course, enhanced localised growth – through the normal multiplier process – would result in additional employment and income gains.

Few of the direct actors – especially farmers – in the maize sector were women. However, a considerable proportion of post-harvest employment involved them. Moreover, poultry-rearing is an activity traditionally undertaken by rural women.

2.1 The overall problem: continuing low production

In most circumstances, a 15-fold increase in output in as many years might be seen as indicating a strong and healthy market. Maize producers, responsive to market signals, were increasing their output substantially. However, as Figure 2 shows, there was a basic problem characterising the sector: the pace of the supply-side response had been extremely weak. Indeed, although the proportion of demand met by local production had increased (from 13% to 25%) the overall scale of import dependence had increased substantially.



This slow rate of production growth had taken place at a time when maize prices and returns to farmers were high (relative to competing crops). It also came despite the fact that productivity (output per hectare) had grown strongly (by 60-70% in ten years) and was at or near regional norms. Where production did take place therefore it appeared to be relatively efficient. The problem was that not enough

farmers were pursuing and not enough land was being devoted to maize production. Unless this problem was solved the potential benefits of more production would not be felt in the economy as a whole or by poorer people within it. Addressing this overarching issue was the key development and competitiveness challenge on which KATALYST focused.

3. Market performance: the underlying causes

If continuing low output in response to strong demand conditions was the main symptom of poor market performance, for KATALYST, the key questions were clear:

- (1) What were the constraints that prevented appropriate solutions from emerging through the market system (i.e. why wasn't the market working?), and
- (2) What could be done by KATALYST to address these?

Gaining accurate answers to the first of these was critical for KATALYST to ensure that their interventions were focused appropriately on underlying causes rather than symptoms. Its search for answers involved wider competitiveness analysis, detailed sub-sector studies and discussions with key informants and market players. In doing so, following KATALYST's market development approach (Annex 1), the analysis began with the product market of maize and proceeded to the services that permeate the sector.

3.1 Immediate causes: weak knowledge and information

Maize is subject to the myriad general problems that impinge on agriculture in Bangladesh. Fragmented land ownership makes economies of scale hard to achieve. Physical infrastructure, although improved, is highly variable in its quality. Together with weak transportation and high wastage rates for perishables this acts as a disincentive to improved practice. Some market structures (such as the seed supply industry) are anti-competitive. Financial services are often unfavorable for agriculture. Low levels of co-operation between small-scale farmers acts as a barrier to planning and investment.

Within maize, however, beyond these generic problems, there was a web of more specific, inter-related issues that inhibited output growth, all related to the comparative "newness" of the crop in Bangladesh (Table 1 outlines these in brief and more details are given in Annex 2). These became the focus of interventions from KATALYST, all stemming from the underlying problem of low levels of knowledge and information in the market system. Three specific areas became a KATALYST's priority and are the focus of this paper.

1. Weak access to markets and inputs: the risk of introducing new crops is reduced substantially if farmers have access to relevant inputs (including information) and output markets. **Contract farming** offers one commercial means of offering these services which appeared to have strong potential.
2. Fitting maize into a 3-crop farming cycle: in order for maize to fit into an efficient cropping pattern, the crop that typically precedes it (rice) is best grown using a short-duration variety. Introducing **short duration T-Aman (STA)** allows earlier maize planting, a longer growing period and therefore a means of enhancing production.
3. Declining levels of soil fertility: organic matter in soil is declining considerably leading to loss of output. Promoting more effective **organic composts** as a commercial product offers a means of addressing this problem.

3.2 The underlying systemic causes: weak private sector capacity

Recognition of the importance of knowledge and information in enhancing output brought KATALYST to the critical intervention question: why was the wider market system not providing a solution to weak knowledge and information? In particular, market players appeared to be especially slow to learn about new ideas and opportunities in relation to contract farming, STA and organic composts: why was this so?

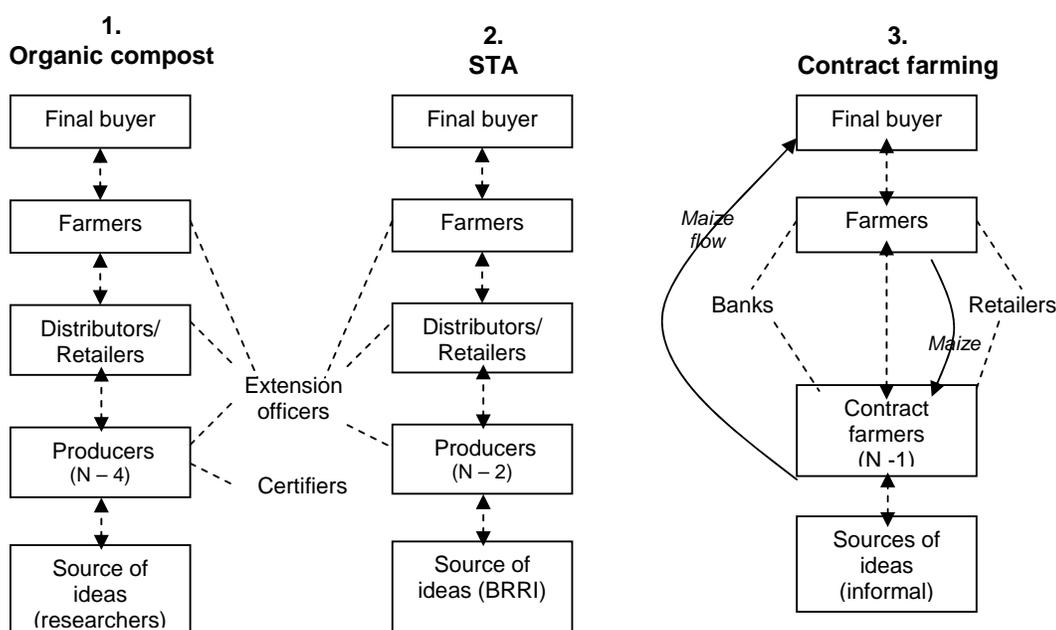
Before KATALYST could intervene effectively it had to secure answers to these questions and, in doing so, throw light on the underlying systemic constraints in the market. It therefore had to understand the existing picture – including which sources of information were commonly being used by market players in each of the three priority areas identified. From a combination of consumer research surveys, interviews and document analysis for each of the key areas of focus, a similar – but slightly different – picture emerged (Figure 3).⁶

Table 1: Key issues in the maize sector

Specific issue	Immediate cause	Knowledge and information basis
Weak linkages to markets undermine farmers' incentives to invest in maize.	Farmers don't know where to get the best deals and often have limited choice	Market structures and mechanisms are weak
Farmers are risk averse and unaware of potential benefits or how to grow such a new crop as maize	Existing sources of information are not reaching farmers with "what they need" to develop into maize farming	Potential providers of information either don't see the benefit or don't know how to pass on the right kind of information.
Major "public services" associated with maize – policy, promotion etc – are not being provided well	There appears to be no one to "speak for maize" and provide the necessary overview to offer the industry as a whole relevant services	The Maize Association of Bangladesh is young and with limited capacity.
High levels of wastage and rejection	Inadequate investment in appropriate storage and technology (especially drying) services	Farmers (and traders) are risk averse and unaware of potential benefits from storage and technology services
Farmers are unable to accommodate maize into a 3-cropping cycle	Low levels of use of STA rice which, being harvested earlier, would allow more time for maize cultivation	Rice seed producers and suppliers are unaware of potential benefits of STA rice – as are retailers and farmers
Soil fertility – the organic content of the soil – is declining rapidly	The organic composts on the market are of poor quality and the benefits to farmers not obvious.	Organic compost producers don't know how to make better quality organic compost
Low levels of soil fertility and inappropriate application of fertilisers	Farmers usually don't know the composition of their soil and, therefore, the right measures of fertiliser that should be applied.	Soil testing services from government are inaccessible and/or too slow and private services have been slow to develop.

