LEARNING AgriCultures

Insights from sustainable small-scale farming

MODULE 6

Markets and finance for small-scale farmers

Published by ileia, Amersfoort, the Netherlands

ileia

This publication forms part of the **Learning AgriCultures** series for educators, providing insights on sustainable small-scale agriculture.

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Funding: SIDA and DGIS
Cover photo: Jessie Reeder, woman farmer at Cochabamba street market, Bolivia
Acknowledgements:
The author would like to acknowledge the contributions of the following people:

Marleen Schiereck for background research on marketing and finance issues. Frits van der Wal for providing vision and insights on the topic of economic growth and small-scale farming. Matilda Rizopulos for putting together the educational resources, and for coming up with conceptual designs for the majority of the illustrations. Mans Lanting for contributing Box 15 on insights in fair trade based on his experiences in India.

First edition: 2011
ISBN: 978-94-90741-07-5

Please note:
This module is a first edition. We welcome comments and suggestions for improvement.

Foreword to Learning AgriCultures series

Why Learning AgriCultures?

Over the years, the readers of ILEIA's magazines, as well as our international network of partners, have asked for support material explaining the principles behind sustainable small-scale farming. With 26 years of publishing practical cases from around the world, ILEIA has a wealth of material for exploring this subject. The Learning AgriCultures series is our response to these requests. Sustainability translates differently under specific local conditions so this series does not intend to offer solutions to all the problems. Its objective is to stimulate a culture of learning about sustainable small-scale farming. Through probing questions, and a variety of educational resources, we hope that this material will feed into and provoke discussions and deeper reflections over the important contributions of small-scale farming, and what sustainability means in different contexts. The series is not intended as a field guide nor does it focus on technical details about farming methods. It does however suggest further references for digging deeper into technical questions.

Who is it for?

Learning AgriCultures is a learning resource particularly aimed at educators seeking support material for explaining about sustainable agriculture in their courses, at a university or college level, in special NGO training courses or other professional environments. Courses in which this series could be useful include agriculture, rural development, environmental studies, research & extension, agricultural policy-making, with students who will primarily, but not exclusively, be working in developing countries.

What is in it and how can it be used?

The Learning AgriCultures series has seven modules (see list below). It explores small-scale (family) farming and how it can become more sustainable. Each module has three learning blocks, looking at its theme from the perspective of: 1) the farm, 2) key issues in the wider context, and lastly 3) governance issues that affect farming sustainability. These learning blocks are followed by a section of educational support materials: practical cases (mostly drawn from 26 years of articles in ILEIA's archive), exercises, games, photos, videos, checklists for farm visits as well as further references (free books and websites). Illustrations and diagrams as well as a separate glossary of difficult terms provide further support to the series. Educators can draw on what is relevant to their own regional context and student group.

Learning AgriCultures: Insights from sustainable small-scale farming

Module 1 • Sustainable small-scale farming
Module 2 • Soil and water systems
Module 3 • Cropping systems
Module 4 • Livestock systems
Module 5 • Labour and energy in farming
Module 6 • Markets and finance for small-scale farmers
Module 7 • Knowledge for small-scale farming

Figure 1: Getting access to good finance and marketing channels is essential to the sustainability of small-scale farming.

Summary of this module

Small-scale farming continues to be the economic livelihood base for large numbers of people around the world. In developing countries, most people (2.5 billion) are involved in agriculture, and of these, 1 billion are small-scale farmers with access to two hectares or less of farmland. In spite of their small base, this form of farming is enormously dynamic: markets are changing, the labour situation is changing and infrastructure – roads, market infrastructure, financing infrastructure and means of communication – are all undergoing rapid development. All of these factors have a large impact on how small-scale farms operate. Some of these changes are threats and can marginalise this livelihood base, but many of these changes are also providing opportunities for economically and environmentally sustainable small-scale agriculture.

This module is dedicated to the economic aspects of small-scale farming – in particular to the influence of markets and finance. These provide good options for farming, but can also undermine the sustainability of this livelihood. As in the rest of the Learning AgriCultures series, this module follows a systems-oriented approach to its theme. The first learning block focuses on how small-scale farming relates to the market and the different marketing strategies and financing options that small farmers use. In the second learning block, the wider context in which small-scale farmers operate is discussed: market chains, financial systems and the development and trends that are taking place that have a great effect on the sustainability of small-scale farmers' livelihood base. The third and last learning block takes a look at different governance issues that encourage or undermine effective markets and financial systems to underpin the sustainability of small-scale farming. Throughout the module, links are made to a variety of educational resources, including games and exercises, articles, videos, photos and ideas for field visits, in order to stimulate discussions and reflection on how market and finance issues relate to small-scale farming around the world.

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Guide to educators

PURPOSES OF MODULE 6

Figure 2: Educators, the target group of Learning AgriCultures

For educators:

- to use a systems approach to teaching about the dynamics in small-scale farmer marketing and finance.

For students:

- to understand the basics of farm economics as it relates to small farmers and the role of markets;
- to understand how this links to the bigger picture of marketing systems, marketing infrastructure and trade systems; and
- to learn about how to get support for sustainable and economically vital small-scale family farming.

How to teach Module 6

About 30 contact hours will be needed to teach this module. This does not include time for conducting interviews with farmers, or the time that students will spend on assignments. You will need to decide for yourself whether to use the entire module or parts of it when making your lesson plans.

At the end of this section, an example is given of how to make a lesson plan from the material included in this module. The total time required and duration of each lesson will vary depending on the level of your students, the knowledge of you, as educator, and the number of exercises and assignments you choose to include in the course. A very important component of the module is to visit and interview at least one farmer – so that students can better understand the practical realities about marketing and finance in farming systems in their area.

What is in Module 6?

This module is the sixth in the Learning AgriCultures series. As with the other modules, it includes three learning blocks with theoretical information and a section of educational resources that provides support material. Specifically, the content of this module is as follows:

LEARNING BLOCK 1: The economy of the farm

This block provides an overview of how small-scale farmers manage their farm economies in order to achieve productive livelihoods. It looks at non-farm income as well as the different ways in which small farmers market and diversify their products to enhance the sustainability of their farming.

LEARNING BLOCK 2: The wider context of agricultural markets and financing

Five major issues are looked at in this block, in order to get the "big picture" of the influence of marketing and finance systems – in offering opportunities as well as blocking them to small-scale farmers. These issues include the rise in globalisation and integration of markets, the rise in demand for and price volatility of agricultural products, and the development of value chains and financing systems such as micro-finance. All these are described in relation to small-scale farming.

LEARNING BLOCK 3: Governance of marketing and finance

This final block describes four critical governance issues and presents examples of policies that can support sustainable financing and marketing systems for small-scale farmers. Support in terms of improving price stability, domestic – and international – marketing systems, and finding options for diversifying financing are analysed.

Figure 3: Symbol to indicate link to suggested questions.

EDUCATIONAL RESOURCES:

This section provides information about different kinds of support material that can stimulate deeper understanding and discussions in class or assignments. Throughout the main texts, boxes suggest links to resources and to probing questions. These are indicated by the symbols found in Figures 3 and 4. The resources include:

- **Exercises and games:** for in-class use (and as assignments), to help deepen understanding of marketing and finance issues.
- **Cases:** suggestions for further reading and assignments based on articles from ILEIA's magazine archive, to expose students to different practical examples of different marketing and finance issues and how farmers deal with them, and to stimulate discussion.
- **Photographs:** for in-class use, to show practical implications of different issues raised in the module.
- **Videos:** for in-class use, to complement the teachings with visual examples from around the world.
- **Farmer interview(s):** suggested visit with small-scale farmer(s) (checklist and further on-farm exercises).
- **Further references:** suggestions for freely available books, articles and relevant websites.

Figure 4: Symbol to indicate link to educational resources.

Glossary for the whole series

This is separate from the module and includes definitions for difficult terms for the whole Learning AgriCultures series.

Making a lesson plan

Three basic questions need to be asked when preparing a lesson plan:
- What do you want your students to learn?
- How are they going to learn it?
- How will you know if they have learned it?

A lesson plan therefore needs to reflect these questions by setting out the learning objectives, aims, or goals of the unit, and how it relates to the whole course. The lesson plan should also include a list of the materials needed and the learning aids and references that you will use. See the example on the next page:

Example of a Lesson Plan

Lesson	Understanding value chain
Time	3 hours
Objectives	After completion of this session, students are able to: • Explain what a value chain is; • Identify actors and activities in the chain; • Know how to draw a simple value chain; and • Discuss value chain development and how a value chain can be improved.
Prerequisite	Recommended: Learning Block 1
References	Sections 1.2, 1.3, 2.2, 2.3, 2.5; also see R6 Further resources

Time	Content	Teaching method	Teaching aid
20 min	*Central question:* What are some challenges that farmers come up against when trying to market their products?	*Introduction:* Build on previous market-related lessons by asking students to come up with different kinds of products and where/how farmers market them. *Plenary discussion*: Brainstorm about challenges that producers have when marketing and trading products.	Blackboard, chalk Link to Section 1.3 *Optional:* Watch and discuss video R4.4

Time	Content	Teaching method	Teaching aid
30	*Central question:* What is a value chain? *Important points:* • Access to markets • Supply and demand • Linking producers and consumers • Sustainability • Credit and contracts	*Presentation:* The value chain concept.	Blackboard, chalk
10	BREAK		
60	*Central question:* Who are the different actors (direct and supportive) that might be involved in a value chain, and what are their activities?	*Exercise:* Play "The Interactive Value Chain game" and use the suggested questions to have a plenary discussion.	Blackboard, Chalk R1.3 The interactive value chain game (Make photocopies of the playing cards) Pen and paper Use Figure 18
20	*Central question:* How can value chains be improved?	*Link to exercise:* Build on the discussion in the exercise about how to improve value chains. Write down suggestions students have and present more options.	Blackboard, chalk
5	*Concluding remarks*	Present briefly the excursion for next lesson	R5. Farm visit and field exercises
Next lesson: Farmer and other value chain actor visit and field exercises			

LEARNING BLOCK 1

The economy of the farm

Julio Cesar Rumaldo, member of Cooperativa La Concordia, Tacuba, El Salvador, sorting coffee cherries from his harvest with his family, photo by Annie Shatuck

How do small-scale farmers around the world manage their farm economies so that they achieve productive livelihoods? How important is farm income as opposed to other sources of income to the household economy of these family farms? How is small-scale farming integrated into market systems – local, regional or global? And how does it contribute to the diversification of rural economies?

1.1 Introduction

Almost all small farms nowadays are a mix of subsistence and commercial cultivation. Part of the produce is used for own consumption or exchanged with neighbours. Part of the produce is sold – locally, regionally, nationally, even internationally. Farmers have always marketed some of their products, but the scale on which they do this is becoming much bigger, markets are more industrialised, specialised and globalised, and trade now involves money rather than bartering.

The degree of commercialisation however varies very much from place to place and from farm to farm. On the one hand, there are farmers who produce almost entirely on a commercial basis – producing vegetables or dairy products for a nearby urban market for instance. On the other hand, there are areas where most production is still for local use – typically in more remote areas with staple crops making up large part of the farm production.

There are many terms specific to finance used throughout this module – many of which are defined in the Glossary.

