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Developing small production and marketing enterprises: mushroom contract farming in Bangladesh

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This article presents a case study of an activity implemented under the FAO component of the Local Partnerships for Urban Poverty Alleviation Project, funded by UNDP in Bangladesh. In Mymensingh city the project is linking poor urban dwellers with a niche market for oyster mushroom. This small enterprise activity appears to be sustainable, in that it develops agricultural production to cater for the specific demand of an existing small marketing enterprise. As long as the trader finds a market for his mushroom, he has an incentive to collaborate with the project beneficiaries who supply the produce. This model is thus an example of mutual benefit between extremely small landholders and a trader through the catalytic effect of a development project.

KEY WORDS: Aid; Labour and Livelihoods; South Asia

Introduction

In recent years, development research has seen an increased focus on helping farmers to respond to the challenges of linking to dynamic markets (Vorley *et al.* 2007; Reardon and Timmer 2007). This proceeds in parallel with efforts by development practitioners around the world to help small producers to link to markets. Publication of the success stories and lessons learned from such initiatives is providing useful material with which to develop approaches to linking producers to markets, and in particular to determine the type of market linkage that is most appropriate in the context of the farmers involved and the market to supply (Ferrand *et al.* 2004; Bernet *et al.* 2006; KIT *et al.* 2006; Shepherd 2007).

When development projects or NGOs attempt to link farmers with markets, the long-term sustainability of the link has to be assessed prior to implementation (Shepherd 2007). Indeed, too many project beneficiaries have seen their markets disappear when the project that was helping them closed down, simply because the project itself had become their market outlet!

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One way of securing markets for small agricultural enterprises is to collaborate with existing private traders and help the project beneficiaries become essential partners for these traders.

This article presents a case study of such a link between a trader and beneficiaries of the FAO component of the Local Partnerships for Urban Poverty Alleviation Project (LPUPAP), funded by UNDP in Bangladesh.

The article first reviews the recent literature that reports work on linking farmers with markets. It goes on to present the FAO project and the farmers benefiting from its activity, before introducing their market outlet in the form of Abdul Kadir, a mushroom trader. The linking activities provided by the project staff are then described, along with the training and support services given to the farmers. The results of this small enterprise development project are reviewed before concluding with the lessons learned and distinct features of this success story.

Recent findings on linking producers to markets

The world's food-distribution systems have undergone major changes in the past decade, with the rise of supermarkets in industrialised and developing countries, the signing of multilateral, regional, and bilateral free-trade agreements that include agricultural products, and the emergence of global food-supply chains (Berdegué *et al.* 2005; Hernández *et al.* 2007). All these developments have been characterised as a major re-governing of the marketing linkages between farmers and other stakeholders in agro-industries (Vorley *et al.* 2007).

To keep up with these new developments, recent years have seen strong research interest in understanding how these new supply chains work, who are the stakeholders involved in them, and who are emerging as chain leaders (Poole *et al.* 2003; Chen *et al.* 2005; Moustier *et al.* 2006; Batt and Cadilhon 2007; Vorley *et al.* 2007). Recent findings show that the right policy environment is necessary to create incentives for private businesses to enter these emerging markets, but also to make sure that their development does not have a negative effect on sustainable rural and urban livelihoods. With the right organisation or market intermediary to link farmers into these new food-supply chains, there are clear benefits for farmers and in particular smallholders. This new literature also identifies the importance of a sustained and trusting relationship in the marketing linkages. Building upon these lessons, governments and development agencies are increasingly active in supporting farmers to gain access to income-generating markets (Ferrand *et al.* 2004, Bernet *et al.* 2006, KIT *et al.* 2006).

When analysing the different approaches to linking producers to markets, Shepherd (2007) notes that many of the links created by development practitioners are not sustainable, because not all poor farmers can adhere to the demanding requirements of their customers. Either the institutional environment around them is not conducive, or the marketing relationships between the various stakeholders in the supply chain are not conducive, to a sustainable marketing chain. Although development practitioners may agree in principle on the need to foster market-driven agribusiness enterprises and services, Caniëls *et al.* (2006) show how putting theory into practice is made difficult by the wariness of development projects towards private-sector suppliers and customers.