 Priority areas for intervention (covered in case)

Figure 3: Key sources and flows of knowledge and information in the maize market related to (1) Organic compost, (2) STA and (3) Contract farming



(a) Organic compost

The problem

Soil fertility and erosion was increasing and maize cultivation – which is a relatively heavy user of soil nutrients - made this worse. Ideally, soils should contain approximately 3-5% organic content; in Rangpur the figure was typically 0.75 -1.25%.⁷ Traditional methods of composting (cow dung) are not sufficient in an era of high intensity farming. Existing producers of commercial organic compost produced in low volumes and their products were seen to be of low quality.

The players

The four existing commercial producers developed their own products largely from their own ideas and sources. The existing Rangpur market size was estimated to be around 500MT. Producers appeared not to have any formal (or informal) linkages with specialists in the field and although their products were tested (in compliance with regulations) and certified by government research institutes they had limited positive impact.

Producers used government extension services Department of Agriculture Extension (DAE) to undertake demonstrations for retailers and farmers to “prove” the merits of their product. This was a statutory role of the DAE. However, extension services, the official government channels through which new ideas should transfer from research stations to farms, were perceived widely to be ineffective.

Only a small number of distributors and retailers stocked organic compost. Generally, they saw their role to be sellers of products rather than providers of information and advice. They underestimated the importance of knowledge and information in their relationships with farmers. Farmers’ awareness and use of organic composts was limited. KATALYST’s initial market survey showed that if all the current production was used for maize alone (and organic compost is not a maize-specific product), organic compost would still have less than 10% of the potential market. Survey data show that in compost, as in other spheres, farmers’ main source of information, aside from other farmers, is distributors or retailers in the supply chain.⁸

The key constraints

Overall, the picture which emerged was one of:

- Producers who were substantially unaware of opportunities offered by new ideas/technology and who had no contact with specialists in this field
- and who generally undervalued the importance of high quality knowledge and information in their services
- Retailers who shared producers’ negative perception of the importance of knowledge and information
- A dysfunctional and, practically, rather irrelevant public sector extension system
- Farmers who relied on the input supply system for their information and who, as a consequence, had all the knowledge and information weaknesses of the entire system manifested in their behaviour

(b) Short duration T- Aman (STA)

The problem

Winter maize didn’t fit into the existing cropping pattern of many farmers. If farmers were to grow STA (a 110-120 days growing cycle – around 30 days less than “normal” rice) they would be able to plant maize earlier and achieve higher yields (and thus render it a more attractive crop). Although produced by research organisations, STA had made little impact with commercial seed producers and other downstream market producers.

The players

Of the 50 licensed seed producers in Rangpur only 2 were involved in STA rice. Both produced on a very small scale and had experienced difficulty generating any interest from farmers (and retailers). Producers (licensed by government) had formal links with the Bangladesh Rice Research Institute (BRRI), who produce the original foundation seed and whose role is to alert commercial producers to the potential of new seeds (and sell to them).

Producers were also linked with the DAE but generally had little faith in its capacity to introduce STA to farmers. There was little evidence of any momentum towards STA.

Retailers, dependent on producers for information, were substantially ignorant of new seeds. Farmers, in turn dependent on information from retailers, didn't know about STA and the wider benefits that might be derived from it.

The key constraints

Overall, the picture which emerged was one of a market which, in production terms, was at a very low level of activity:

- Producers who were largely unaware of opportunities offered by new ideas.....
- or didn't know how to introduce these to an unknowing market place, relying on the (generally very weak) DAE to do so.
- Retailers who were largely ignorant of the benefits of STA and farmers – at the end of the information chain – who knew least.

(c) Contract farming

The problem

Maize was still a new crop in Bangladesh, with a niche market – distant from the norms of traditional markets. Farmers were unsure of the “how to” of growing and of selling. Persuading them to invest in it was therefore a challenge. Contract farming potentially offered one means of addressing these real constraints. By providing farmers a package of support services (technical and perhaps financial) as well as a guaranteed final market it had the potential to reduce risk, enhance knowledge and information flow and raise output. In Rangpur, tobacco farming had often been done on this basis with the contractors being large corporate processors. However, other than this, contract farming was comparatively rare; not many people knew about it or how to do it.

The players

There was one maize contract farmer in Rangpur, *Doyel Agro*. Previously, they had had informal linkages with a Dhaka-based aid-funded project and linked with the International Maize and Wheat Improvement Centre (CIMMYT), an international agency, to help them with initial farmer and staff training. They relied on personal networks for new ideas and information but otherwise they had few formal, institutional linkages. To a considerable degree they were an early innovator on their own. The relatively large size of this operation had begun to attract interest from other, similarly large-scale players – farmers and traders – in the maize sector.

The only formal contractee farmers were those working with Doyel. Around 380 contractees had experienced one maize growing season. Doyel's offer to them was mainly provision of seeds with advice/training and a guaranteed price for final product. Initial financial returns for contractees were reported to be favourable. Farmers were entirely dependent on Doyel for information and services. Doyel sold all their final maize product directly to a feed mill.

The key constraints

Contract farming was a business model which had been started (and with promising initial results) and which was based on the provision of “embedded” services to farmers. However, other players – potential contract farmers – knew little about this and there was no institutional provider of ideas or expertise on contract farming. Its potential in maize, therefore, was not developed.

Overall, within the above picture of the different players within each element of the market, three general characteristics stood out:

- Farmers were dependent greatly on knowledge and information passed on to them through distributors and retailers – and they, in turn, relied on producers.

- Producers – whether of STA or organic compost or contract farmers – were the key source of ideas and innovation in the market.
- Enhancing producers' role – and specifically encouraging them to develop the knowledge and information basis of their work – was critical to improved market performance.

From this analysis of each key area, the most practical immediate focus to bring about significant impact lay with a KATALYST intervention to develop capacities and knowledge and information linkages at the producer level.

4. Acting to build the market: intervention design and implementation

Given that the focus of its intervention was to be on building knowledge and information in the market system around producers, the challenge facing KATALYST was: what should it do? What actions should it take to overcome the identified constraints to bring about the greatest impact?

In considering what to do, KATALYST was guided by three factors:

First, actions had to be consistent with a vision of a better functioning maize market, led by the private sector with improved knowledge and information flows within it. This was KATALYST's picture of the future.

Second, actions had to be developed in a flexible and entrepreneurial manner while still being consistent with this vision. This meant a process that allowed KATALYST to be responsive to new opportunities and needs as they arose.

Third, the need to manage its relationship with its key implementation partner, Winrock International (WI).

WI is an international Non-Governmental Organization (NGO) with extensive business and technical knowledge of the maize sector in Bangladesh. However, most of their work had been with government and NGOs in the past. Their focus had previously been on technical issues and the direct delivery of services to the "target group" (often the poor). For KATALYST, working effectively with WI – and adapting their approach to intervention – represented an important, parallel objective. KATALYST's approach to development is inherently about achieving large-scale impacts – the logic of "systemic change". But KATALYST had limited resources to intervene directly. Meanwhile, the wider development "machine" in Bangladesh – donors, projects, NGOs, government – in general followed a direct delivery approach with limited impact and sustainability. If KATALYST could influence this and tap into its specific expertise, their potential impact could be magnified greatly. Working with WI was an opportunity both to be more effective and to learn how to interact with other agencies.

KATALYST worked closely with WI from initial sector analysis to intervention design and implementation. Exploratory research began in early 2004 – with interventions beginning around July of that year and continuing for approximately twelve months. With people on the ground in Rangpur, WI had day-to-day responsibility for implementation.

For the three areas of focus KATALYST and WI considered a number of activities. Awareness campaigns and working with extension officers, for example, were rejected because they did not offer the possibility of sustainable (or substantial) impact. In practice, although activities varied, they shared a number of characteristics.

4.1 Bringing in new ideas

In each area of work KATALYST's objective was to encourage a new idea which had the potential to bring about wider positive change. These ideas - technologies, business models or ways of working-

- were already present in a small way but had not been adopted on a large-scale and their benefits therefore were limited;

- had not scaled up because of identifiable constraints which, without external intervention, would be unlikely to be overcome (or not overcome quickly.)