This learning block discusses the economy of small farms: the degree to which small-scale farms produce for the market and are part of a larger monetary economy; their integration into market systems – local, regional, global – and the diversification of rural economies. It addresses questions such as: how important is farm income to family farms? Are there other sources of income? This learning block has four sections – discussing the farm economy, the marketing system and financing system, and lastly the bigger picture of farmers financial buffers – which is closely related to the ability to enter into market production.

1.2 Changing farm economies

Ask students to consider their country for the following questions:

- Do they recognise the situation described in Box 1?
- Are farmers in their area also "forced" to work for the market to make ends meet?

The most important determinant of small farmers' market participation is not always farm size. Rather, it may well be access to physical, human, and social assets: to education, to irrigation, transport, roads and other physical assets such as wells, cold chains, greenhouses, good quality water (free of contaminants), vehicles, and packing sheds. Effective producer organisations – another major asset – can also help small farmers enter the high-value supply chains. Farmers lacking these assets are largely excluded from the markets.

Box 1: Quote on economic potential of small-scale farming in Africa (Morris et al., 2009)

"In the case of low-value agriculture … it is unlikely that land-constrained households farming 1-2 hectares or less will be able to earn sufficient income to exit poverty. The emerging pattern of commercial agriculture in the African Guinea Savannah therefore must provide diversification opportunities for producers of low-value staples."

Farmers have always marketed some of their products, so we need to be careful that we don't make it sound like something new. What is new is that the scale on which marketing takes place is now much bigger, more industrialised, specialised and globalised, and trade involves money rather than bartering. The trend worldwide however is that small-scale family farms are becoming more commercialised. Small-scale farming and rural economies are changing. It is important to understand the larger dynamic to appreciate the changes in farming systems. There are several trends that play out differently in different parts of the world, but all have an important influence on the way small-scale farming is organised:

- **Economies are becoming more monetised:** The need for cash income is increasing – to pay for education, mobile phones, imported items. Low productivity agriculture or pure subsistence farming is less and less able to meet household requirements;
- **Economies are becoming more diversified:** In almost every country the proportion of people working in agriculture has become less, as employment in other sectors is growing faster. This does not necessarily mean that the number of people working in agriculture has decreased: it means that the number of people working in industry and services (including government) is growing faster. However, in several parts of the world there is a labour shortage in agriculture, as people – particularly able-bodied men – move out to other sectors;
- **Small farms are getting smaller:** Due to population growth and inheritance patterns. As they get smaller, small-scale farmers can no longer support their families with subsistence cultivation only. Farmers are often "forced" into high-value cash cropping in order to generate enough returns to sustain families from the shrinking landholding;
- **Economies are becoming more affluent and developed:** Though there is still much ground to cover, in many parts of the world people are much better-off, with several meals a day, better health care and more access to education. This also has an effect on farming. In several areas for instance, school enrolment has increased significantly, and less and less children are working on the family farms. Farm operations are becoming more business-like: hiring outside labour rather than relying on family workers; and
- **Opportunities for sustainable smallholder farming are increasing:** Globalisation, the rise of the middle class and market liberalisation are bringing changes in tastes and preferences. Small-scale farming often has an advantage in the production of minor crops.

The overall effect of these trends is an increase in commercialisation of small-scale farming. However, the move towards more market production brings risks. Shifting sales from local markets towards more distant markets brings new advantages as well as disadvantages. There are risks on the input side and on the output side. Commercial production generally brings greater reliance

on purchased agricultural inputs (seeds, fertilisers, agro-chemicals) and leads to higher cash needs and vulnerability if there is a failure in production or marketing. The risks on the output side concern market failures: temporary market gluts, shortage of storage facilities for perishable items, price manipulation by middlemen. These risks can be high – and may even jeopardise the ability of farmers to feed their family or to hold on to their land.

Market production in some countries is also associated with a shift in gender relations. In several cultures, cash crops are handled by men, whereas women are in charge of the subsistence production. A shift to market production may mean that men gain more control over the family resources. A related issue is how the development of new market opportunities works out for different groups of small-scale farmers. Some opportunities are "demanding" on small producers: contract farming for instance requires timeliness, quality control and input management. Not all small producers may be able conform to these requirements. What do the new market opportunities mean for different groups of farmers: those in highland and those in lowland areas; those in close to main roads and those in remote areas; small-scale farmers with scattered land and those with very small holdings? Male-headed or female-headed family farms?

1.3 Local marketing systems

Many cash crops – according to Morris, *et al.* (2009) – are in fact best grown by small-scale farmers. Horticultural crops, small-volume crops (medicinal plants, spices) and livestock are often competitively grown by small farmers. The same is true for local markets; they are often best served by small-scale producers. Much of the "success" of large-scale farming activities can be attributed to the large subsidies that go into these (land concessions, infrastructure, tax privileges). Larger farms often have an advantage in bulk crops – grains, oilseeds, pulses, sugarcane – although these can also be productively grown on small farms.

Go to article R2.1 for two articles from Peru on marketing and small-scale farming: first, how farmer groups made improvements in their dairy production; second, how farmers market their traditional varieties of potatoes in a new way.

Small-scale farmers have several options for selling their produce:
- directly to customers at local or more remote markets;
- to a middleman or trader – who may collect it from the doorstep or even harvest it;
- through a co-operative or product group; and
- through contract cultivation.

Each form of selling has advantages and disadvantages. Selling directly to the final customer requires additional efforts, such as transport and maintaining product quality, scouting for market opportunities and relatively secure markets – which may be beyond small farmers. The use of middlemen is "easier" in this respect – but it affects prices and opens up scope for manipulation and dependency. Fruit farmers in Balochistan in Pakistan, however, found a way of dealing with this. Their strategy was to first have their apple harvests collected by "fruit contractors" who would ship them to urban markets. After a number of years of observing how this went, the orchard owners had learned the tricks and started selling directly at the city markets. An alternative route for small-scale farmers to external markets

is to be part of a co-operative or product group. These come in many sizes: from small farmer groups to huge agricultural conglomerates. Contract cultivation is a third route and is on the increase. Here farmers produce on demand; prices, delivery schedules and qualities are agreed beforehand; and the client organisation – a purchase company or agro-industry – provides credit or inputs too.

Figure 5: Besides using it for their own consumption, finding viable options for marketing their produce is a major issue for small-scale farmers.

1.3.1 Market infrastructure

An important constraining or enabling factor of local marketing systems is the local market infrastructure. Cash cropping places more demands on adequate storage, processing, grading and on local market facilities in general. This applies to all cash crops. However, perishable high-value agricultural products in particular require careful handling and special facilities (warehouses, cold storage, refrigerated transport), and rapid delivery to consumers or processing facilities to maintain quality and reduce physical and nutritional losses. In many developing countries, the long supply chain, poor access to roads and electricity, and inadequate infrastructure and services in physical markets add to the transaction costs and cause quality deterioration and high spoilage losses. Market infrastructure and facilities in developing countries are often limited and congested, making it more difficult to trade perishable goods. A survey of wholesale markets handling fresh produce in four states in India found that 17 percent had no covered shops, about half did not have paved roads in the market yard, about 40 percent of the shops had no electricity, and only 6 percent of the markets had a cold storage facility (World Bank 2008).

Agricultural produce may be collected from the farms or – particularly when the quantities brought at one time are small - from rural market centres. Rural market centres may be roadside facilities, central squares turned into a temporary market or specially planned facilities.

Box 2: Considerations when designing a rural market (from Tracey-White, FAO, 2003).

Zoning land uses: creating different sections for wholesale pickup; for fresh fruit and vegetable retail; retail of grains; hardware; general circulation areas; storage. Market for live animals preferably at a distance from other sections.
Wholesale pickup: it is often most convenient if the supply and pickup can be approached from different directions.
Road planning: an access road to one side of the market and perimeter road (or internal road for larger market), loop roads preferably with T-junctions rather than crossroads (to minimise the number of accidents).
Centrally located general facilities: offices, stores, water points and sanitary facilities
Parking: with separate parking facilities for trucks and minor vehicles.
Creating a hierarchy of functions: main section, minor sections, fringes to keep the market lively.

Figure 6: A wholesale pickup is convenient because it collects products at the farms or at rural market centres.

1.3.2 Post-harvest handling and storage

Go to R2.2 for two articles from South East Asia on post-handling and storage: first discuss different – post-harvest options in Timor; and second, read about an extension programme in the Philippines that has developed post-harvest options.

Storage may be at a central facility – a go-down or cold storage or depending on the crop on the farm. Post-harvest operations are very important and can add considerably to effective farm yield. In India it is estimated that fruit and vegetable post-harvest losses amount to about 40 percent of total annual production. Estimates for the Philippines are 28-42 percent. In Pakistan 7 percent of the – less perishable – grain production is lost.

For highly perishable crops, post-harvest losses can be reduced by harvesting at the right stage of maturity and by taking greater care during harvest and transport, so the crop incurs less damage. This starts already during planting or sowing time: for instance taking care that rows are at a distance will make harvesting and transport from the field easier later on. Also, during harvest, care should be taken not to damage the crop, and appropriate tools should be used where necessary. In particular, fruits with very thin skins should be handled with care. Once harvested, fruits and vegetables should be kept as clean as possible. Leafy vegetables, for instance, are better cut than pulled – so there is no need to wash off the dirt, which may bruise the leaves. The best time to harvest fruits and vegetables is usually the early morning – this improves storage life and quality. Fruits and vegetables should be kept out of the sun and, in some cases, stems of the plants are dipped in water or kept moist in other ways.

Figure 7: Investing in improved storage can reduce losses of grains and dry crops.

Different crops need different treatment and even similar crops can be processed in different ways. Drying is essential for any crops that are intended to have a long shelf life – this can be done by sunlight or by specially made driers. The drying process reduces spoilage during storage, but access to certain markets depends on how this is done. An example is the dried raisins from Afghanistan. In the past these dominated the world market, but since the introduction of strict phyto-sanitary norms in major international markets, the traditional method of drying raisins is no longer accepted.

Furthermore, in the case of grains and dry crops, losses can be countered by investing in improved local storage. The following measures are important: (1) protection from high temperature and temperature changes, which can be done by using a roof and insulating material; (2) controlling moisture, for instance by placing the storage container on a dry under-floor, platform, or moisture barrier or by suspending the material; (3) protection against insects, e.g. by using airtight containers, smoking, or adding preservatives (many local plants have this function) or insecticides (requiring utmost care in handling); (4) protection against rodents, by securely closing the storage container or facility or using rat baffles; (5) protection from domestic animals, e.g. by fencing off the storage facility, and (6) protection against thieves by locking entrances and exits to the storage.

Many kinds of storage techniques can be used for dry crops at family level and community level. Box 3 describes some of these.