However, the private sector is undoubtedly recognised as being a major driver for sustainable market linkages for small producers (Caniëls *et al.* 2006; Batt and Cadilhon 2007; Shepherd 2007; Vorley *et al.* 2007). Because it is in their own business interest to develop a reliable supply base, agricultural traders can play a pivotal role in organising farmers into groups and helping them to plan production systems in order to adhere to the quality requirements demanded by ever-changing agri-food markets. The positive role played by private traders, which had already been identified by anthropologists (Rigg 1986), is finally getting recognition

among development economists and practitioners. Drawing on these lessons, the FAO component of the LPUPAP in Mymensingh City in Bangladesh has introduced a market-based approach that will ensure a sustainable market link for the project beneficiaries through a partnership with a trader.

The project

Bangladesh is a densely populated country with 880 persons per km^2; the annual rate of population increase is currently 2.17 per cent (Bangladesh Bureau of Statistics 1996). However, the population growth rate is even higher in urban and peri-urban areas, and it is further fed by the migration of rural populations into the cities. This migration has resulted in a large class of urban poor. The FAO component of the LPUPAP has taken initiatives to produce or supply adequate amounts of food for the increasing urban population. To achieve this, the project seeks to ensure the sustainable use of land and natural resources in both urban and rural areas to produce a diversified production of food items. In this context, the project has undertaken urban and peri-urban agriculture (UPA) extension activities in six towns of Bangladesh, for example homestead and commercial vegetable production; plant and flower nurseries; commercial flower cultivation; composting; mushroom production and marketing; pond fish and integrated fish culture; native catfish rearing; poultry rearing and vaccination; native duck, pigeon, and quail rearing; goat and cow rearing; cattle fattening; bee keeping; puff-rice production and marketing.

Among these UPA interventions, mushroom production and marketing is one of the potential activities which can create income options for the urban poor. The project has introduced a market-based approach which will ensure a sustainable market for the beneficiaries. Some poor communities in Mymensingh City have been linked with a local private trader to supply oyster mushroom to him, and through him to a relatively small but secure Bangladeshi niche market. Thus, it is expected that when the project support comes to an end the beneficiaries will be able to run their enterprise independently.

The farmers

Fifty-five producers grow oyster mushroom in Mymensingh, located 115 km north of the capital, Dhaka. Twenty of these are poor households grouped into three mushroom-marketing groups by the LPUPAP, of which 17 households receiving project assistance are represented in project activities by the female householder. The households have access – formal or informal – to small plots of land adjacent to their homes. Mushroom production does not require much space: a clean, semi-dark, and ventilated room with shelves is all that is needed.

The inputs into the production process are mushroom spores, bamboo shelves, water to pour on to the mushroom cultivars, and formaldehyde to clean the room. The mushroom is grown in plastic bags containing spores and the nutrient base. Each bag weighs around 700–750 g, and all bags are placed on to the shelves. Up to 300 bags can fit in a shelf space as small as 2 m^2. Harvest starts seven days after the start of the culture and can last four months; each bag of spores can produce an average 1.5 kg of oyster mushroom.

Although bags of locally produced mushroom spores cost only Tk10 (US$ 0.15), their quality is inferior to those coming from Dhaka. Therefore, to guarantee a high sale price for its beneficiaries, the project has encouraged the producers to buy the *Raj Mushroom-Dhaka* spores. See Table 1.

Table 1: Producers' costs and sales per bag of oyster mushroom in Mymensingh, Bangladesh

Item	Value per bag (Tk)
Bag of *Raj Mushroom-Dhaka* spores bought from trader	14.00
Shared costs of purchasing formaldehyde, hand gloves, knives, polyethylene bags, consumer promotion leaflets	4.00
Sales of mushroom	150.00
Net profit	132.00

Source: Authors' calculations. NB: At the time of study US$1=Tk68.