KATALYST's approach therefore was to stimulate "disruptive innovation"⁹ that had the potential to improve the flow of knowledge and information and the overall performance of the maize sector. The three ideas, all of which emerged in the course of initial market research, were:

- Organic compost – introducing a new formula from a specialist NGO (Waste Concern) for a higher quality, more environmentally-beneficial and more commercially viable organic compost product that uses locally available materials and has a relatively short production time.
- STA – introducing these new rice varieties from the BIRRI to producers and, in turn, to retailers and farmers so allowing more space in the 3-crop growing year for more productive winter maize growing.
- Maize contract farming – introducing a new "business model" of farming to potential contractors whereby a lead contractor offers extensive input services (seeds, fertiliser, technical advice, loans etc) to farmers (contractees) in return for sale at an agreed price.

Box 1: Influencing and developing partners

Why would KATALYST and WI collaborate? What was in it for each organisation? And, how did the collaboration work in practice?

For WI, as a contractor organisation, KATALYST first and foremost represented a potential funder. More than this, KATALYST's market development approach to BDS was of interest and an area which it wanted to explore more.

From a KATALYST perspective, the logic of working with WI was clear. WI was the kind of organisation that they had to influence in order to spread the market development approach beyond the limits of their own interventions. Aware of some criticism of its supposedly "ivory tower" purism, KATALYST was also being urged to engage more with other development agencies. Moreover, WI had what KATALYST didn't: technical understanding of the maize sector. Maize looked to be a promising sector to work in but KATALYST, with a strategic approach and financial resources, would find it difficult to work alone.

KATALYST's challenge was how to bring about change in WI's approach. Much of WI's work was concerned with playing market roles directly. Offering advice to farmers, linking market players directly, being a service provider. KATALYST's concern was in moving their role to that of facilitator of others.

KATALYST first contract with WI was signed in July 2004. WI had a team of people on the ground in Rangpur and KATALYST, Dhaka-based, had oversight and monitoring responsibilities. By September, it was clear that interventions were not proceeding as planned. WI was playing too central a role in the market. They were organising field demonstrations and workshops and inviting key players rather than prompting others to do so. They were providing too much directly themselves and not doing enough with others. At a one-day workshop in September it was agreed that WI's work had to be *with* market players with a view to them taking on these roles. For example, typically, in organising a demonstration plot, this would be done jointly on the first few four occasions and thereafter by the partner themselves. And WI was encouraged to be responsive to new signals from the market rather than concentrating on delivering a list of activities.

The immediate lesson was that successful influencing was a process. More than agreeing on the terms of a contract and budget (although important), people had to be won over to the ethos and the approach and its practical implications. KATALYST couldn't be entirely hands-off in this process.

4.2 Identification of key partners

At the same time as ideas for intervention were being identified, KATALYST sought potential partners to work with. They were looking for partners who would champion the development of an idea and with a number of common characteristics:

- At the producer level: this was seen to be the critical element of the market and the means through which ideas would be translated into action to feed through into other levels and impact on more people.
- In a leading position: partners had to be of sufficient size and/or presence and with an appropriately positive reputation to be able to impact on the market.
- With appropriate motivation: partners had to see – and wish to pursue – the commercial opportunity (and recognise the risks) in investing in a new idea.
- Credible as a partner: partners had to be trustworthy and competent. While KATALYST did not conduct due diligence “tests”, they had to be confident that partners would meet their side of agreements.

For each idea, a combination of the above factors determined KATALYST's choice of partner. Of the four producers engaged in organic compost Annapurna was not the biggest but the market leader was not receptive to collaboration. Annapurna, on the other hand, was enthusiastic and, with around 30% of the market, an important player. In STA production there was limited activity taking place but the most obvious partner had a poor reputation among farmers and was not deemed to be a suitable partner. Rahman, however, had tried (and largely failed) to introduce STA previously but saw its potential. Contract farming was largely unknown in Rangpur with only one major player (Doyel) who was ambitious and receptive to a KATALYST relationship.¹⁰ (Box 2). In reality, therefore, there was limited choice facing KATALYST.

Box 2: The partners: leading and innovative businesses

Annapurna is a traditional and well-established family-owned trading company (a Marowari). Most of their business previously had been in the supply of chemical fertilisers both directly to farmers and through retailers. However, the owner has always held a passionate conviction in the importance of organic compost to arrest soil quality decline. Involved in producing traditional compost since 1995, in 2000, in collaboration with a previous aid project, they had developed a compost product (and had it certified by government) sold in sealed bags to retailers and to farmers directly. They were very keen on pursuing opportunities to do more.

Rahman was previously a family-owned printing business that began to struggle against competition from Dhaka. Recognising the need to change, the son of the owner had decided to take the business into a new area and moved into commercial cereal seed production and input supply and set up distribution channels for these. As one of approximately 50 officially registered seed producers in Rangpur, Rahman had heard about the STA opportunity through the established linkages with BIRRI (and other government institutions). However, his initial attempt (in 2002) at introducing STA seeds met with limited success. He couldn't sell most of his first batch of seeds either to retailers or farmers. Disappointed by this, he had virtually stopped production.

Doyel is a private limited company set up in 2002 by a Dhaka-based entrepreneur, Mezanul Haque. Seeking to change from his previous food-processing business, Haque had heard about emerging opportunities in maize in Rangpur. After investigating opportunities, he linked with a number of prominent (political and social) leaders in the Patgram area of Rangpur and started a maize contract farming business. Entrepreneurial and driven, Doyel's business evolved and grew. More farmers were persuaded of the merits of maize, staff were trained (linking with CIMMYT), the service package offered to farmers was refined and bank financing was introduced. By 2004 (when KATALYST first engaged with them) they were already expanding fast, their impact was being felt and noticed and they were keen to develop more.

4.3 Awareness and knowledge-building

The basis of KATALYST's interventions with partners was strengthening the flow of knowledge and information within the business operations in two related ways.

First, by developing understanding and ownership in the partners themselves – and in particular in the business-owners. For Annapurna this involved KATALYST identifying a source of expertise (Waste Concern) and arranging for them to provide direct technical consultancy and advice to Annapurna on new processes, equipment and compost mixtures. For Rahman, already familiar with the logic of STA seeds, this was primarily concerned with re-emphasising the arguments for these. For Doyel, the pioneer of maize contract farming in Rangpur, this involved organising a workshop with other large-scale companies engaged in contract farming in other sectors (such as tobacco and fruit) with a view to identifying best practice. This was a significant learning event for Doyel.

Second, by enhancing knowledge and information in their dealings with other players in the supply chain (see Figure 3). For Annapurna, this meant supporting a range of demonstration plots, farmers' group meetings and retailer training. They also supported the development of marketing material (leaflets and posters) and folk song performances in rural markets promoting the virtues of compost and which reached an estimated 40,000 people! For Rahman, this meant a series of similar activities with farmers and retailers.¹¹ For both, it meant directly linking them with the emerging and often sizeable emerging contract farmers who were interested in finding new ways of improving performance.

For both Annapurna and Rahman these types of activities were fundamentally new. Both had tended to rely on the efforts of government organisations – the extension service (DAE) and the research stations (BRRI) – to increase farmers and retailers' awareness of new products. They had not seen it as part of their business approach to increase others' understanding and regarded knowledge and information as a peripheral part of their business.

4.4 Building ownership and sharing costs

From the outset KATALYST emphasised the importance of ideas and activities being owned by partners. Tasks therefore had to be undertaken with (and not for) partners and, in doing so, achieve a close (but not a dependant) relationship. In practice this meant that activities emerged which were not initially planned but which were consistent with the overall goal. For example, retailer training – not product specific but more generally in STA cultivation and in use of organic composts – was organised. And, for Doyel, an inter-bank workshop on lending to maize contractors was arranged. In other cases, partners undertook activities without KATALYST support; Annapurna for example, organised an additional 8 demonstration plots.