Box 3: Different kinds of storage techniques for drying crops on small farms (based on Hayma, 2003)

Storage	Typical capacity	Typical crops	Improvements
Baskets	0.025- 2.0 ton	Cereals, pulses, oilseeds, root crops	Plastering with mud; lining with plastic bags; drying commodities before putting them in the basket
Underground storage	0.5-0.7 ton	Cereals, pulses (dry tropics)	Roofing; pit lining (plastic, ferro-cement)
Polyethylene bags	0.3-0.6 ton	Cereals, seed, pulses, copra, oilseeds	Commodities entered after drying; proper closing; care with rupturing or puncturing
Jute bags	0.1 ton	Cereals, pulses, root crops, oil seeds (dry tropics)	Careful stacking to allow ventilation; avoid contact with moisture (use pallet); cleaning of used bags
Earthen silos		Cereals, oil seeds, pulses, root crops (dry tropics)	Waterproofing outer walls with cement, mortar or painting/coating
Brick and cement silo	2-6 ton	Cereals, pulses	Multi-celled structures, use of ferro-cement
Iron silos	0.5-3 ton	Cereals, oil seeds, pulses	Plastic sheet insulation, protection from rain and sun

1.3.3 Transportation

Transportation is an important step in the marketing process – especially of products that are bulky or very perishable. In both instances, good road connections are essential for market production. This is an issue that can become a major preoccupation of farmers as they seek ways to get their products to places where they can obtain a better price. The question is how the transport services are provided – by farmers, by local transport service provider, or the trader? In the latter case, the risk of a monopoly arising increases. Not only that, but the type of transport has a great effect on the distance that can be travelled, the amount of time it takes and the amount of a product that can be transported. This then also has an effect on the freshness and quality of the products by the time they reach the destination.

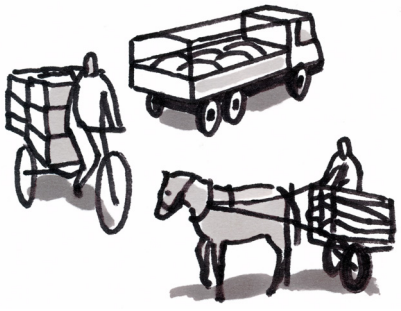

Figure 8: Transportation is an important aspect of marketing. The type of transport chosen should not damage products.

Go to article R2.3 to discuss new marketing opportunities for processed cassava in Tanzania.

1.3.4 Grading and processing

Most agricultural products cannot be sold directly to consumers. They have to be graded and processed first. Grading is the basic sorting of the product according to quality and size. Some markets are very particular – requiring commodities to have a specific size, shape, colour or moisture content. Grading, however, adds value and separates out the quality products that command a premium price. Apart from grading, several other activities may be required before the produce can be sold: cleaning, washing, de-stoning, drying, waxing, salting and/or packaging.

Processing can also make a product more attractive or it can increase its "shelf life". Fruits, for example, can be made into jam, and milk into yoghurt or cheese. Processing costs time and money. However, it can be a way to earn more money from a product. Good processing adds value to a product. Some farm products must be processed before they can be consumed. Some processing is done at farm level, but most of this is done in small or medium-scale agro-industries.

Application of simple techniques for harvesting, post-harvest treatment, grading, sorting and presentation of many fruits and vegetables, at village and community levels, has proven profitable for small-scale growers in numerous countries. The introduction of controlled-atmosphere techniques (where feasible) has opened up access to more local, and export, markets.

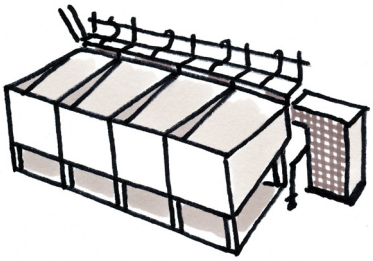

Figure 9: A grading machine can help processing by sorting fruits and vegetables into different sizes and quality ratings.

1.3.5 Processing by agro-industries

Agro-industries are in many cases an essential complement to the small-scale farming sector. Many processing activities require special techniques and can only be done at a larger scale – not by small-scale farmers themselves. In other cases, centralised processing by local agro-industries is cheaper and can lead to a better quality product.

Processing is done to preserve and extend the shelf life of agricultural produce. Processing also includes the further transformation of agricultural produce into food, clothing, construction materials or materials for other purposes. The viability of small farmer productions systems is often closely related to the presence and performance of processing industries. Contractual relations between farms and industries differ: from open sales in local markets to pre-production contracts between farmers and industries, and anything in between. Much depends on the nature of the products (i.e., how critical is quality, or the timing of the supply to industries?), their scarcity or abundance, and the capital strength of the agro-industry.

Because the economies of most developing countries are agriculturally based, agro-industries generally in many countries account for over 50 percent of the overall manufacturing sector's added value. Agro-industries also have a substantial ability to generate employment opportunities. In many developing

countries, small-scale agro-industry is often the largest employer in the manufacturing sector. In India for instance the turnover of the total food market is approximately US$ 69.4 billion, of which value-added food products comprise US$ 22.2 billion. There has been a drive for more investment in this sector. Proposals for joint ventures, foreign collaboration, industrial licenses and export-oriented units stand at US$ 4.8 billion. The challenge is for small-scale farmers to tap into these developments.

Figure 10: Quality control of food products is becoming increasingly important to be able to market products globally.

Box 4: The importance of the agro-processing sector – the case of guar in Pakistan

Pakistan is an important producer of guar in the world. Guar is produced from the clusterbean, which grows in marginal conditions where there is a large amount of water. It is cultivated mainly by very small farmers in the least attractive areas. Increasingly, however, it is becoming more difficult for these small farmers to market their product. This is amazing if one looks at the "bigger picture" and the economic uses of the product. Guar gum is used as a non-caloric binding agent in food commodities, as an ingredient for printing ink for clothes, as well as in drilling fluids. Though native to Pakistan's rain-fed and flood-fed areas, production of guar by small farmers in Pakistan lags far behind the United States (large farmers in Texas are the main producers) and much of this is due to the way marketing is organised.

According to estimates by local marketers, the production of guar in Pakistan averages 70,000 tons annually, ranging between 50,000 to 110,000 tons per year. Prices fluctuate: the 2009 crop fetched USD 360/ton, but prices in 2008 were USD 130/ton. The reason for the price jump was the small area under cultivation in 2009 due to less rainfall. Part of the 2009 harvest was withheld from the markets because of speculation.

Within Pakistan guar trade is the monopoly of a limited number of wholesale buyers and factory owners, who largely control the market prices. Previously there were only four factories in the country – all in Karachi. One factory closed recently as it overpaid traders and farmers, but then did not manage to obtain the desired profit margin internationally. The remaining three factories process the guar seeds before further marketing; the gum is extracted and converted into powder and exported, mainly to the United States. The husk is sold separately.

The three factories used to provide incentives to traders in the past but no longer do so. As a result, the marketing system has become less reliable and small-farmer production has suffered. Previously the jute bags were provided by factory owners to middlemen in advance. The bags with the crops were paid for on delivery, but now it takes one to two weeks before payment is made, after factory owners have determined the quality of the produce. That was the reason that the 2009 produce was stored by local middlemen. It was only sold to factory owners when they really needed it, and terms and conditions were more favourable to local middlemen than the factory owners. This is what bankrupted the fourth factory.

1.3.6 Processing technologies

Appropriate technologies are particularly needed for processing food in rural areas of developing countries. Traditional technologies can sometimes be upgraded to enhance the shelf life and consumer acceptance of indigenous foods, as well as developing value added for products with export potential. In other cases entirely new processing techniques can be introduced:

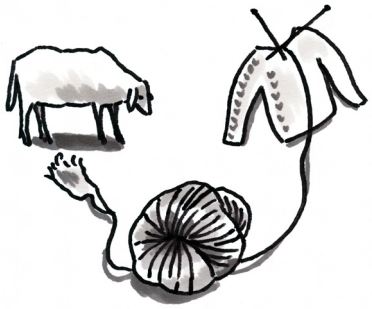

Figure 11: To increase value, wool can be processed into yarn and further into clothing.

- **Rice:** In some areas rice milling has been made more efficient by rehabilitating existing mills and establishing new processing units. Parboiling rice has been introduced as a means of extending the yield and improving the nutritional value of rice.
- **Meat:** New or modified technologies for slaughtering, and meat handling and processing have been introduced in areas with an undeveloped infrastructure. Among these technologies are small-scale abattoirs for hygienic slaughtering in the absence of electricity and an adequate water supply, as well as mobile slaughter facilities. Where refrigeration is unreliable, meat-drying and other technologies yielding low- or intermediate-moisture products can be introduced.
- **Animal products:** Agricultural products other than food should also be processed to increase value, secure markets, and raise returns for the primary producers. This can be done through techniques such as scouring, grading, testing, and processing of wool, mohair, alpaca, cashmere, cotton and jute. The use of animals for purposes other than meat products is another basis for small-scale industry. Improved techniques are now available for flaying, curing, and preserving hides and skins, and for using blood, bones, horns, hooves, and intestines to produce marketable products such as glue, sausage casings, animal feed, and fertiliser.
- **Medicine:** Small-scale agro-industries provide for basic food, shelter, and energy needs and are centrally involved in health through medicinal plants. Until 150 years ago, crude plants were central to all medicine, and herbs are humankind's most ancient therapeutic aid. Their central role in medicine throughout the ages eventually led to these plants becoming part of traditional medicinal knowledge. Developing countries, particularly those in tropical or semitropical regions, still have a comparative advantage in the production of some medicinal plants, herbal products and perfumes, if they are cultivated in a sustainable manner – think of soap nuts, gum Arabic, quinine. Botanical gardens play an important role here. In recent years several new plant species have been "discovered", which are ingredients for new medicines.

1.4 Agricultural financing

Farmers' economies are becoming increasingly monetised – both in their incomes and expenditures and in the way farms are operated. Barter (exchange of goods and services without cash transactions) and reciprocal relations still exist – but are also fast disappearing and being replaced by monetary transactions. Without finance, farmers may not be able to buy good seeds, hire workers, or invest in equipment. For traders, a lack of finance may mean that they cannot pay cash when they take delivery of the crops – so the farmers may sell their crops elsewhere. For small-scale processors, a lack of finance may mean they cannot expand their operations.

There are many examples of the huge profits made in agricultural trade by moneylenders. The common image is of distressed farmers faced with a cash shortage being forced to sell part of their crops to traders. On the other hand, traders at different levels are indispensable and the credit they provide as advance payments is often the only source of money in the lean season in rural areas. The problem of course is that commercial relations can become unequal and exploitative, and prices unfair and low – resulting in severe distress. This is where alternative credit lines come in: is there only one monopolist trader in the area or can farmers choose between different traders and different trading channels? Are there other sources of credit? These may be rotating credit associations, banks or, increasingly, micro-finance facilities.

Go to the Microfinance Game in R1.1 for students to experience risk-taking in microfinance.

Watch the video in R4.1 to discuss co-operative lending systems in Tajikistan.

Box 5: Rotating credit associations

Rotating credit associations are found almost everywhere in the world – within families, within communities and between traders and entrepreneurs. These informal credit systems are simple. A group of closely associated people come together at a fixed time (once a week, once a month). On that occasion everybody contributes a given amount of money to the pool. A lottery determines who receives the pool this time. Group members that have won the pool contribute money in the next rounds but cannot join the lottery.

A variation on the system is when the winner is not determined by lottery but by making bids. In this arrangement each group member can make a bid – normally by mentioning the discount that one is willing to accept from all member contributions in that particular round – or alternatively the mark-up one is willing to pay in the coming rounds. This arrangement was called *hwe* among Chinese traders. It creates a banking element in the system and it changes the credit rotation to one based on the demand of a particular group member rather than by having it determined by chance.

1.4.1 Small-scale farmers' financial buffers

Go to article 2.4.1 to discuss a microfinance case from Uganda.