The market

Oyster mushroom is not a traditional food in Bangladesh. It sells to a relatively small niche market, comprising educated urban households, institutional buyers such as NGOs, big mushroom farms, Chinese restaurants, university, college, school, and cantonment canteens, and expatriates in Dhaka. Table 2 gives an estimate of the market for oyster mushroom in Bangladesh.

Abdul Kadir is a trader based in Mymensingh who owns Konika Mushroom Ltd. Apart from producing mushroom, supplying spores, and buying mushroom from producers, Abdul Kadir also provides training in mushroom culture and technical support, and processes dry mushroom. He is a member of the Bangladesh Mushroom Foundation. He is the market outlet for 40 mushroom farmers, including the 20 supported by the LPUPAP. Abdul Kadir started mushroom cultivation in 2004. He had just lost his job and faced economic stress while unemployed. His daughter got information from a friend about mushroom culture and shared this with her father. He then contacted the Mushroom Development Centre in Dhaka and eventually received training in mushroom culture from *Rongdhonu Mushroom* in Savar. He started a small-scale production business and created his own market. Five salesmen work with him to sell the mushroom, each of whom earns from Tk900 to Tk1 400 (US$ 13.25 – 20.60) per month from sales commission. Abdul Kadir sells 60 kg of fresh mushroom and 15 kg of dry mushroom to his local and Dhaka customers every week. His monthly net income is nearly Tk15 000 (around US$ 220). However, he cannot fulfil the demand of his big buyers such as Palli Seba Sangstha, Rongdhonu Mushroom, and Raj Mushroom companies.

Thus, Abdul Kadir has linked with the LPUPAP project in order to increase his mushroom production base. He collects around 10 kg of mushroom every day from the contract farmers,

Table 2: Estimated market for oyster mushroom in Bangladesh

Location	Number of farms (approx.)	Number of customers (approx.)	Average weekly purchase (kg)
Mymensingh	55	2 500	550
Dhaka	250	12 500	2 500
Savar	175	7 500	1 400
Bangladesh	875	60,000–75,000	12,000–15,000

Source: Personal communication from Abdul Kadir, Executive Member of the Mushroom Foundation, Dhaka, Bangladesh. NB: figures comprise both fresh and dry mushroom, all converted into fresh mushroom (10 kg of fresh mushroom are needed for 1 kg of dry mushroom). The sum of individual lines does not add up to the total country figure, because of the approximation.

which he sells to his Mymensingh customers (4 kg/day) and to Dhaka (between 15 and 20 kg every other day). He also supplies the spore bags to the project farmers. He travels the two-hour drive to Dhaka to buy the *Raj Mushroom-Dhaka* spore bags at Tk10/bag (US $0.15); he sells the spore bags to the project beneficiaries at Tk14/bag (US$ 0.21), thus making a gross profit of Tk4/bag (US$ 0.06), which covers the transport costs of Tk1.5/bag (US$ 0.02). Other suppliers of mushroom spores are *Nowrin Mushroom* and the Horticulture Training and Development Centre (HTDC) under the Department of Agricultural Extension (DAE).[1]

However, mushroom buyers do not explicitly specify the size of the mushroom they buy or the type of spores to be used. Figure 1 presents the various stakeholders involved in this oyster mushroom marketing chain, as identified in February 2007.

The link between the farmers and the market

The LPUPAP is implemented by the Local Government Engineering Department of the Government of Bangladesh. At the local level, the project staff members are inserted into the