In order to test (and demand) partner commitment and ownership, cost sharing was a common feature of KATALYST's intervention approach. This was not a fixed or standard formula. Typically, for demonstrations, meetings and training this would amount to 40-50% of costs with KATALYST paying for materials (rather than cash being handed over) – although perhaps higher for initial stakeholder meetings. For technology transfer – for example the consultant from Waste Concern – KATALYST paid all the fees and the partner paid expenses only (around 10% of the total).

These were informal, usually non-written agreements, based on trust. For KATALYST, the important issue here was not the exact cost-split ratio but the need to ensure that partners made a substantial commitment.

4.5 Bringing in others (crowding in)

Although KATALYST worked primarily with one partner in each area initially, from the outset it understood that its task was not simply to support one player but to encourage others to "crowd in" to the market. For contract farming, where (as with many commodity producers) there is less sense of competition between farmers (especially in such buoyant market conditions), KATALYST arranged exchange visits for starting or potential contract farmers to Doyel. And once the main Doyel intervention was drawing to a close they drew on this experience and started to work directly with six new contractors.

For both organic compost and STA seed production, where there is a keener sense of competition, KATALYST's approach was to identify other potential producers and work with them on a "one-by-one" basis. Thus, in both areas, new interventions have begun with additional producers (three in compost and five in STA). The agreement with these is similar to the original partner but slightly less generous since (it is argued) the initial partner had a bigger risk to bear.

4.6 Building on intervention synergies

KATALYST structured its work as separate, individual interventions – and its agreements with WI were similarly framed – but in reality there was a considerable overlap between them. Where appropriate, KATALYST encouraged the linkages emerging from these different interventions. For example, Doyel the contract farmer was seen to be a likely customer of Rahman the STA producer and Annapurna the compost producer. And retailers of STA also stocked compost. The chances of individual intervention impact were increased because they were part of a wider programme of mutually-supporting activity.

4.7 Outputs achieved

With the period of intervention now over, the main outputs delivered by the project and the costs involved are shown in Table 2:

Table 2: Key intervention outputs (events and participants)

Activity	Organic compost		STA seeds		Contract farming	
	Events	Partic.	Events	Partic.	Events	Partic.
Dissemination Workshop	1	25	1	20	1	12
Hands on "coaching"	1	1			1	1
Technical workshop			1	15	1	9
Demonstration plots	15	15	12	12		
Farmers meeting	24	600	12	700	24	770
Stakeholders' workshop	1	17	1	20	1	37
Exchange visits					3	14
Coordination meetings					3	25
Folk song performances	24	40000				
Retailer-producers' meeting	2	30	2	35		
Retailers' training	3	78	3	75		
Field days	6	240				
Costs (\$000)*						
WI	22.00		16.5		19.0	
KATALYST			24.2			
Total			81.7			

* WI costs are those defined in their contract. KATALYST costs are estimates to cover programme preparation, design, monitoring and administration but excluding market research and impact assessment. These are not broken down by specific intervention. An exchange rate of 1\$: 63 taka – an average over the intervention period – has been used.

Overall, KATALYST and WI achieved or exceeded all the initially planned output targets. However, the general heterogeneity of the interventions above – with many different types of activity and a range of immediate participants – mean that it is difficult to make any meaningful comparison of cost per output. More important is comparison between costs and achievements (see 5.4).

With respect to costs, the ratio of direct KATALYST to WI costs (still financed by KATALYST) was approximately 3:7 demonstrating that outsourcing market development interventions is not a "walk away" option for organisations (Box 1). Doubtless, had WI been more familiar with KATALYST's approach, costs of management oversight could have been reduced.

Nonetheless, the relationship with a contractor is never likely to be purely based on contracts and funds.

5. Developing the market: changes from interventions

KATALYST's immediate aim was to bring about positive change in the flow of knowledge and information in the maize sector in relation to organic compost, STA and contract farming. Ultimately this would manifest itself in an improved supply-side response (in higher production primarily) but more immediately impact could be expected in relation to the different levels of the market. The logic of KATALYST's work therefore was that positive change should be evident in producers (the direct focus), retailers, farmers, and among the poor. Indeed if this was not the case the depth and durability of change would be limited. Moreover, change should not be confined to direct partners and those with whom they work but should be across the sector as a whole, "crowding in" other players.

5.1 Wider changes in the maize sector

KATALYST has not been the only factor acting on the maize sector. The period of their interventions witnessed major change in the sector. From 2003 to 2005 production nationally grew by 79% and, while the volume of imports was broadly constant, the degree of import dependence reduced from 75% to 60%. Most of this increase clearly came from more land being devoted to maize production (rather than extensive productivity gains). New farmers have been attracted in and existing farmers have placed more of their land under maize cultivation. Within this national context, growth has been even more evident in Rangpur (140%) and its contribution to national production has grown from 13% (35MT) in 2003 to 17.6% (85MT). Indeed, Rangpur's relatively positive performance is especially noticeable in the second year, 2004-2005, when KATALYST's influence might have been expected to be strongest. In this period Rangpur output grew by 14% against 3% nationally. In only one other region – Kushtia, the traditional centre of maize production – has growth been higher.

What accounts for these trends? Of course, much of this would have occurred without KATALYST! There have been some specific KATALYST impacts in Rangpur (see below) but there are obviously a number of bigger factors driving change in maize. With maize prices increasing steadily (by 10-20% between 2003 and 2005) most important here is likely to be that the message of relatively high returns (compared with other winter crops) is filtering through to farmers. Notwithstanding fluctuations from year to year, it seems that, at last, the supply-side is responding more effectively to demand signals.

The impact of KATALYST's work therefore needs to be seen within a wider picture of considerable growth in the maize sector. In this context, what specific changes can be attributed to it?

5.2 Producers

KATALYST's approach to the maize sector was primarily through the "window" of producers. Impact here was seen to be critical to wider systemic change. More specifically, change was envisaged in -

- (a) the overall business (output) performance of partners,
- (b) in their business models (i.e. how they worked) and
- (c) in the response of other producers in the market (i.e. the crowding in impact).

Table 3 summarises the main changes that have taken place.

Table 3: Key changes at the producer level

	Partner output	Partner business model	Crowding in
Organic compost	<p><i>Annapurna</i> Sales increase: 2,000 bags to 8,000 bags (320MT)</p> <p>Plans to increase capacity to 20,000 bags</p>	<p>Distribution network growth: 2 to 20 retailers</p> <p>New (more effective) product</p> <p>More appreciation of importance of knowledge and information (investing in demonstration plots)</p>	<p>2 more producers (supported by KATALYST) partially competitive</p> <p>No additional linkages with researcher/idea generator.</p> <p>Not clear how further crowding in will take place</p>
STA seeds	<p><i>Rahman</i> Sales increase: to 50MT (from close to zero)</p>	<p>Established retailer network of 30 retailers</p> <p>Investing in distribution network (retailers, demonstration etc.)</p>	<p>2 more producers directly competitive with <i>Rahman</i> (supported by KATALYST)</p> <p>Further learning (copying) is likely</p> <p>Role of govt research agencies still weak</p>
Contract farming	<p><i>Doyel</i> Output increase: from (approx) 4MT to 8MT (100% growth)</p> <p>Bigger bank loan to finance growth</p> <p>10MT forecast in 2006</p> <p>Productivity rises 20% Contracted farmers increase: from 380 to 1,600 - and looser links with approx 2,000 more</p>	<p>Contracting model has evolved, including more services (drying, purchase points, improved advice, transportation, group responsibility for bank repayments and service centres.</p>	<p>9 more contractors (operating on their own)</p> <p>In total 3-4000 farmers contracted</p> <p>Various contracting models and relationships</p> <p>Momentum of learning in growing market</p> <p>Not clear link to external source of ideas</p>

From Table 3, a number of features stand out and merit further comment:

Partner output

- Output among partners has grown considerably. Since the support from KATALYST has not been financial (but rather opening up partners eyes to new possibilities) and the businesses are profitable this can be expected to continue.
- Facilitated by KATALYST, business relationships between partners have developed. For example, 66% of Rahman's and 12.5% Annapurna's dealer sales are to Doyel farmers.
- Organic compost and STA seeds are essentially new product ideas not present in the market.¹² It's unlikely (especially for organic compost) that these would have developed without KATALYST.
- Although Doyel's contract farming operation was growing and would have grown without KATALYST, this would certainly have been at a slower pace. The productivity of Doyel contractees is more than 50% higher than the national average (8.00MT versus 5.15MT/hectare)
- So, as would be expected, the direct support from KATALYST has helped firms to grow.