A bigger question is what financial buffers small-scale farmers have – to overcome setbacks such as price collapses or harvest losses; to pay for large private expenditures (weddings, funerals) or to make investments or defer payments. Several types of financial buffers are available for small-scale farmers. It is important to understand these and quantify them as much as possible, because understanding small-scale farmers' financial buffers explains much of the farmers' ability to enter into commercial production and demand good deals. In general, if their financial buffer is weak, entering into market production is extremely hazardous for small-scale farmers. Where possible, the financial buffers should be strengthened by diversifying rural economies and providing well-balanced support programmes. Though not a buffer as such, it is also important to have the right entrepreneurial "mindset" or worldview to get into marketing: this means being responsive and flexible enough to adapt to market switches and exploiting uncertainties so they become business opportunities rather than setbacks.

The most important buffers are:

- **Having multiple strategies in the farms:** Different types of products for different types of markets – preferably also with income coming in at different times of the year – so as to avoid "hunger seasons", when there are expenditures but no income. Examples of multiple strategies are mixing animals with crops, having multiple crops and diverse animal systems.
- **Having stocks:** Adequate storage to tide over lean periods and low years, and have enough seeds, animals and other inputs to start a new season. This is difficult for small, poor farmers to achieve, as they are often cash-strapped and forced to sell their stocks too early.
- **Having saleable assets:** In particular livestock and trees. In many countries livestock serves as a savings deposit (also see Module 4 of the Learning AgriCultures series). Livestock is bought in good years – to be sold in bad years. Investment in trees is usually long term – depending obviously on the species planted. Returns from fuelwood or timber can be very substantial, provided farmers are able to wait for several years before cashing in.
- **Access to credit and financial help:** As discussed above, the sources of financial help can be diverse: own savings, family member savings, reciprocity – i.e. the return of services within a group of peers and friends. Credit can also come from the trade chain or from formal and informal credit systems: this will be further discussed in sections 2.5 and 2.6.
- **Diverse sources of non-agricultural income:** Many farm households do not depend on farming only. They may have many other sources of income – trade and business, jobs in government, handicraft, or remittances from family members working elsewhere (see more on this in Module 5). The importance of non-agricultural sources of income varies from place to place. The rural economies in Asia and Latin America are often open and well connected, and a large and increasing part of income in rural areas comes from non-agricultural activities. Particularly around cities, industries are starting to spread into the

countryside, looking for cheap labour and land. In Africa there is less diversity of income sources in rural areas: rural economies tend to be more exclusively rural and also less monetised. Remittances may however make up a large part of the cash flow in rural areas: in Eritrea for instance, at least 40 percent of the money entering the rural economy comes from money sent by relatives and friends abroad.

- **Government support:** In several countries "safety net programmes" are in place – providing cash income or food packages usually targeted at the very poor. Some safety net programmes operate on the basis of labour contributions - paying either in kind or cash. Other safety net programmes –particularly direct food aid– do not require labour contributions. In recent years, safety net programmes have paid more attention to targeting (targeting the very poor and monitoring whether and how their economic position improves), skills development (to facilitate the transition to small-scale enterprises) and payment in cash (to give more freedom and spending power and to capitalise the rural economies rather than undermine their competitiveness by making free food available).

1.5 Sources for this learning block

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- Morris, Michael, Hans Binswanger-Mkhize and Derek Byerlee. 2009. **Awakening Africa's sleeping giant – Prospects for commercial agriculture in the Guinea Savannah zone and beyond.** World Bank and FAO, Washington, D.C., U.S.A.

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LEARNING BLOCK 2

The wider context of agricultural markets and financing

Transporting baskets for marketing in Vientiane, Laos, photo by Wim Giesen

What are major contextual trends that affect the marketing and finance options of small-scale farmers? How can these be managed? What opportunities do they open up and what limitations do they impose for small-scale farmers?

2.1 Introduction

Use the photo gallery in R3 to present different images and stories from around the world concerning markets and finance issues, and how they relate to students' countries.

The first learning block discussed the dynamic setting of many small-scale farming production systems. This second learning block goes into larger scale marketing and financing trends that occur outside farms, but that nevertheless have a great influence on the functioning of small-scale farming. Five main "drivers of change" in marketing and finance systems and responses to them are discussed. These are as follows:

Section 2.2 describes the situation that has emerged as a result of the increased globalisation and integration of markets. This trend offers many opportunities for farm production, but has also led to a number of conditions that hinder small-scale farmers and developing countries from benefitting from them. Section 2.3 elaborates on how global demand for agricultural products is growing and changing as populations grow and become more affluent. The effects this has on the environment are discussed in terms of a concept known as "ecological footprinting". In section 2.4, the issue of price volatility is raised, as this has a great effect on farmers who depend on markets for their livelihood. In Section 2.5, the global marketplace is analysed in terms of the development of "value chains", a trend that is affecting market-oriented farmers everywhere. In the final section, changing financing systems are described; in particular the activities and conditions around banks, credit and micro-credit services are looked at in terms of the extent to which they offer small-scale farmers access to the capital they need to invest and improve their farming systems (Section 2.6).

2.2 Integration and globalisation of markets

Figure 12: Increasingly, agricultural products are sold all over the world and connectivity has improved.

An important driver of change in marketing has been the increased integration of markets. Globalisation means that agricultural products are sold increasingly all over the world. Since 1980 world trade has increased fivefold in real terms. Developing countries' share of total world exports increased from 22 percent in 1980 to 32 percent in 2005. The Asian countries have played the leading part in this. Africa and Latin America are still less integrated in the world economy. In agricultural trade, many developing countries – especially in Africa and Middle East – are still net importers, whereas USA, Australia, Canada, Argentina and Ukraine are important exporters. The effects of globalisation and integration are also felt at local level: regions within countries are increasingly linked to one another and specialisation is on the increase.

Much of the trend towards market integration is spurred by the world becoming smaller – more exchange between people, faster contacts, better infrastructure and easier financial transactions. Connectivity all over the world has improved:

new roads, bridges, cold storage facilities, better equipped airports and river navigation. Connectivity is also about communication and here enormous improvements have taken place. In Africa, for instance, the increase in number of mobile phone subscriptions over the last five years has defied predictions, and Africa has become the region with the highest mobile growth rate. By the end of 2008, Africa mobile penetration had risen from 5 percent in 2003 to over 30 percent.

But improvements have been uneven – some places have benefitted more than others. "Backwaters" remain. Some regions have already come a long way, but the need for more and better infrastructure will remain high for many decades to come. In marketing, some areas remain relatively isolated and continue to be dominated by production for subsistence or local consumption. There are many areas in the world where, because of lack of processing and marketing facilities or institutional obstacles, lucrative external markets cannot be accessed.

Ask your students to analyse for their region how road connections have changed over the last ten years.

- Have new roads been built or others upgraded? Have bridges been built?
- What has been the impact on the areas concerned?

2.2.1 International trade agreements and subsidies

Market integration is also promoted by changes in trade agreements between countries. On-going international trade negotiations have far-reaching effects on the future economic opportunities of least developed countries. The main ones are the Doha-round of the World Trade Organisation and the follow-up to the ACP treaties (countries of Africa, the Caribbean and the Pacific) of the European Union, but there are important regional treaties as well. The negotiations are dynamic and complex, and require intense monitoring. Following the financial and food crises that started in about 2008, for instance, new trade restrictions have been put in place in different parts of the world. A main area of controversy is the farm subsidies both in the European Union and the United States. Farm subsidies under the Common Agricultural Policy of the European Union amount to approximately 48 billion euros, close to half the entire budget of the European Union. Farm subsidies in the United States amount to US$ 20 billion, and are provided in the shape of a guaranteed bottom price and extra payments for crops, especially maize.

The aim of the European Common Agricultural Policy (CAP) is to provide farmers with a reasonable standard of living, consumers with quality food at fair prices and to preserve rural heritage. The CAP combines a direct subsidy payment for crops and land that may be cultivated with price support mechanisms, including guaranteed minimum prices, import tariffs and quotas on certain goods from outside the EU. Reforms of the system are currently underway; these include reducing import controls and transferring subsidies

Watch the video in R4.2 to discuss how small-scale producers in Latin America can position themselves on the global market.

Also go to R2.5 for an article about an interesting marketing opportunity in the Philippines.

Figure 13: An over-supply of dairy products from Europe often gets dumped on the African market for cheap prices competing with local products that are not subsidised.

to land "stewardship" rather than specific crop production. The amounts of subsidies will also be gradually reduced. There is substantial criticism of the Common Agricultural Policy. First, it is extremely costly but the benefits accrue to a very small part of the European population – less than 5 percent is still involved in farming. Moreover, the subsidies are based on the land owned, so small family farms are at a disadvantage. A second main criticism is that the CAP sends out completely wrong price signals and this leads to oversupply, for example of dairy products. The surpluses produced are then dumped, using export subsidies, in developing countries. This undermines agricultural markets for rural producers in developing countries – though in the short term it does ensure a supply of cheap food to the urban population in these countries. There was agreement that the European Union would dismantle the subsidy system, but the recent food crises of 2008 and 2010 triggered calls to keep the system intact so as to ensure strategic food security.

While much negotiation is going on concerning changing the international terms of trade, the least developed countries risk being at a disadvantage in these negotiations as they cannot afford large delegations and are generally less prepared. Moreover, the odds are against them as long as heavy farm subsidies persist in the developed world. There is a genuine risk of the negotiations being one-sided and trade barriers working against the growth prospects of developing countries. On the other hand, they also stand to lose if their preferential treatment is discarded, if tax income from import and export duties disappears, and if they have to open up their domestic markets to stronger competitors.

A number of countries have a policy of food self sufficiency – aiming to produce enough of the main staple crops to ensure the country is not dependent on imports. What do you think about this idea?

2.2.2 Non-trade barriers

While formal trade restrictions are gradually abolished, non-trade barriers may continue to exist and will have the same effect of restricting the access of poorer countries to markets. Such non-trade barriers usually relate to food safety, for example requirements on phytosanitary conditions and pesticide residues. Beyond the international trade negotiations, developing countries may not be able to make use of lucrative international markets, because of a lack of understanding of the markets and because of a lack of basic facilities. Supermarket chains in Europe, for instance, may require compliance with their food safety systems. For suppliers to be "licensed to deliver", they may have to submit pesticide residue test reports from recognised laboratories, which may simply not exist in the country.

2.2.3 Procurement systems

Globalisation and market integration have changed the way markets are organised. More and more trade takes place through controlled procurement systems. Inefficiencies in the traditional wholesale marketing systems and unpredictability have caused agro-industries, food processors and supermarkets to make use of supply chains to reduce co-ordination costs, capture economies

of scale, and increase food safety and quality. This is changing the structure of production and wholesale marketing in many developing countries. Procurement systems tend to change first for processed foods, meat, and dairy products, eventually extending to fresh fruits and vegetables. Controlled procurement takes many forms, depending on the branch, product, and country. It may take the form of centralised procurement, which shifts from fragmented per-store purchases to operating a distribution centre catering to a larger area (a district or the whole country). It may also involve shifting from buying in traditional spot wholesale markets to relying on specialised or dedicated wholesalers and logistics firms, or to direct contracting. All these strategies are used to cut transaction, co-ordination and search costs, and ensure greater control over quality and consistency of supply.

Figure 14: Even though formal trade restrictions are disappearing, non-trade barriers, such as food safety standards, are still an obstacle to trade.