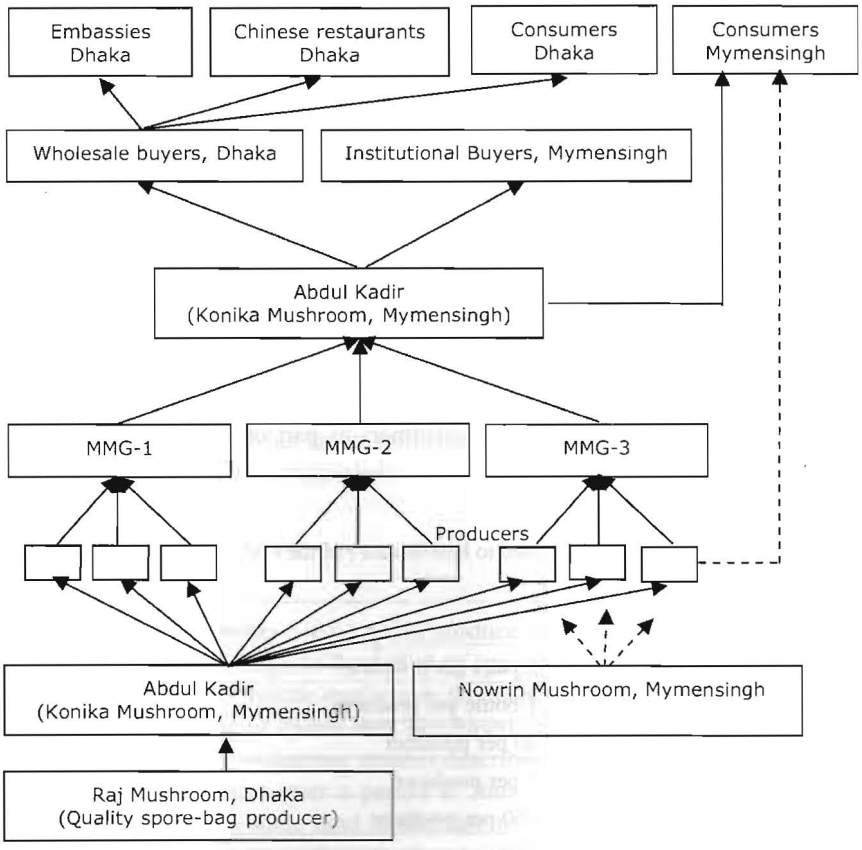

Figure 1: Supply-chain map of oyster mushrooms produced in Mymensingh – February 2007 situation

services of the local government, in this case the Mymensingh *Pourashava* (Town Council). The local LPUPAP staff has identified the opportunity for a partnership between Abdul Kadir and poor households in Mymensingh which could become a stable, long-term mutually beneficial collaboration. The Agricultural Extension Officer of the LPUPAP–FAO Component in Mymensingh knows Abdul Kadir, because they are close neighbours. The LPUPAP has asked Abdul Kadir to collaborate with the project by training its beneficiaries, in return for enabling him to enlarge his production base. The project has negotiated a purchasing price with the trader: Abdul Kadir will buy the fresh mushroom from the producers at Tk100/kg (US$ 1.47), paid in cash.

The project works as a facilitator, not a market actor. Furthermore, the project has an exit plan. Indeed, only five interested project beneficiaries initially got support in mushroom production, for demonstration purposes. Further project beneficiaries were later helped to start their own mushroom production. Producers must then bear all the costs of establishing and operating production. Creating the link with Abdul Kadir as the market outlet for the project beneficiaries is also part of the exit strategy, as the trader will remain even though the project may eventually come to an end. Twenty new farmers have joined the first five beneficiary households in mushroom production, 12 of whom harvest mushroom and sell their produce through Abdul Kadir. In addition, they also try to develop local consumption and market some fresh mushroom to local consumers directly. On average, each farm produces 3–4 kg of fresh mushroom each week and still does not face any marketing problem.

Training and support services

Both the project and the trader provide training in production techniques to the producers. The FAO component of the LPUPAP organised a technical training study tour to Dhaka for the beneficiaries. The project has also supported the start-up activities of their enterprise by providing some critical inputs to enable them to follow the demonstrated production techniques: plastic gloves to wear when cleaning the production room, and a sealing machine to seal the mushrooms into plastic bags (see Table 3). The project also provides signs and prints leaflets to advertise oyster mushroom to local consumers as part of the attempt to develop the local market.