Partner business model

- How partners undertake business has changed considerably but, in each case, the emphasis given to knowledge and information has been enhanced.
- Annapurna and Rahman invest in demonstration plots (rather than relying only on government extension services) and network development.

- Doyel has expanded and improved the bundle of services offered to contractees and changed the way in which they are provided within the context of a bank loan agreement. What was previously a rather rudimentary approach has been enriched and formalised. Many specific changes can be attributed to KATALYST.

Crowding in

- In organic compost, KATALYST's support to other individual producers (a "one-by-one") approach is promoting more activity (and competition). Beyond this it is not clear how others can enter the market when doing so requires technical knowledge.
- In STA, KATALYST's support is following a similar approach but since most information here is in the public domain (available from BRR) a natural spread might be expected.
- In contract farming, KATALYST's support has accelerated a process of business-to-business learning and contributed to the strong regional performance (growth of more than four times the national average) in 2005. Provided relative returns remain at their 2005 level, further growth in contract farming can be expected.

Clearly, there has been significant change among partners. However, in none of these cases have improved linkages been developed between producers and potential sources of ideas. Introducing new ideas to producers was the essence of KATALYST's work but these tended to be one-off arrangements. KATALYST found it difficult to develop these on a more systemic basis. Waste Concern relies primarily on donor funds to offer their services to businesses. Links between BRR – a complex and bureaucratic national government agency with a regional facility - and producers are still problematic. And there appears to be no recognised source of expertise on models of contract farming that maize contractors can liaise with. New ideas – and the process of turning these into new business products and models - are clearly a central feature of a dynamic and sustainable market but the linkages to allow this process to develop continue to be weak. How the market will innovate and develop beyond KATALYST's intervention remains a moot point.

5.3 Retailers

For both organic compost and STA, retailers are the key link from producers to farmers. Positive change should show itself in the number of retailers offering these products and in the general service they offer to farmers. KATALYST interventions here included organising producer-retailer meetings and one-day training sessions. Early evidence shows that the number of retailers stocking STA seeds and organic compost has increased: Rahman now supplies 30 retailers. The other two producers have around 20 retailers. Annapurna's network is 20 retailers and more are likely to be added as production grows – but this is still less than 1% of the retailer stock in Rangpur.

Among those retailers who have received training, overwhelmingly they believe that:

- Sales have increased.
- They know more about the appropriate use of fertilisers and pesticides, seeds and (in general) production.
- Their approach to dealing with customers now gives more emphasis to advice and information.¹³

These findings are strengthened by data from farmers' surveys which show that farmers (a) see retailers as key sources of advice and information and (b) recognise a positive difference in the way that retailers behave following training (especially better advice on choice and application of inputs and on farming practices).

Beyond the direct beneficiaries, has training and awareness-raising with retailers produced a wider impact, changing the knowledge levels and approach of other retailers? Has there been a retailer crowding-in effect? Survey evidence on this is inconclusive. Certainly, some retailers feel the impact of training in relation to changed demand for particular products but it is less clear that retailer behaviour has changed. Unlike farming where a natural spread of learning is likely, with retailers – in competition with each other – this may not happen.

5.4 Farmers¹⁴

Output among maize farmers in Rangpur has increased by 48,634 MT, 140%, in the period 2003 to 2005. Depending on whether farmers switched from other crops or planted on fallow land, winter crop incomes typically increased by 75-100%. Conservative estimates of the number of farmers affected immediately by interventions are around 5,000. This implies an intervention cost of approximately \$16 per farmer.¹⁵ Within this context of growth, what specific differences among farmers can be attributed to KATALYST's interventions?

First, the spread of contract farming mechanisms in Rangpur has been influenced strongly by KATALYST's interventions. Among potential contractors, usually larger and more innovative farmers and agricultural traders, there is increasing awareness of this type of approach. Contractees' productivity is characteristically higher than conventional farmers' and, even taking into account lower prices, returns are usually higher. Income growth for farmers switching to contract farming – where the benefits of STA and compost are also present – are likely to be highest.

Second, survey data shows that although production and use of organic compost has increased, awareness among farmers is still relatively low. There is still considerable confusion among farmers over what is “real” organic compost and what isn't.

Third, awareness of and demand for STA appear to be growing. A KATALYST survey data indicate that up to 70% of farmers are aware of STA. Anecdotal evidence from DAE officers suggests significant pick-up in adoption of STA. The increase in demand suggests that some farmers at least are achieving higher returns from the more efficient cropping pattern permitted by it although certainly in 2005 STA yields suffered because of poor weather.

5.5 The poor

As in any market, the poor may benefit from the development of business services in maize in a number of ways – as consumers, labourers/employees or farmers/enterprise owners or indirectly through extra spending and activity resulting from growth.

As *consumers*, poor farmers may benefit from the availability of improved compost products. However, since land ownership is increasingly skewed¹⁶, the main direct users inevitably will be those with middle and high incomes. Nonetheless, while there is nothing inherently “pro-poor” about the new organic compost *per se*, there is a strong public benefit – in terms of soil quality – arising from organic compost.

Similarly, with STA, while some poor farmers will choose to buy STA, the key users are likely to be better-resourced and more innovative farmers.

As *labourers/employees*, maize is known to be slightly more employment intensive than most competing crops. In cultivation, this will result in more employment (and income) for men and, post-harvest, for men and women. Moreover, the production of compost in Rangpur using local materials creates some labouring employment locally (65 days of labour per 8MT of compost).

However, the biggest gains arising from the growth in maize production are to *farmers*. The key issue is the extent to which the production model promoted by KATALYST – contract farming – benefits poorer farmers. Initial analysis is not favourable. The compelling logic of contract farming drives contractors towards reducing costs and risks – and that (usually) leads towards working with a smaller number of bigger farmers. The experience of Doyel, the key contract farming innovator in Rangpur, is instructive. In their initial operations, when the key task was to persuade farmers to try this new crop, Doyel accepted farmers no matter their size. However, three years after starting, Doyel have decided that any new contractees must have at least 3 acres of land, thereby immediately excluding 80% (generally the poorest) of the population.¹⁷

Box 3: Contract farming leads to maize sharecropping: the case of Kona Mohammed

Kona Mohammad is a 60-year old man who lives with his wife in the village of Islammagar. His family of two sons, one daughter and two grandchildren remain in the area.

He and his wife earn their living both as general labour and through informally leasing 87 decimals (100 decimal = 1 acre) of land from a local landlord. Kona's and the landlord's families have been in a working relationship spanning generations. The landlord has 60 acres and sub-contracts a total of 9 acres of seasonal fallow land to 7 other individuals, all on a sharecropping basis. He is also a contract farmer of Doyel and started to produce maize three years ago using 9 acres of seasonal fallow land.

Following his landlord's example, Kona has also produced maize for the past three years, replacing tobacco. He and his wife work on his smallholding together, with Kona spending the equivalent of 90 working days over a five-month growing season, and his wife spending 40/50 days combining labour with housekeeping. For the rest of the year rice is grown.