Modern procurement can also involve contracting with processors and farmers, or using preferred-supplier lists. This is often done where farmers or processors are grouped or are individually large (as in the Philippines, Russia, and Thailand). These contracts are incentives for suppliers to stay with the buyer and invest in production systems that fit the retailer's specifications for products. The arrangements may include direct or indirect assistance for farmers to invest in training. Modern procurement also often involves private standards and their enforcement: standards that serve two main functions. First, they help co-ordinate supply chains by standardising product requirements for suppliers over many regions or countries, enhancing efficiency and lowering transaction costs. Second, they also help ensure that public food-safety standards are met in the markets served by the retail chain or food-processing firm, distinguishing one's products from competitors. As these private standards are more widely adopted, there is growing concern about the capacity of small farmers to meet them – see also section 2.4. A successful example from Madagascar, however, is given in the box below.

Go to article R2.6 for an article about a Brazilian government policy that supports local production and addresses poverty.

Box 6: Accessing global markets by small farmers in Madagascar (from KIT and IIRR, 2010)

The rise of supermarkets globally has meant new agricultural marketing opportunities – but these are difficult for small farmers to capture, as they are less accustomed to having to comply with the quality and food safety requirements of supermarkets when growing crops. In the highlands of Madagascar, however, nearly 10,000 farmers produce vegetables, especially French beans, for supermarkets in Europe. They are part of a supply chain organised by a company called Lecofruit. In this supply chain, micro-contracts are combined with extensive farm assistance and supervision so that producers can comply with the complex quality requirements and phytosanitary standards of European supermarkets. Suppliers to Lecofruit have to fulfil the following conditions:

- one area under contract per farm family is approximately 0.01 hectare;
- one contractor per household; and
- a contracting agent can only have one contract at a time.

Lecofruit enters into advance contracts with European clients each year. These typically include provisions on product quality (length of the bean, colour), ethical standards (no child labour), employment practices, and hygiene instructions in the processing plant. To match these requirements, Lecofruit has an elaborate system of contracting and on-farm monitoring of the vegetable production by its small-scale suppliers. It uses standard micro-contracts describing the supply of the product and the inputs to be used. Once a small farm has signed the contract, it is provided compost, seeds and other inputs. Lecofruit has a network of extension workers – one for every 30 farmers. During the growing season, a contract farmer is visited 1-2 times a week to ensure correct production management and avoid "side-selling". Pesticide use is particularly monitored strictly to ensure that maximum residue levels are not exceeded. Only products that fulfil quality norms are bought. Inputs supplied by Lecofruit amount to USD 5 per contract – and the sales value of a contract is typically USD 20.

An evaluation found that small farmers taking part in these contracts have more income stability, shorter lean periods, improved technology adaptation, better resource management and increased productivity of other crops on the farm.

There is debate about the extent of the impact of increased movement of commodities on the environment and climate change, as the transport of commodities all over the world increases the use of fossil fuels. This is likely to be particularly true for the intense trade in fresh items – fruits, vegetables and flowers, that are often transported by air or in cooled trucks or ships. There is also much movement of products between different processing centres, where they undergo different steps in the production process. In short, much agricultural trade involves very high energy use. This argument needs to be qualified, however. The transport energy requirements needs to be set against the production of vegetables and fruits in greenhouse environments in some parts of the North – where energy expenditure is even higher.

2.3 Changing demand for agricultural products

Another important driver for change concerns demand for agricultural products. In general, the demand for agricultural products all over the world is increasing – even to the extent that there is concern that in the long run it will become difficult to keep up with the demand of a growing global population, and in particular with increasing different demands. As people become more affluent their food habits and other demands change. This further increases the so-called "Ecological Footprint", even to the point that it is feared that the impact of human activities already exceeds the biological capacity of the earth's land and water resources. The Ecological Footprint is a widely used tool (see sub-Section 2.3.1) to assess how much of the planet's biological capacity a given human activity or population requires.

Figure 15: The type of demand for agricultural products is changing. For example, more and more people are eating meat.

Absolute demand for agricultural products will grow as the world's population increases. The population is projected to grow from 6.9 billion in 2010 to 8.9 billion in 2050. This increase should be set against trends like the aging rural population in China, unsustainable overuse of groundwater in the North China plains, as well as a looming land shortage in India and the effects of climate change. The latter are likely to include more floods and droughts, but also less water from snowmelt in the Ganges Basin. These developments are expected to lead to a decrease in agricultural productivity in China and India, which in turn will drive the search for agricultural expansion in the relatively empty parts of Africa and Latin America.

In addition to these developments, the type of demand and preferences for agricultural products are changing and will change further. The main factors are:

- **Changing food habits:** As people become more affluent their food habits change. This offers opportunities for small-scale farmers. Some general trends are:
  - The consumption of animal protein increases with increasing wealth – increasing the demand for livestock feed.
  - The consumption of staple foods decreases, whereas the consumption of fresh and canned fruits and vegetables increases.
  - Tastes are becoming globalised – some food items are finding their way into diets all over the world. Examples of such "global winners" are Chinese, American and Italian fast foods, and certain vegetables that have made it into diets all over the world, such as green pepper and broccoli.
  - Increased consumer awareness – about food safety, production at origin and production systems. This is widening the market, for instance for organic foods (in high-income countries but also very fast in middle-income countries) and fair price products. There is even a paradigm shift taking place in this field: moving beyond individual customer responsibility as consumers demand that companies conduct their business in a socially and ecologically responsible manner. Large corporations are increasingly using value-based management and adjusting their procurement processes.

Go to R4.3 to watch a video about food safety and health standards in Benin, Belize, Thailand and Vietnam.

Also see two articles in R2.7 about small-scale farming and organic markets – in Mexico and Thailand.

- **Urbanisation and the rise of a middle class:** Changes in food habits are further accelerated by urbanisation and the emergence of a middle class population. The amount of people living in cities is increasing, and in many countries urban population now outnumbers the population in rural areas. Food habits in cities are markedly different: urban dwellers eat more processed food, more packaged food, and a greater variety of foods. Urbanisation also leads to the formation of new kinds of marketing channels: food processing industries, urban wholesalers, supermarkets and street corner retail outlets.

- **Surge in demand for fossil fuel alternatives:** The expected future oil shortages ("peak oil") are driving a search for alternatives. Biofuels – fuels produced from crops and other biomass – figure importantly here. Sugar, maize and oil seeds, such as jatropha, can be easily converted into biofuels. For crops that are also used for food, however, this means stiff competition with the food market – which can put food production at risk, as shortages and higher food prices result.

- **Substitution:** The agricultural research industry is continuously developing new production techniques. This is causing major shifts in demand for agricultural products. Three larger examples of recent decades are:
  - replacement of natural rubber with synthetic rubber;
  - replacement of sugar with artificial sweeteners, which has had a major effect on demand for sugar production; and
  - upgrading the quality of Robusta coffee to that of Arabica coffee: this has made it possible for new coffee producing countries (e.g. Vietnam) to capture a large part of the world market.

Review Box 7 with your students. Go into greater detail using the Ecological Footprint exercise in R1.2.

2.3.1 The Ecological Footprint tool

The Ecological Footprint measures the amount of biologically productive area an individual in a given place requires to produce the resources that he or she consumes and absorb the waste he or she generates. Biologically productive areas include cropland, forest and fishing grounds. The Footprint is then compared with how much land and sea area is available, i.e. the "biocapacity". Biocapacity is shorthand for biological capacity, which is the ability of an ecosystem to produce useful biological materials and to absorb wastes generated by humans. The Ecological Footprint and Biocapacity are expressed in "global hectares". A global hectare is a unit of measure that expresses the average productivity of all the biologically productive land and sea area in the world in a given year.

The Ecological Footprint gives a snapshot of the global resources and demand (see Box 7). The current estimate is that if we combine all our consumption, we are overshooting the earth's capacity by 30 percent. It also shows that, in terms of cropland, many middle-income and low-income countries use about the same amount of resources as they have. The overall message is that not only do we

urgently need to reduce consumption, but also to increase the productivity of the earth's resources in terms of food production and ecological values, and taking into account that circumstances are changing.

Box 7: Example of an Ecological Footprint (from www.footprintnetwork.org)

	POPULATION (MILLION)	ECOLOGICAL FOOTPRINT (global hectares per capita)							BIOCAPACITY (global hectares per capita)						ECOLOGICAL (DEFICIT) OR RESERVE
		Ecological Footprint of Consumption	Cropland Footprint	Grazing Footprint	Forest Footprint	Fishing Ground Footprint	Carbon Footprint	Built-up Land	Total Biocapacity	Cropland	Grazing Land	Forest	Fishing Ground	Built Land	
World	6.592,9	2,6	0,57	0,22	0,28	0,10	1,37	0,06	1,8	0,56	0,26	0,74	0,18	0,06	(0,8)
High Income Countries	1.022,1	6,1	0,93	0,19	0,70	0,28	3,85	0,11	3,3	1,16	0,32	1,18	0,57	0,11	(2,7)
Middle Income Countries	4.281,1	1,8	0,46	0,17	0,19	0,08	0,82	0,06	1,7	0,47	0,24	0,76	0,14	0,06	(0,1)
Low Income Countries	1.277,0	1,0	0,36	0,10	0,23	0,02	0,26	0,05	1,0	0,35	0,22	0,29	0,08	0,05	(0,0)

On the supply side there is still considerable scope for increasing productivity in general. There are still major areas that are not used very productively: much of the land in the former communist countries that was abandoned is now only slowly being brought into production; the very extensive flood plain areas in Africa are hardly used productively; there is unutilised land in Bolivia, Paraguay, Congo and Canada. On the other side of the balance sheet, there are areas with declining productivity – exhausted land in large-scale irrigation systems, degraded highland areas, some areas of groundwater-dependent farming are threatened with overuse, agricultural land is being converted into residential areas. In general these trends will also put more pressure on small-scale farming and large-scale farming to use resources more sustainably and more productively.

2.4 Increasing price volatility

Having been stagnant for decades, food prices soared in 2008. For a long time food prices were losing ground – partly because of overproduction and partly as a result of deliberate policies: in some countries the prices of staple foods have been regulated so as to keep urban food prices low and not create unrest among city populations. This resulted in a worsening of "the terms of trade": while urban and industrial products became more expensive, rural products did not. This in turn has contributed to the out-migration from rural areas.

Looking at the case in Box 8, ask your students about the pros and cons of qat cultivation. Should it be banned or should it be supported? What would be a realistic policy?

Box 8: Urban-rural transfers: the case of qat in Yemen.

Qat is a stimulant that is widely consumed in Yemen. The green leaves of *chata edulis* are chewed daily – usually in chat chewing sessions. Its use is on the increase – while it used to be a habit confined to older men, now younger age groups use the stimulant and women are the largest "growth market". Qat has a taboo status: it consumes an estimated 35 percent of all water in a country that is severely short of water, and even for poor families it is the major expenditure item. The other side of the story is that qat cultivation and marketing creates a lot of jobs. It also ensures a large money transfer from urban to rural areas. One of the effects of this is that watersheds are maintained, and new ones have even been developed. As a result rural areas are less depopulated than they otherwise might have been.

The food crisis of 2008 broke with this trend of declining agricultural commodity prices. Prices for staple crops and oilseeds in particular made spectacular jumps. As the price increases were passed on down to the customers, food riots broke out in several countries. After the initial jump in food prices, they went down, only to stabilise at a higher level. Moreover, it appears that, whereas international market prices settled somewhat, domestic prices did not adjust as much. Several factors have been associated with the spike in food prices: in the short run, speculative action (see also Learning Block 3) and imperfect bulk markets; in the medium term, competition, for example with biofuels and the lack of regulation, and in the long term, the growing global population and changing diets and food habits.