Table 3: List of critical inputs provided to beneficiaries of the FAO component of the LPUPAP through the demonstration programme

Items provided	Quantity
Hand gloves	2 pairs per producer
Formaldehyde	1 bottle per producer
Mushroom spore bag	50 per producer
Hand sprayer	1 per producer
Polyethylene bag (250 g size)	250 per producer
Consumer promotion leaflet	250 per producer
Project beneficiary signboard	1 per producer
Weighing machine	1 for 5–7 members of the small mushroom marketing group
Sealing machine	1 for 5–7 members of the small mushroom marketing group

Source: LPUPAP

Furthermore, the project staff and Abdul Kadir are essential in training the farmers to keep a focus on high-quality mushroom production. Such training includes the following components.

- Building awareness of the quality of the spores to obtain good-quality mushroom. The project does not wish to compromise the quality of the mushroom by promoting lower-priced spore bags. The LPUPAP is currently developing links to collect spore bags directly from *Raj Mushroom* in Dhaka, who are renowned for producing high-quality mushroom spore bags.
- Assistance and advice to the farmers on building the production room and maintaining by themselves the ideal environment for mushroom growth.
- Improving the beneficiaries' knowledge of hygiene issues.
- Providing technical support for production, harvesting, and quality issues through hands-on training and regular follow-up. Abdul Kadir makes regular visits to his contract farmers and provides technical advice to them as an embedded service relating to his supply of mushroom spore bags.

The product requirements specified by Abdul Kadir are straightforward: the mushroom should be fresh and clean, and the polyethylene bags should be labelled. If the mushroom harvested by the farmers is not fresh enough, Abdul Kadir advises the producers to dry the mushroom for the dry-mushroom market.

Thus, the farmers pre-pack the mushroom in polyethylene bags before they sell their produce. Bags destined for Abdul Kadir contain between 250 and 500 grammes of mushroom, whereas bags to be sold directly to local consumers contain either 100 or 250 grammes of produce. Both types of bag display a label which enables the produce to be traced back to its production site, as well as the date of packaging. The mushroom bags sold to Abdul Kadir display the following caption: 'This mushroom is a product of the FAO-supported group *Jhinuk Mushroom Producer Group* and marketed by Abdul Kadir of Konika Mushroom, Mymensingh'. All the bags prepared for direct marketing contain a paper leaflet inside the bag. The first side of the leaflet displays the name of the production farm, the name of the mushroom producer group, the name and contact address of the producer, his or her mobile phone number, and the name of the assisting agency (FAO-managed Agricultural Extension Programme of LPUPAP, Mymensingh). The other side of the leaflet contains information on mushroom consumption: What is a mushroom? What are its nutritional and medicinal qualities? Ten different mushroom-cooking recipes are also suggested.

The results

With a selling price worth Tk100/kg (US$ 1.47) of produce, an average 1.5 kg of mushroom per bag of spore, a maximum of 300 bags on 2 m^2 of shelf space, and production costs estimated at Tk9/kg (US$ 0.13) of produce, oyster-mushroom producers can make a minimum profit of Tk132 (US$ 1.94) for every bag of spores they purchased at Tk14 (US$0.21) per bag.

The maximum profit for the production system described above can thus reach Tk40 000 (or around US$ 590) per producer over a period of four months! This is not negligible for low-income urban dwellers with some land to dedicate to agricultural production. The trader Abdul Kadir also makes a profit on each transaction with the producers.

As 85 per cent of the direct beneficiaries of the project's mushroom development activities are women, this experiment has shown that women can be involved successfully in a small cash-generating enterprise. Before being involved with mushroom production, the majority of the female farmers spent most of their time on household activities. The proceeds from the sales of mushroom are now kept by these female farmers and used to meet their family

needs. Furthermore, all the project's mushroom farmers are now maintaining accounts and keeping records of their small enterprise.

Lessons learned and distinct features

The model implemented by the FAO Component of the LPUPAP linking poor urban dwellers of Mymensingh with a small Bangladeshi niche market for oyster mushroom appears to be sustainable post-project, as it uses a trader as an intermediary between farmers and markets. As long as Abdul Kadir finds a market for his mushroom, he has an incentive to collaborate with the project beneficiaries who supply the raw produce. The project is helping to enlarge his market by advertising the mushroom production to local consumers, and by printing leaflets on how to cook them. Abdul Kadir currently still cannot meet customer demand for both fresh and dry mushrooms. Through discussions with him, the project staff have assessed the extent of the gap between supply and demand. This information facilitates the production plan for the project mushroom growers. Each week Abdul Kadir is able to supply an additional 40 kg of fresh mushroom and 4–6 kg of dry mushroom to his institutional buyers based in Dhaka, thanks to his partnership with the LPUPAP beneficiaries.