His lease is a sharecropping agreement. The landlord provides him with inputs and cultivation advice and the maize is sold to Doyel who come to collect the harvest. After deducting the cost of inputs the revenue is shared equally between the landlord and Kona. His yield increased last year and he feels more confident in relation to cultivation practice. Kona would not have grown maize without the direction of his landlord as the crop was new to him, his holding too small to attract traders and he felt it would be too risky to begin in isolation.

Thus far the relationship has been a profitable one. Last year his net income from growing maize was 5,000 taka. He claims this is double compared to growing tobacco. From the increase in income over the past three years he has recently bought a new corrugated iron roof, a latrine and hand water pump. Kona cannot expand any further (although he would like to); there is no more land to lease from his landlord or others.

Contract farming therefore might be seen as a business model that inherently favours middle-upper income farmers – and KATALYST's intervention be seen as unlikely to reach poor farmers¹⁸. However, for two reasons, such a conclusion would be misleading and, in part, incorrect. First, apart from Doyel, in practice, different and less formal contract farming mechanisms have evolved – many of which do involve small-scale farmers. Second, and more important, some of Doyel's contractees, like farmers throughout Bangladesh, use a variety of informal mechanisms to organise production which involve a form of sub-contracting to poorer farmers (see Boxes 3 and 4).

Doyel estimate that 100 out of their 1600 contractees effectively sub-contract production. In these situations, more of the gains from higher aggregate returns are likely to reach poorer people. In general, it seems reasonable to suggest that 5-10% of producers of maize in contract farming situations are likely to be from within the ranks of the poor – which is probably not significantly different from average figures for maize farming. For KATALYST, this natural inclusion of poorer people is a positive dimension to contract farming. And a fortunate one, since it was largely unconsidered at the time of intervention.

Finally, indirectly, the poor have benefited in general from the additional income generated by higher output and incomes resulting from the move to maize. Increases of 75-100% in winter crop incomes generates activity and spending that permeates through the economy. Provided that this is not inflationary, there should not be any “downside” for the poor.¹⁹ Economic gains are, in the main, all additional.

Box 4: The (wealthy) farmer's perspective

Abdus Samad is 42 and lives in the village of Jagabether. He owns 13 acres in total. His crop rotation consists of rice, maize and vegetables, whilst he also grazes cattle and goats. He started growing maize in 2002 after direct contact by Doyel Agro and has been a contractee since then. Last year he grew maize on 6 acres of his own land up from 4 acres in 2002.

He believes that the relationship with Doyel is working well. While a formal contract is signed, the relationship is sustained through trust and a productive partnership. Doyel provides all inputs to him directly and collects the harvest. However, unlike his neighbours he opts against using Annapurna compost, producing his own for personal use. He is happy with the knowledge and advice that Doyel provides, particularly in the early years as Doyel monitored cultivation practice and advised him to change maize seed. Yields have increased to 3,200 kg per acre, an increase of one-third since he first started. As part of the relationship, Doyel insists that a loan is taken out, amounting to 10,000 taka per acre. Whilst Abdus feels he does not need the money, he is happy to take the loan as part of the bundle of services that Doyel provides and it assists with his cash flow.

It is a profitable relationship to date. Doyel agrees prices for maize, of a given quality, at the beginning of the growing season. Last year this was 280 taka per 40 kg and this year the price is 305 kg. Although this is slightly below the market price, Abdus is content given the hands-on service he receives from Doyel. Overall, the estimate of profit is 9,000 –12,800 taka per acre depending on the quality of land.

In addition to his own land, Abdus leases 4 acres of seasonal fallow land from neighbouring landlords. Tempted by higher incomes, but constrained in managerial resources, he in turn sub-contracts this land to 4 people (who would otherwise be landless labourers). He monitors cultivation and has worked with the same people since he started growing maize. Under their informal sharecropping arrangement, Abdus provides all inputs and cultivation advice as needed (copying the relationship he has with Doyel). The sub-contractors sell independently to Doyel and once the cost of inputs is deducted, profits are shared equally.

Doyel is aware of Abdus' sharecropping relationship, buying direct from the sub-contractors. Moreover, Doyel also provides the loan of 10,000 taka per acre for the leased land. However, this is given not directly to the sub-contractors but to Abdus who takes overall responsibility and puts forward the deeds of his own land as guarantee over the loan.

5.6 Winrock International

Ultimately, of course, the test of the worth of KATALYST-WI's working experience is reflected in the impacts achieved. In terms of KATALYST's secondary objective of positively influencing WI, it is still early to draw conclusions. KATALYST and WI eventually implemented seven interventions in the maize sector in Rangpur – a series of inter-related activities. However, WI do believe that they have learned considerably.²⁰

First, compared with conventional direct approaches (which they have used in the past), they are confident that their approach with KATALYST has leveraged much greater impact. Indeed, WI believes that facilitating contract farming services in particular has been many times ("probably 50 times") more efficient in reaching farmers than traditional direct delivery.

Second, in order to achieve this scale of impact, WI needed to complement their technical expertise with stronger capacities in business services. Their sense of their development task therefore changed: while previously this had been viewed as mainly technical in nature, it was now seen as being more concerned with stimulating services and knowledge and information in the context of market systems.

WI's experience with KATALYST in maize has also influenced their approach to working with other donors in the South Asia region. Where there is scope as a contracting organisation to follow the approach they have worked on with KATALYST, they do so – but this has to be adapted where donors insist on "direct delivery" to the poor. Following their initial work on maize in Rangpur, WI and KATALYST have begun a series of other joint collaborations.²¹

6. Key Lessons and Conclusions

KATALYST'S interventions in the maize sector in Rangpur have been marked by a number of common characteristics. Building on a detailed assessment of the overall performance of the sector, it has sought to identify the underlying causes of weak supply-side response and in three key areas – organic compost, STA and contract farming – intervened to introduce knowledge and information solutions. In each situation, interventions have been aimed at introducing new ideas (products or business models) to the producer level of the market, working with one partner initially and then moving on to others.

Co-incident with these interventions, the maize sector throughout Bangladesh has experienced a major growth in output. Driven by bigger factors, most noticeably relatively high returns from maize filtering through into supply-side behaviour, production nationally has grown by 79%. Within this context, a number of discernible changes can be attributed to KATALYST's interventions, most notably:

- Contributing towards strong output growth in Rangpur (four times the national average). In so doing, rural incomes generally, including those of the poor, have grown considerably.
- Stimulating higher productivity: average yields in Rangpur are marginally higher than the national average – a fact helped by the substantial gains from contract farming in particular where productivity is much higher.
- The development and expansion of innovative contract farming methods that have been central to output growth, which have been accelerated (to around 5,000 more farmers) and improved by KATALYST's intervention and where further spread and growth is likely.
- The introduction of a new (and better) organic compost product, where production has increased to 320MT, a development which would not have taken place without KATALYST's intervention.
- Contributing towards the introduction of STA – where production has increased to 50MT from a low base, a development which would not have occurred at this pace without KATALYST's intervention.

In each of these areas, enhanced knowledge and information services has been critical to the changes that have taken place. In general, the case reaffirms the importance for private sector players of investing in knowledge and information services and, for development agencies, the centrality of services to the more effective operation of commodity markets. Moreover, by building services within the market system, the prospects for their sustainability and further growth have been enhanced.

KATALYST's interventions in maize have all been consistent with its general market development approach (Annex 1) emphasising the importance of grounding actions in detailed market knowledge, engaging with market players on a *quid pro quo* basis and maintaining a clear view of how markets will work on a more sustainable, effective basis beyond the intervention timescale. However, the experience here also poses challenges for development agencies generally as well for KATALYST.

Putting the poor into market systems

In development circles there is disagreement over how the poor can benefit from growth and market development (see Box 5). But with KATALYST's approach, there is a clear view: the foundation upon which the market development approach to business services is built is a sound understanding of the poor within market systems. More, it requires that the systemic constraints impinging on them are identified and addressed.