Figure 16: Even if food prices go up, farmers do not necessarily get paid more for their products. Surplus accrues instead to supermarkets and middlemen.

The expectation is that agricultural prices will remain significantly higher than they were in previous decades. This is contingent on three factors (OECD-FAO 2010). First, energy markets are increasingly linked to agricultural markets, because of the growing production of biofuels and ethanol. Secondly, relatively high fuel prices also mean that costs of agrochemicals and transport are relatively high. Thirdly, agricultural productivity growth appears to be slowing down. Agricultural production moreover is becoming increasingly vulnerable to environmental shocks. An example is the widespread forest fires in Russia in the summer of 2010, which affected wheat harvests in the country and drove up commodity prices worldwide.

2.5 Value chains and market mechanisms

In the past the market prices of some major export products from developing countries were regulated by international trade agreements, for instance the prices of cacao and coffee. In many countries parastatals operated, semi-public organisations that provided inputs, extension services and also purchased the harvest at set prices. This was the case for cotton and oilseeds, for example. Such broad arrangements, however, now belong to the past. Prices are now once more

determined by international supply and demand, which makes producers in developing countries more vulnerable, as, unlike in the US and Europe, there are no farm subsidies to speak of. With the wave of liberalisation that took place in the 1990s (explained in more detail in Section 3.4.1), many of the parastatals were reformed or replaced: in some cases leaving a vacuum.

Box 9: Successful transition of a parastatal – cotton in Zambia (from World Bank, 2008)

In many countries the dismantling of the parastatals meant a setback for commodity production and export, but in Zambia the cotton sector was successfully transformed. Zambia's cotton sector continues to evolve since the market was liberalised, and there have been significant impacts on productivity and quality.

In 1995 the government sold the Lint Company of Zambia, the government parastatal, to two private companies. To ensure access by participating farmers to extension services and inputs (on loan), the two companies implemented outgrower schemes, contracting with smallholders. The costs of the inputs were to be paid by farmers upon sale of their seed cotton. But the rapid entry of other buyers created overcapacity in ginning and fierce buyer competition. The outgrower schemes began to fail, because of side-selling by farmers to other traders offering high prices without grading, and defaults on input loans. As the defaults increased, the cost of credit increased, which led to more defaults or exits from the outgrower programme. Production in 2000 was less than half that of 1998.

After 2000, many agents and buyers left the industry, leaving two dominant companies. One of the companies used distributors to improve credit repayments. Distributors were responsible for identifying farmers, providing inputs and technical advice, and collecting produce on its behalf. The distributor's remuneration was directly tied to the amount of credit recovered, on an increasing scale. The company established inspection points in all buying stations to enforce quality standards. National production tripled between 2000 and 2003, and credit repayments improved from about 65 percent to more than 90 percent. There are now more than 300,000 cotton-producing farmers in Zambia.

Having access to markets, either national or international, is essential for economic growth. It is particularly important if the demand for products and services is far away from the areas where these are produced. At present however a large number of initiatives are being undertaken to help develop sustainable value chains – linking producers and consumers – in some cases with an in-built social and environmental agenda. There are many ways to address the issue of access to markets: by developing links to large business partners; providing training and coaching in using trade opportunities, and through the development of integrated market chains.

Go to the Interactive Value Chain game in R1.3 to identify the various actors and their roles in the value chain.

To learn more about value chains, discuss the two articles in R2.8, which describe cases in Ghana and Laos.

Value-chain development in particular has taken off in recent years. It has focused on a large number of commodities: fish, timber, paper, coffee, cut flowers, leather products, textile, clothes, cacao, tea, honey, fruit and cereals. Value-chain development is aimed at domestic markets as well as international markets. The challenges are to increase volumes, and at the same time improve the working conditions and income of those at the beginning of the chain, and contribute to the sustainable use of resources.

2.5.1 Value chains

A value chain refers to the entire system of production, processing and marketing of a particular product, from inception to the finished product. A value chain consists of a series of chain actors, linked together by flows of products, finance, information and services (see Figure 17). Developing a value chain means strengthening the link between the different actors and support organisations in the chain, and introducing improved practices. Value chain development can serve several objectives:

- It assures a more regular demand for small farmer producers;
- It assures a more regular supply for processors and wholesalers;
- It makes it possible to control quality standards;
- It makes it possible to trace the origin of products and assure they are produced according to ethical standards;
- It makes it possible to arrange credit flows to different actors in the chain; and
- It makes it possible to systematically support the sector – by providing training, research, market visits.

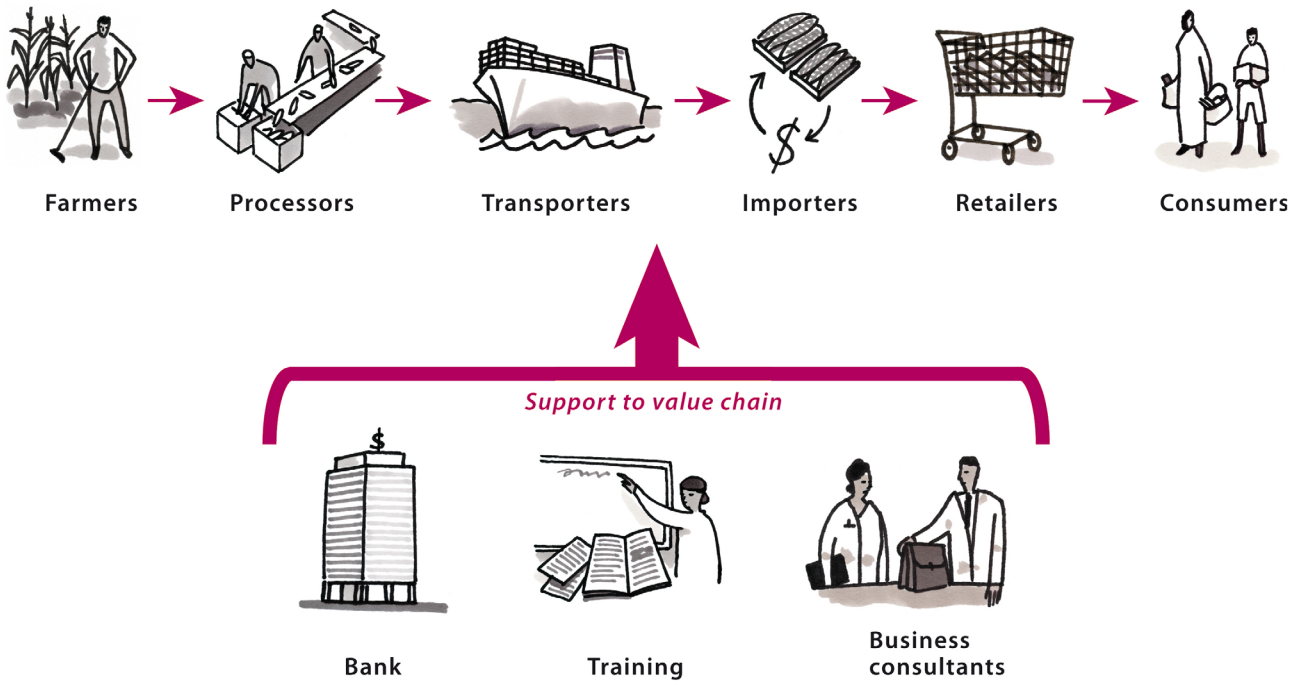

Figure 17: Global value from producer to consumer. The value chain has many actors with different roles and activities.

There are two challenges to value chain development in particular: to arrange better co-ordination and more security in the chain, and to make sure that small producers can capture a larger part of the market chain and get a fair part of the final price.

2.5.2 Labelling

One very visible manifestation of value-chain development is the use of labels. Consumer labels are used to promote fair prices, fair working conditions or sustainable production. Products are offered to consumers who want to use products that are processed in a decent and sustainable way. In this way attention is drawn to social and environmental issues in production processes. Labels are only one part of value-chain development, but in volume not the most important one. Labels are the most visible form of fair trade, but the market share is very modest and generally concerns consumer items.

2.5.3 Business-to-business codes

More substantial in terms of trade volumes are business-to-business codes. The procurement of sustainable inputs by large companies can be motivated by "corporate social responsibility", by reduction of risk or reputational damage, or by a long-term strategy for safeguarding future supplies. In many business-to-business codes, companies take care to source supplies from traceable producers. The consumer does not necessarily notice the difference, but the volumes can be substantial. Business-to-business codes can be self-audited or third-party audited and may over time develop into consumer labels. Another approach in the development of more sustainable value chains is the setting up of round tables and platforms, in which representatives from across the sector and other stakeholders develop codes of conduct and standards, which serve as a framework for trade and production. The standards may in the end be independently certified too. The volumes involved in these trade mechanisms are much higher than those involved in labelling.

2.5.4 Chain financing

Another advance of value-chain development is the development of chain financing. Greater integration of chain actors and more security of demand and supply can also translate into new financing arrangements and new sources of funds for small farmers. These sources of funding are essentially of two categories: (1) credit from within the trade chain – either product financing or receivables financing, (2) advance payments, and (3) the use of medium-term contracts as collateral for loans, referred to as "collateralisation" and financial enhancements. Box 10 shows the different types of trade chain finance.

Box 10: Overview of trade chain financial products, their benefits and limitations (from Miller and Jones, 2010)

	BENEFITS	LIMITATIONS
PRODUCT FINANCING		
Trader credit	Ease of transaction Secures sale/purchase and price	May not reflect real price
Input supplier credit	Buyer can obtain inputs Supplier secures sales	Cost may be excessive Lack of competition Repayment not secure
Marketing company credit	Secures quantity and price	Not always accessible for small farmers Compliance of contracts not always respected
Lead firm financing	Secures market and price Lead firm can hedge price risk Technical guidance often added	Often not accessible for small farmers Cost of enforcement of contracts
RECEIVABLES FINANCING		
TRADE RECEIVABLES FINANCING		
Factoring	Frees up capital to be used elsewhere Facilitates international business	Requires specialised agencies Lack of interest by financial markets
Forfeiting	Frees up capital to be used elsewhere Takes care of collection risks	Requires specialised agencies Requires selling the accounts at discount
COLLATERALISATION		
Warehouse receipts	Used as collateral to access financing	Only for commodities that can be graded and standardised
Repurchase agreements	Can reduce financing costs in selected commodities with well functioning commodity exchanges	Requires commodities to be stored by collateral managers and requires commodity exchanges
Lease-purchase	More loan security and purchase of asset	Requires co-ordination of seller and buyer – only feasible for medium or long-term purchases
RISK MITIGATION PRODUCTS		
Insurance	Reduces risk for all parties in the chain	Costly and sometimes based on insufficient data
Forward contracts	Companies can hedge price risk Can be used as collateral	Requires reliable market information
Futures	Used globally in agricultural commodities to hedge risk	Only for commodities that are graded and standardised
FINANCIAL ENHANCEMENTS		
Securitisation	Potential to reach lower-cost market funding	Costly and complex to set up
Loan guarantees	Creates access for more funding	Costly and often subsidised in agriculture
Joint venture financing	Provides equity capital and borrowing capacity	Hard to attract suitable investors

2.6 Changing financial systems

Whereas there are many new opportunities for accessing credit within market chains – as discussed above – important changes in the overall banking systems are also taking place. In many parts of the world new lending products, in line with the requirements of small farmers, have arisen, though caution is required when it comes to their actual implementation. Formal banks for a long time tended to regard farmers and other micro-entrepreneurs as "unbankable". Banks did not think they were creditworthy – farmers had no credit histories or collateral to offer; many are illiterate, so were unable to go through the necessary procedures without help. For bankers it was easier and more lucrative to provide a small number of large loans to well-established businesses, than deal with a large number of small farmers– with small capital needs and less security.