As the market for oyster mushroom is clearly a niche, the project is very careful about extending the number of farms producing mushroom, or even increasing the number of spore bags grown by each beneficiary. Based on the demand of the partner trader, the project's farm numbers and size may be expanded in the future. However, the current plan is to limit them to 20 households, with an average production of 200 spore bags per producer.

This model is an example of mutual benefit between extremely small landholders and a trader through the catalytic effect of a cautious development project. From its inception, the LPUPAP has encouraged community-based savings and credit activities, so, except for the extremely poor, on behalf of whom the small investments are currently supported by the LPUPAP, investment costs are borne by the producers; this further increases the sustainability of this micro-enterprise development model.[2] The mushroom-production ventures of the 20 households have already led to the creation of a new enterprise: one of the project farmers has started trading inputs and mushrooms, like Abdul Kadir, to respond to the demands of mushroom consumers and of the mushroom producers in his community. Thus the project activities have created some market competition through endogenous growth: the project farmers now benefit from the competition existing between the two traders.

The mushroom activities described are now running with limited support from the project, which treats the mushroom production and marketing intervention as one of its successful and sustainable initiatives. The project is thus currently replicating the mushroom experience of production and marketing by supporting other agribusiness development-service enterprises (livestock vaccination, commercial floriculture, and milk marketing) in other Bangladeshi peri-urban settings around the cities of Rajshahi, Bogra, and Barishal.

Furthermore, the project found that urban women farmers who are educated and have some investment capacity are more interested in getting involved in mushroom production than are other city dwellers. In Mymensingh, the mushroom-farm size ranges between 50 and 350 spore bags; it is therefore manageable for women in addition to their household activities. The wives of the men involved in the project mushroom activities also assist their husbands in managing the farm. When travelling on study visits between project sites and seeing the results achieved by the group of beneficiaries in Mymensingh, many female beneficiaries of the project from other cities have expressed interest in mushroom production, for both home consumption and income generation. To address this demand, the Mymensingh project team

will organise two-day-long hands-on training in mushroom production and marketing for female project beneficiaries from other cities.

The replication of this model of small agro-enterprise development to other cities in Bangladesh thus looks very promising. Indeed, the initial land and financial capital resources needed are relatively small, and the production techniques involved are within the reach of individuals with no particular agricultural background. However, the essential precondition for any successful replication of this case is the development of the marketing link with a trader, which should be prior to or in parallel with the support given to mushroom production. It is this collaboration between development project and private trader which provides the sustainable link for the beneficiary farmers to the market.

More importantly, this case study argues for looking at private traders in a more favourable light, as sustainable partners for the inclusion of smallholder producers in agri-food marketing chains. Agricultural traders have long been stereotyped as exploitative intermediaries who profit unfairly from selling farmers' produce. This negative view should be tempered by acknowledging the useful roles played by agricultural traders within supply chains (Batt and Cadilhon 2007; Rigg 1986; Shepherd 2007). Traders bear the costs of functions which farmers and consumers do not want to or cannot implement: collection, organising transport, finding market outlets, etc. All these activities entail risks that have to be hedged by someone in the marketing channel. Those with the biggest cash flow in the supply chain are the best suited to do so.

Furthermore, private traders can help farmers and farmers' groups to link with markets by collaborating with them in order to supply goods that will satisfy the quality requirements of their final customers. It is in the explicit interest of traders to lower their costs and add value to their products in order to satisfy their customers and consumers. Thus, outsourcing to suppliers such labour-intensive activities as cleaning, trimming, and packing is in the best interest of trading intermediaries, in order to sell products with exactly the right quality attributes directly to their customers. It is also in the interest of farmers, because such post-harvest processes add value to their produce and enable them to capture a more remunerative price for their products.