In this instance, KATALYST's initial understanding of the role of the poor in the maize market system was rather general, especially in relation to contract farming. The poor clearly have benefited from KATALYST's work in maize. However, other opportunities for leveraging *the*

best from the market system – for example, innovative ways of including small-scale farmers in contact farming mechanisms – might have been explored with more urgency had their position within the market been recognised more clearly. Understanding the position of the poor is always central to the approach.

Box 5: So what's in it for the poor?

KATALYST's work – like all initiatives supported by development agencies – is aimed ultimately at reducing poverty. So it is always relevant to ask: what do the poor get out of it? Among KATALYST's different stakeholders, there are differing opinions on this issue.

Opinion 1: Growth is all

This perspective believes that if KATALYST increases competitiveness and economic growth, poverty will, inevitably, fall. This view sees growth, towering above any other issue, to be what matters. And there is little doubt from many sources that growth is the biggest driver of income poverty reduction²². The problem is that it assumes that all types of growth have the same poverty-reducing impact. And this clearly is not the case. Growth, which is more inclusive of the poor, directly reduces poverty more than that which does not – as the varying poverty reduction experiences throughout the world demonstrate²³.

In the case of maize, this view emphasised the overall growth in output and aggregate incomes and the extra employment and income that would, inexorably, reach the poor.

Opinion 2: The self-developing poor

This perspective – at the other end of the spectrum – believes that poor people can only rise from poverty when they themselves have access to the means of production and are producing independently for themselves. The poor have to be agents of their economic salvation. The problem with this view – common among NGOs – is that it is contradicted by hard economic reality. Poor people participate in markets not simply as producers but as employees and consumers – and often benefit more in these capacities.

In the case of maize, this view highlighted the fact that KATALYST's direct partners were all significant business people – part of the emerging (and established) business class of Rangpur and certainly a long way from among the ranks of the poor.

Learning from the above, the making markets work for the poor approach – which informs the KATALYST perspective – recognises, first, not only that business competitiveness and growth is critical for poverty reduction but, second, that the route through which this impacts on the poor differs from one situation to another. The key point here is not that organisations such as KATALYST need to work directly with the poor. But they do need to understand how poor people fit in to market systems and what needs to happen to allow them to engage more effectively.

Multiple interventions for multiple constraints

Markets such as maize are seldom simple. There are few market situations where there is one “killer” constraint that can be addressed with one equally decisive intervention. Causes of poor performance are usually multiple and inter-related. KATALYST's experience with maize highlights the value of offering a series of inter-related interventions to address multiple constraints. Not only does this appear to be more successful but it allows facilitators to develop more credibility with market players (rather than simply knowing about one thing) and a more informed and rounded perspective. From peripheral players, they can become more central and important. Of course, there are dangers in this role. The dilemma of the facilitator is how to intervene in a market system without becoming part of it. And a broader range of activity runs the risk of losing focus. But credibility and relevance are necessary requirements of successful facilitation and these characteristics are perhaps more likely to emerge when a range of related interventions are undertaken.

Going beyond the “one-by-one” of intervention partners (going beyond the “demonstration effect”)

KATALYST's approach to bringing in others into the market is through what might be termed a “one-by-one” approach. Initial direct support for one commercial partner is, if successful, followed by a similar type of engagement with others. The rationale here is that (a) working

with more than one offers a better chance of creating a momentum in a market (rather than an anti-competitive advantage for one player) and (b) if one company deserves support surely so also do others. However, the longer-term logic of this approach is not clear. Agencies clearly cannot (and shouldn't try) to work with *everyone* in a market. Moreover, the danger of direct firm-level support is that risk-taking innovation incentives, far from being stimulated, are distorted towards donor support. Some form of copying and learning will, of course, always happen in markets but *what* is being demonstrated and *how* demonstration happens are important issues that cannot always be assumed to be straightforward or, necessarily, positive. How working with a number of individual companies adds up collectively to a change in the market system – how it is more than the sum of its parts – is not clear.

How to build the learning capacity of markets

Fundamentally, interventions have been concerned with introducing new ideas to markets, that, without KATALYST, either would not have developed or would not have developed with the same speed. New ideas and the innovations which flow from them are an essential part of market dynamism and sustainability; they are not a “one-off” hit. Effective mechanisms and relationships between sources of ideas (such as researchers, consultants, academics, government departments) and commercial market players is a central part of effective functioning markets. Without sustainable linkages to sources of ideas there is a danger of markets becoming stale and unproductive.

Thus far, KATALYST has played the role of linking market players to sources of ideas but how ideas will be introduced into the market in the future is not clear. The capacity and incentives for these linkages to continue without a KATALYST-type of intervention have not been developed as yet. This remains a formidable challenge for which there is no easy formulaic approach. In some cases, this might be concerned with encouraging specialist commercial service providers. In others, where this is unlikely to be a feasible approach, developing the general information environment around business might be required. In others, where there is a clear public interest (such as in STA), government organisations will always be involved and the performance of public organisations and their interface with the private sectors has to be developed. Whatever the source of ideas is, without this linkage, markets' capacity to advance is restricted.

Developing successful organisational collaborations

There is no magic bullet to influencing organisations to move in the direction of a more facilitative approach to interventions, one that seeks to develop sustainable systems rather than deliver directly. Both KATALYST and WI believe that their collaboration has been positive – and they plan to work together more – but the experience is still young and there are clearly limits to influence. To the extent that lessons can be drawn, they highlight that change is neither simple nor immediate. Influence, if it is to be successful, has to recognise that change must have a number of dimensions. In particular, it has to address *incentives* – defining appropriate contracts and budgets to shape organisations performance. And this in a context of other funding approaches which may not favour market development-type interventions. It has to deal with *how-to* questions. If market facilitation is not direct delivery, what is it? What does being responsive to market changes mean? And it has to address *beliefs and values* – recognising that development is about changing the bigger system within which enterprises and poor people exist, not only individual players within it.

Endnotes

¹ National Private Sector Survey Bangladesh. Conducted by ICS for DFID, SDC, Sida and USAID 2003

² A sector - like Maize - can be promoted in various locations and these are referred to as markets

³ Data in this section are drawn mainly from the Department of Agriculture Extension, the Integrated Maize Promotion Project and the Maize Association of Bangladesh

⁴ Employment refers to the whole cycle of growing and immediate post-harvest processing

⁵ Kaiser, SS (2005); Poultry in Bangladesh awaiting the awakening; Keynote speech, World poultry science association, 4th Internal Poultry Show and Seminar, March 2005

⁶ This excludes market traders who are likely to be sources of information on prices – but not farming practices *per se*

⁷ Data from the Soil Resource Research Institute

⁸ This finding for maize farmers is consistent with earlier KATALYST research on vegetable farmers (see The KATALYST Cases No. 1)

⁹ Christensen, C and M. Raynor (2003); *The innovator's solution*; Cambridge, HBS Press

¹⁰ KATALYST also worked with Doyel in relation to other new ideas such as the introduction of drying technologies and use of soil testing equipment.

¹¹ This was less relevant to Doyel as a non-retailing business.

¹² The organic compost is certified and its performance tested and showing a favourable performance. Against control plots using only chemical fertiliser, yields were around one-third higher.

¹³ These findings are consistent with KATALYST's experience with training vegetable input retailers. Self-evidently, appropriate training improves retailer performance.

¹⁴ A wider study on the wider economic impact of maize farming is beyond the remit of this paper but is certainly justified given the apparent scale of income growth.

¹⁵ This should be set against income growth for farmers ranging typically from 2 to 10 times this figure.

¹⁶ In 1996, 50% of farm holdings were less than 1 acre and 80% less than 2.5 acres (The Bangladesh Census of Agriculture). Both figures are likely to be significantly higher in 2006.

¹⁷ This is consistent with the experience of East-West Seeds in Bangladesh, which now deals with less than half the original number of contract seed farmers with which it started.

¹⁸ There is a growing body of literature on contract farming and its relationship to the poor. See ADB (2005); *Linking farmers to markets through contract farming*; Proceedings of an M4P/An Giang University Workshop, Vietnam

¹⁹ Where there have been shifts to maize from other crops, there may have been some displacement – and a negative impact on, for example, traders and suppliers – but these would be small in the wider context of significant positive impact.