Go to R2.4.2 to discuss an article from Burkina Faso about financial services.

An additional problem is that most small farming businesses are in the countryside and are uncertain. Agriculture is a risky business. Drought, heavy rain, pests and diseases, unreliable input supplies, lack of storage and cooling facilities, bumpy roads, fluctuating prices, seasonality of many crops: all make the financial outcome of farming unpredictable, so most banks are reluctant to finance small farm operations.

This has changed since the development of microcredit systems has taken off in a big way in many countries of the world. The "magic formula" was developed in Bangladesh. The loans are provided on the principle of "group members security": group members provide the security for repayment of other group members. If one member does not repay their loan, no one in the group is entitled to a future loan. The lending amount can increase gradually upon the successful completion of an earlier loan cycle. Microloans are generally extended within 7 to 15 days, so access is fast. In many microcredit systems women groups make up the large majority of the customers.

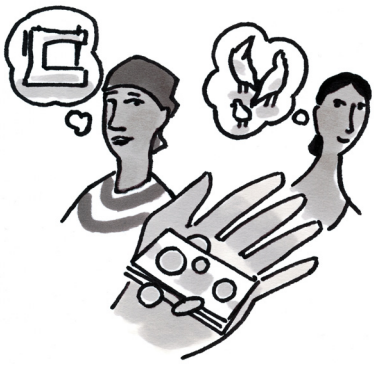

Figure 18: Microfinance services are often targeted at women because their payback rate is higher, they support the whole family and use the credit for small business activities.

In some cases new technology has also helped to create new opportunities – particularly in remote and backward areas. One innovation is banking by mobile phone. In many countries only few people have bank accounts and bank office branches in rural areas are few and far between. To make themselves more accessible, banks need to adapt their systems to a low-value, high-volume transactional environment. There is a need to build more flexible retail networks of points at which people can conveniently pay into or withdraw cash from their accounts. Technology can enable transactions between banks and their customers in remote areas through existing local retail outlets. Customers can be issued bankcards with a personal identification (PIN) number or with biometric security features. Any local store can become the "banking agent" and be equipped with a point-of-sale (POS) device controlled by and connected to the bank using a phone line, or wireless or satellite technology. Infrastructure requirements can be further reduced by using mobile phones both to hold "virtual cards" for customers and to serve as a POS device at the store. The prime example is Brazil, which has seen 95,000 bank agents open up in the past five years. These are mostly lottery agents and mobile operators. The result is that all municipalities in the country are now covered by the formal banking system.

2.6.1 The pros and cons of microfinance

Figure 19: Group lending with other people's credit-worthiness as collateral has both advantages and disadvantages.

Rural banking opportunities have increased, as has the coverage of microfinance. Microcredit has now become mainstreamed and large financing organisations are keen to subscribe to microcredit packages. When new microfinance packages are offered on the financial market they are often oversubscribed. Increasingly, large lending organisations regard microfinance as a profitable venture. This is a sign of success, but also raises questions, such as who gets the good deal and whether the lending conditions for the customers are too strict. There are clearly still disadvantages to microcredit:

- **Costs are high:** The cost of microcredit is high. This is partly because one is dealing with a large number of small loans. On the other hand default is low. The high interest rates, which can be as much as 36 percent a year – have been questioned. Are they not too high?

- **The lending conditions are limited:** Loans are for small amounts only and for the short term. This makes microcredit in its current shape less suitable for investment in for instance forestry or sustainable land management. Special packages should be developed. In Indonesia, for example, there are long-term arrangements whereby small urban investors pay for the care of timber trees on small-scale farms. The farmer receives a small payment throughout the years to take care of the trees and during harvest the returns are split.

- **The loan conditions in microcredit are very stringent,** even to the point of being oppressive: Using other people's creditworthiness as collateral has worked well, but has led to social tensions and exclusion of those who have once defaulted. Questions are being asked about whether the system is not too strict and whether lenders should be given "second chances".

- **The importance of local savings is sometimes underestimated,** and not always addressed: Some microcredit systems are "in the business of lending only" and do not provide packages for local savings. As a result the opportunities for profitable local savings are small, whereas the microcredit systems provide top-down capital.

- **Some are excluded:** These may be the very poorest or people who cannot identify guarantors. There is increasing debate about the commercialisation of microcredit. At present most is "owned" by so-called hedge funds and similar institutions, because there they regard microcredit as a venture involving little risk and high returns.

So there is reason to look critically at microfinance systems, but it is undeniable that they have made a large difference for many small entrepreneurs and farmers – and probably for women more than men. New financing packages for small-scale farmers are being developed, and these address some of the criticisms, such as micro-insurance. The box below describes an example of a new financial product being launched for small farmers.

Box 11: Providing a range of microfinance services – case from Bangladesh

One of the largest microfinance organisations is the Association of Social Advancement (ASA). Based in Bangladesh, it currently provides small loans to almost 5.7 million borrowers. The scale is important, as it helps to address the high transaction costs that mark many small microfinance operations.

Over the years, the ASA loan disbursement has amounted to over US$ 4 billion, whereas at present the capital is US$ 423 million. ASA offers the standard microcredit package, but also has special lending products – for education, for flood victims. In addition to its financial services, ASA also provides health insurance to its members. An amount is set aside to provide financial support in case a member has to undergo serious medical treatment, for instance for cancer, acid burns or kidney failure. These effectively save poor families from destitution. In addition, mini-life insurances (with an inlay of USD 0.15 per week at a 4 percent interest rate) are part of the basic loans to women. Death insurance is offered, as well as short- and long-term saving schemes with interest rates ranging from 4-9 percent.

2.7 Sources for this learning block

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LEARNING BLOCK 3

Governance of marketing and finance

Loading bananas into a truck in rural Uganda to be delivered to urban markets, photo by Lukas Vermeer.

What governance issues influence the potential of marketing and finance for small-scale farmers? How can small-scale farmers benefit from, and gain more control over their livelihoods and their position in the marketplace? What kinds of policies could promote and support greater economic sustainability in this type of farming?

3.1 Introduction

What is meant by "sustainability"? The final block of Module 1 has a good overview of this concept in relation to small-scale farming in general.

The previous learning blocks discussed market production and financing for small-scale farmers (Learning Block 1), and the drivers of change that affect their farming systems, such as changes in market systems, increased volatility of prices and new financing systems (Learning Block 2). The sustainability of farmers' financial position is strongly influenced by the overall governance of market and finance systems, and the policies pursued by their governments as well as international institutions. Governance refers to all levels of decision-making, including who is involved in making and implementing decisions. "Good" governance mechanisms are generally considered to be those that allow or encourage people affected by decisions to be involved in the process of making them. This includes small-scale farmers. Governance issues and policies regarding markets and finance are therefore the subject of this final learning block.

The food crisis has triggered a rethink of markets and financing systems in support of small-scale farmers – who are more exposed to risk and for whom it is more difficult to access formal finance systems. In the food crisis, poor, food-dependent consumers were forced to spend a larger portion of their income on food or consume less. In some areas, livestock production became uneconomical as fodder and grain prices soared out of control. On the producers' side there were fall-outs too: rising cacao prices (by 150 percent over eighteen months) encouraged chocolate manufacturers to start using less cacao. Producers did not benefit from the inflated prices, as the higher prices were only partly transferred to farmers. The volatility of the market made it harder to plan and invest.

The policy environment and governance of markets and financial infrastructure support the sustainability of small-scale farming. While this module focuses mainly on family farmers' economic sustainability (i.e. that smallholder farming is economically viable and competitive and that farmers have fair access to financial sources for investment and improvement), it is important to remember that sustainability has two other dimensions as well, as discussed in Module 1. These are the ecological (i.e. ensuring that farming production does not undermine the natural resource base; and that financial markets support long-term investment in natural resources and facilities), and socio-cultural (i.e. ensuring that poverty is alleviated, and ensuring basic livelihoods and secure income streams and avoiding shocks from steep price fluctuations) dimensions of sustainability.

This learning block describes four critical governance issues, and offers some examples of policies that can support sustainable financing and marketing systems for small-scale farmers. Section 3.2 looks at the effects of stabilising prices; this is followed by an analysis of improved domestic marketing systems (Section 3.3); section 3.4 discusses the need to improve international marketing systems; and lastly, increasing options for diversified financing are offered as another way of supporting the economic sustainability of small-scale farmers (Section 3.5).

3.2 Stabilising pricing systems

By nature agricultural prices are volatile. They respond to short-term shortages or gluts, and therefore tend to fluctuate between peaks and dips. Concerns about long-term food security and speculation amplify these price changes. There are several policies and interventions that can overcome the worst volatility and result in more predictable markets. Two of the most important mechanisms for stabilising prices are policies to help spread harvests and the effective operation of public procurement mechanisms.

3.2.1 Spreading harvests

An important strategy to overcome gluts in the markets is crop spreading, so farmers can take advantage of the high prices of off-season periods. Governments can steer this through extension and investments. Harvest spreading can be done at farm level – where farmers grow several varieties, which mature at different times – or at the level of regions, where local climate conditions are used to specialise in crops that reach the markets before those from other areas do. Agricultural research and extension can play a big role here.

To capture these opportunities of spread out harvest there are several options:

- **Make use of a unique local climate:** This makes it possible to grow a crop when it is not possible to do so in other areas, for example, highland farmers growing fruits in the summer when this is not possible for farmers elsewhere in the country.
- **Select early or late maturing varieties:** This allows farmers to harvest at different times, reducing the occurrences of shortages and gluts.
- **Adjust agronomic practices:** Using boron (a micronutrient), for instance, can move the harvest time for mangoes forward by a number of weeks – making it possible to catch the first markets.

Investing in agro-processing facilities can also steer these developments. In smaller countries, it is important to facilitate cross-border trade, because this is a way of capturing the opportunities of staggered supplies to markets.

3.2.2 Specialised procurement agencies

Price fluctuations can also be evened out by public procurement systems. Several countries use public procurement systems for domestically produced staple crops, such as rice or wheat. They ensure a guaranteed minimum price for farmers (time at which procurement starts) and a maximum price for consumers (time at which stocks are released). In some systems – for instance in the Public Distribution System in India - there is a clear social safety-net element too, and food grains are sold at reduced prices to targeted poor customers.

Public procurement of staple grains involves a balancing act of matching supply and uptake. In years with above-average harvests and suppressed prices, large volumes of food grains are procured. This requires sufficient storage space, mechanisms to off-load excess stocks and, above all, a highly efficient distribution system so that customers are reached.