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Notes

1. The mushroom-cultivation techniques have been developed in the Mymensingh HTDC under the FAO–UNDP-supported 'Integrated Horticulture and Nutrition Development project'.
2. One year after the study, the LPUPAP closed down and was replaced by the UNDP-funded Urban Partnerships for Poverty Reduction Project (UPPR).

References

Bangladesh Bureau of Statistics (1996) *Bangladesh Health and Demographic Survey: Findings in Brief 1994 and 1995*, Dhaka: Bangladesh Bureau of Statistics.

Batt, Peter J. and Jean-Joseph Cadilhon (eds.) (2007) *Proceedings of the International Symposium on Fresh Produce Supply Chain Management, 6–10 December, 2006 Lotus Pang Suan Kaeo Hotel, Chiang Mai, Thailand*, Bangkok: AFMA, Curtin University of Technology (Perth, WA), Thai Department of Agriculture, and FAO.

Berdegué, Julio A., Fernando Balsevich, Luis Flores, and Thomas Reardon (2005) 'Central American supermarkets' private standards of quality and safety in procurement of fresh fruits and vegetables', *Food Policy* 30 (3): 254–69.

Bernet, Thomas, Graham Thiele, and Thomas Zschocke (eds.) (2006) *Participatory Market Chain Approach (PMCA): User Guide*, Lima: International Potato Centre and Papa Andina.

Caniëls, Marjolein C.J., Henny A. Romijn, and Marieke de Ruijter-De Wildt (2006) 'Can business development services practitioners learn from theories on innovation and services marketing?', *Development in Practice* 16 (5): 425–40.

Chen, Kevin, Andrew W. Shepherd, and Carlos Da Silva (2005) *Changes in Food Retailing in Asia – Implications of Supermarket Procurement Practices for Farmers and Traditional Marketing Systems*, Agricultural Management, Marketing and Finance Occasional Paper No. 8, Rome: FAO.

Ferrand, David, Alan Gibson, and Hugh Scott (2004) 'Making Markets Work for the Poor. An Objective and an Approach for Governments and Development Agencies, Woodmead', South Africa: The ComMark Trust.

Hernández, Ricardo, Thomas Reardon, and Julio A. Berdegué (2007) 'Supermarkets, wholesalers, and tomato growers in Guatemala', *Agricultural Economics* 36: 281–90.

KIT, Faida MaLi and IIRR (2006) *Chain Empowerment: Supporting African Farmers to Develop Markets*, Amsterdam: Royal Tropical Institute.

Moustier, Paule, Dao The Anh, Hoang Bang An, Vu Trong Binh, Muriel Figuié Nguyen Thi Tan Loc, and Phan Thi Giac Tam (eds.) (2006) *Supermarkets and the Poor in Vietnam*, Hanoi: Cartographic Publishing House.

Poole, Nigel D., A. Wayo Seini, and Victor Heh (2003) 'Improving agri-food marketing in developing economies: contractual vegetable markets in Ghana', *Development in Practice* 13 (5): 551–7.

Reardon, Thomas and Peter C. Timmer (2007) 'Transformation of markets for agricultural output since 1950: how has thinking changed?', in Robert Evenson, and Prabhu Pingali (eds.) *Handbook of Agricultural Economics Volume 3. Agricultural Development: Farmers, Farm Production and Farm Markets*, Amsterdam: Elsevier.

Rigg, Jonathan D. (1986) 'The Chinese agricultural middleman in Thailand: efficient or exploitative?', *Singapore Journal of Tropical Geography* 7 (1): 68–79.

Shepherd, Andrew W. (2007) *Approaches to Linking Producers to Markets – A Review of Experiences to Date*, Agricultural Management, Marketing and Finance Occasional Paper No. 13, Rome: FAO.

Vorley, Bill, Andrew P. Fearne, and Ray Derek (eds.) (2007) *Regoverning Markets. A Place for Small-scale Producers in Modern Agrifood Chains?*, Aldershot, UK, and Burlington, VT: Gower.

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