²⁰ E-mail exchange with Luke Colavito, Agriculture Program Coordinator, South Asia

²¹ In many ways the close working relationship that has emerged suggests that the work in maize should be more appropriately labelled a joint KATALYST-WI project

²² Gerster, R (2000); *Alternative approaches to poverty reduction strategies*; SDC Working Paper 1/2000, Switzerland

²³ Arias, O; Maloney, W and Lopez, H (2006); *Poverty reduction and growth: virtuous and vicious circles*; The World Bank, Washington

Annex 1: The KATALYST Approach to Market Development

The Project

KATALYST is currently promoting more than 35 markets in 18 sectors comprised of services such as accounting, marketing and quality management services; manufacturing sectors such as plastics, furniture and agro-tools and machinery to agricultural sectors like pond fishery, vegetables, maize and poultry. It also works with business associations to improve the enabling environment for businesses. The project has nationwide activities but has a special focus on areas in and around Dhaka, Faridpur, Rajshahi, Rangpur, Bogra and Jessore.

Sectors and markets

KATALYST is working in growing sectors where the poor participate in large numbers as producers, employees and consumers. The activities in agricultural sectors like vegetables and pond fishery fall under this category. The project also works in service sectors which have an impact across many economic sectors. This refers to the work in accounting services, marketing and media. Business associations play a critical role in advocating for better rules and regulations and the project also works on this.

Strategy formulation

KATALYST identifies and analyses the above markets by using a variety of tools like sub-sector analysis, cluster analysis, UAI surveys and enabling environment studies. In this process it identifies the key constraints and opportunities, market players, the direction the sector/market is moving in, a vision of the future and what would be the key areas for project intervention such as farm or firm productivity, input related issues or output related issues.

Business services

Based on the analysis above, the project then seeks to promote markets for business services that relate to the above constraints/opportunities so that these are available on a sustainable basis for large numbers of businesses. Business services could be related to knowledge and information on market access, management and technical skills, quality issues, and production methods among others. Business services can be classified into 3 types:

- **Transacted services:** This refers to a situation where there is a distinct supplier of knowledge and information, often outside the value chain, and a payment in cash or kind takes place. Examples include management consultancy, advertising services and market research.
- **Embedded services:** This refers to services that are packaged or bundled within commercial transactions in the value chain. There is normally neither a distinct service provider nor a fee paid. Examples include design advice to a manufacturer from a buyer or knowledge on input use from an input supplier.
- **Public Benefit Services:** This refers mainly to services provided by chambers or associations which have an effect beyond a single enterprise. Examples include advocacy for business friendly regulations or information on new trends and opportunities.

Interventions

The nature of a market development intervention is that it:

- Has a systemic view and objective²³
- Is grounded in a careful understanding of local institutional contexts
- Is nuanced in its interpretation of roles of different players in a market environment
- Has an explicit view of sustainability from the outset
- Focuses on realistic, market-appropriate solutions, consistent with local norms and resources

This leads to quite a variety of specific interventions in the selected markets. Based on the strategy above, the project intervenes to improve in a systemic way one or more of the

business service markets outlined above. For example, the options for improving the machine productivity of mold makers in the plastic sector in Old Dhaka were:

1. Promoting a market for machine productivity training by identifying and developing a few commercial trainers (transacted service)
2. Building on mechanisms of knowledge transfer from the machinery supplier in the value chain (embedded service)
3. Assisting the plastic association to raise awareness on the issue (public benefit service)

In this case the project selected option 2 based on the specific context and a careful analysis focusing on outreach, cost-effectiveness and sustainability. However, different mechanisms are used in different markets.

M&E and Impact

Project interventions lead to better functioning service markets that improve the competitiveness of small enterprises and contribute to pro-poor growth. This is the impact logic of the approach and the project has developed systems to track such changes at various levels.

In order to show impact, it is necessary for these interventions to be traced back through the impact chain in terms of changes in service markets to enterprise level changes. In other words, the project intervention must show that it has the above characteristics and improves the functioning of a market for business services, which in turn contributes to improved competitiveness of the targeted enterprises and, if possible, to show if pro-poor outcomes are reached.

Wider Learning

The above approach is based on Bangladeshi and global experience and is elaborated in the papers and notes related to the Donor Committee on Small Enterprise Development, the Making Markets Work for the Poor and the OECD Poverty Network discussions.

A series of case studies are being prepared for international dissemination to illustrate the approach and impact of market development.

Annex 2: Other KATALYST - WI Activity in the Maize Sector

KATALYST's analysis of the maize sector revealed a range of factors contributing to the weak performance of the supply-side and the continuing low output levels. This case has focused on the priority interventions of contract farming, STA and organic compost. However, several other related interventions have also been instigated to address other specific problems and opportunities.

Capacity building of the Maize Association of Bangladesh

Maize is still a comparatively new sector in the country and the practices and policies normally associated with well-established commodities have not emerged. One of these gaps was in relation to advocacy and representation – there appeared to be nobody to “speak for” maize, to offer farmers and others within the industry an effective voice to government, to provide relevant information services to them and to mediate in conflicts between industry players. This intervention worked with the newly-formed Maize Association of Bangladesh (MAB). It aimed to build the capacity of MAB in relation to its organisational (and industry) vision, its information services, its ability to promote best practices and its overall strategic role.

Introduction of post-harvest technologies (shelling and drying)

The quality (and therefore price) of maize in Bangladesh is typically undermined by absence of appropriate shelling and drying technologies. In Rangpur, most growers used an outmoded shelling machine – that actually damaged the maize - and were unaware of the possibility of mechanical drying. KATALYST's intervention aimed to introduce potential manufacturers in the region to a shelling machine design produced in another area (Bogra) and to introduce growers to a mechanical drying facility operating in the region. By organising visits and workshops, the intervention sought to enhance linkages among growers and manufacturers and so address the information constraint that was preventing these technology services markets from working effectively.

Promoting private soil testing services

Declining soil fertility in Rangpur is a problem that affects agriculture as a whole in Bangladesh, not just maize. Indeed, because maize is a relatively heavy user of soil nutrients, compared to other cereals, encouraging maize production potentially runs the risk of aggravating this issue. KATALYST's intervention to promote organic compost is one response to this issue. However, appropriate use of composts (organic or chemical) requires that farmers first know the existing levels of soil fertility. Government soil testing facilities are largely dysfunctional but the emergence of new soil testing kits offers the opportunity for quick and relatively cheap testing services. These, however, are almost unknown in Rangpur. Building on an earlier pilot, this intervention was concerned with supporting (primarily through awareness raising efforts) the introduction of these services by new private providers in specific areas.

Promoting short-term storage arrangements for maize

Proper storage of maize is important for two reasons. First, maize grain absorbs moisture from air, which stimulates the growth of fungi and moulds, which in turn release toxins that make it unfit for consumption. Secondly, if farmers can store their excess produce for a short time of period, when the market is most saturated, they can get a better price later on, when there is more room in the market. While long-term storing of maize is expensive and requires special management, short-term storage is less demanding and more affordable. By promoting entrepreneurs investing in short-term storage KATALYST helps farmers getting better prices for their crops over a longer period of time, which stimulates production increases.

Improving the knowledge of agro-input sellers on hybrid maize cultivation and suitable cropping pattern for maize

Maize farmers could be more productive if they had more and better information and knowledge of input choices and uses. At the moment, farmers rely on other farmers and on retailers for information on the use of pesticides, fertilizer and quality seeds. For a relatively new crop like maize (at least in Bangladesh) this information, however, is insufficient. To increase the know-how of retailers on maize cultivation and show them the value of providing embedded services to clients KATALYST work together with a reputed private agro-input company. The company will provide training to its retailers on all aspects of maize cultivation so that retailers can pass this information to farmers.