The Public Distribution System (PDS) in India is responsible for purchasing staple commodities – in particular rice and wheat – when prices touch set minimum prices. The PDS then subsequently distributes the stocks to poor target groups at subsidised prices. The PDS has recently come under serious criticism, however. This was triggered by the paradox of grain decaying in storage while at the same time the poor were not well served with food supplies (Kaur, 2010). A combination of factors was behind this. First was the absolute lack of storage space – 40 percent of the stock was kept in gunny bags out in the open, leaving the grain exposed to rain and sunlight. This shortage of storage space was related to an earlier decision to decrease the number of stores under the Food Company of India (FCI, the procuring agency) – at a time when stocks were low. A related criticism is the persistent use of gunny bags by the FCI rather than silos or metal bins (see Learning Block 1). Spoilage and rodent infestation in gunny bags is much higher – but this also gives corruption a chance: one can "hide" illegal sales of stocks under the guise of spoilage. There were also shortcomings on the distribution side. The subsidised grains are sold against ration cards through local outlets called Fair Price Shops. These shops, however, often open infrequently and do not allow poor households to buy small quantities – creating cash-flow problems for the poor customers. In addition, some Fair Price Shops also calculated informal surcharges. Because of the problems on the distribution side, stocks pile up. Some of the states in India implementing the PDS have been notably better though – for instance Chattisgarh. The key to this better performance was the opening of a large number of additional Fair Price Shops under control of local organisations, the computerisation of the ration cards (making it difficult to fake cards, and allowing better and broader targeting) and the computerised management of the movement of food stocks, which has made big improvements to the logistics.

3.3 Improving domestic market systems

Local and domestic markets are, and are likely to remain, the most important outlet for agricultural produce. Livelihood security and risk mitigation for small farmers are hence most closely linked to the functioning of domestic market systems. There are several ways to make domestic market systems work better: providing basic infrastructure, effective market information systems, operating commodity exchanges, but also controlling unfair competition from food distribution systems. Another possible improvement is the better organisation of farmer-producers. These different policies are discussed below.

3.3.1 Providing basic market infrastructure

Support to the development and management of market infrastructure remains of paramount importance. Market infrastructure includes rural roads, market centres, transport facilities, storage and agro-processing industries.

Rural roads open up new areas to the possibility of diversified market production. They make it possible for farmers to move products out of the area and for traders to visit and collect. In short, they increase the options. Good road infrastructure is essential for bulky and perishable crops. Market centres also help to promote local trade. They are a great source of information, of additional services (agricultural-input shops for instance) and also offer the opportunity for small farmers to choose between different traders, avoiding monopolistic relations. Price manipulation and forced delivery by traders is a fact of life in many areas. This can be countered by better regulation and by better organisation of farmers, or, alternatively, by creating as much diversity as possible: many competing traders and a range of marketing channels to choose from.

Watch the video in R4.4 about African farmers and markets.

Storage (especially cold storage), transport facilities (including refrigerated trucks) and agro-processing facilities are also vital assets in market systems. They help to handle peak supplies and even out delivery (see also Learning Block 1). In many cases these facilities are provided by the private sector on a profit basis. There are several ways to promote the development of this infrastructure. It may require special support packages and changes in regulations such as:

- **Medium-term loans** for local transport companies;
- **De-regulation of investment** in cold storage and agro-industries; or
- **Special concessions,** such as land titles for investors in industries or storage facilities.

Box 12: Unlocking investment in local cold storage in India

Until 2000 in the potato growing districts in the north of West Bengal in India, access to cold storage facilities was "overregulated". This situation was blocking the development of much needed additional facilities. To be able to store the potato harvest in a cold storage facility, a farmer had to have the recommendation of the elected head of the local government. Storage capacity was limited, whilst at the same time potato production was increasing in the area– creating more and more market gluts. The ability to give political recommendations hence carried a high premium.

The price that was to be paid to the owner of the cold storage for storing the potatoes in the meantime was fixed and left hardly any profit margin. As cold storage owners were not in charge of deciding who was to use the cold storage space, or the price to be paid for it, they had no interest in investing in new cold storage facilities – in spite of the very high need for more facilities.

Small farmers faced considerable hardship. Many of them were forced to go for commercial horticulture, as their land holdings alone were becoming too small to sustain a family. However, commercial potato farming also exposed them to a much larger risk – in this case exacerbated by the lack of cold storage facilities.

When the restrictions on accessing cold storage space were lifted and the system of political recommendations was abolished, investment in the facilities accelerated. Within two years, storage space had doubled and market gluts and the related hardship for small farmers were largely a thing of the past.

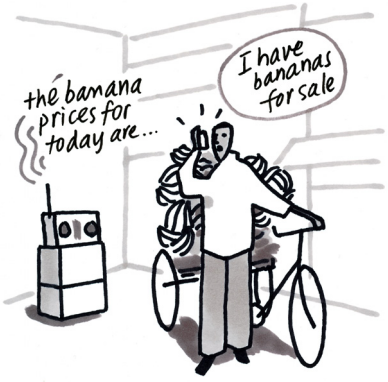

Figure 20: Mobile phones and radio are widely used to receive and exchange market information

3.3.2 Improved market information systems

Prices may differ considerably between markets. Having information on prices in different markets within the country may help identify opportunities for profitable sales. The use of mobile phones is now widespread, especially among traders, and this has already made a large difference in connecting everyone. In addition, in several countries special market information systems have been set up. One example is the transmission of text messages with the prices of the main crops in different markets, another is special call-in services. Market information can also be broadcast by radio or posted on the internet.

The Kenya Agricultural Commodity Exchange (KACE) was set up in 2007 to collect and provide regional market information. Under the Market Information and Linkage System (MILS) market prices are reported daily. The system is formed by 12 different market areas. Depending on the size of the market, these areas become a Market Resource Centre (MRC), which provides a broad range of extra services. These include transport brokerage, warehouse and storage services, weighing service, quality control (testing for grain moisture), commodity grading, and provision of farm inputs (fertilisers, seed), financial services (microfinance) or of short-term trade credit (e.g. for hiring transport to markets). Additionally, the MRCs help in the preparation of documents, and provide mobile phone and e-mail services to their clients. As the KACE collects this information, interested parties are able to obtain it through various channels. Members can find information on the KACE website. A second option is through its SMS service, which sends specific information on request. Information is exchanged and business linkages established through a radio show, which is broadcast once a week to five million listeners in western Kenya. During the show, approved offers by the MRCs are promoted, and interested traders can phone in to bid. By doing so, transparent market prices are publicly available, helping farmers in their business calculations. At the same time, the show attracts advertisements (Mandler, 2008).

Go to R2.9 to discuss an article about communication technologies in Africa.

Also watch video R4.5 about ICT in Tanzania.

There are a number of challenges in using information and communications technology (otherwise known as ICT) systems for market information. The systems need to be vibrant and bottom-up, and not centrally steered. It is also important to understand who has access and who does not to the improved information systems.

3.3.3 Setting up national commodity exchanges

Organised commodity exchanges are useful and time-tested price setting and hedging institutions, if they are regulated properly and attract sufficient trade volume to avoid monopolistic practices. They have made commodity marketing possible in many developed countries, and their expansion in developing countries would be a sign of market deepening. Commodity exchanges usually trade **"futures" contracts** on commodities, such as trading contracts to receive something, say maize, in a certain month. A farmer can sell a future contract on his crop, which will not be harvested for several months, and guarantee the price he will be paid when he delivers; an agro-industry or trader buys the contract now and guarantees the price will not go up when it is delivered. This protects the farmer from price drops and the buyer from price rises (World Bank, 2008). Speculators and investors also buy and sell the futures contracts in attempt to make a profit and provide **liquidity** to the system. However, due to the leverage provided by the exchange to traders, those participating in commodity futures trading face substantial speculative risk (see also section 3.3).

A physical exchange is often a first step to more sophisticated trading, delivery and, later, contracts for futures and options. China, India, Thailand and South Africa have agricultural futures exchanges to facilitate a wider range of financing and risk management transactions. All four have large domestic markets and fairly well-developed financial sectors. India's commodity futures exchanges expanded rapidly after the government eliminated the ban on their operations in 2004. Three national electronic and 21 regional futures exchanges trade contracts for cereals, sugar, cotton, potatoes, oilseeds and spices. The fortnightly turnover totalled US$ 8.7 billion on the three national exchanges in a two-week period in September 2005. The South Africa Futures Exchange (SAFEX) offers futures contracts on white and yellow maize, wheat, sunflower, and soybeans, and it traded more than 1.9 million contracts in 2006. Traders throughout southern Africa use SAFEX as a benchmark for pricing physical trades. Futures trading requires good financial and legal structures and supportive government policies. The benefits diminish if the markets for smallholders are separated from the exchange by high transport and transaction costs or by quality differences. Establishing exchanges in Africa is challenging because of government intervention in grain markets, small markets, and weak systems for warehouse receipts, and grades and standards.

Go to R2.4.3 to discuss an article about contract farming in Zambia.

3.3.4 Substituting food aid for cash aid

Food aid is still common in several countries. It makes up a significant part of the food supply of targeted poor rural families. While food aid contributes to the food security of these families, at the same time the competition from free or heavily subsidised food undermines local food commodity production. In many countries, food aid has also introduced new food habits, in particular the use of wheat at the cost of local coarse grains.

There is a move in many countries to introduce cash aid instead of food aid in safety net programmes. This will help to stimulate local demand for and production of agricultural produce. It will also help strengthen the local monetary economy.

There have been reservations, however, against cash aid in times of high price volatility. In Ethiopia, the Productive Safety Net Programme originally paid for labour in cash, but there has been a shift back to food for work. This is partly because of rising food and grain prices, and partly because the local administration preferring to handle the programme this way, as it was more transparent.

3.3.5 Strengthening farmer organisations

In many cases farmer-producers are badly organised; there is no support infrastructure, and market manipulation by traders and commission agents is rife. This can be addressed by improving farmer organisations – in particular agricultural co-operatives. There are many impressive success stories of farmer co-operatives, yet this does not mean that setting up such organisations is easy. It requires enabling legislation and support mechanisms. Co-operatives need help to get them off the ground, for instance by developing the incipient organisations or providing privileges such as preferred supply contracts, land or other facilities.

- Ask students what provisions they think are needed to set up a farmer organisation or co-operative?
- Do they know of examples of successful or failed small-scale farmer organisations in their country?

Co-operatives can in principle be strong support mechanisms. They may provide inputs and marketing services, stimulate the development of service providers in marketing and processing, or introduce better production techniques and quality standards.

All over the world there are examples of successful and failed farmer organisations. A premier success case is the dairy co-operatives in India. Dairy farming in India provides additional income to a very large number of small and marginal farmers. The development of dairy co-operatives was boosted under "Operation Flood", under which more than 70,000 village co-operatives, including women's dairy co-operative societies, were established with some 7.5 million members. A national milk grid was set up, linking producers with consumers in 700 town and cities. These actions reduced seasonal and regional price fluctuations. Dairy plants were set up, which were turned over

to the co-operatives. Improved breeds and feeding methods (for instance use of urea-molasses) were introduced. The milk produced by all these co-operatives amounted to US$ 1.5 billion a year and turned India from an importer to a leading milk producer and exporter of milk products.

3.4 Improving international market systems

Though the volume of agricultural commodities traded on the international market is less than the volume of trade on domestic markets, international markets are important because (a) they can influence the price on national markets too, (b) certain important smallholder crops are only traded on international markets, and (c) the range of crops and areas of origin on the international market is increasing. There are a number of important developments in international market systems: (1) the liberalisation process set in motion by the World Trade Organisation, (2) the operation of hedge funds in agricultural commodities, and (3) the emergence of fair trade chains and ethical trading in general.

3.4.1 International trade liberalisation

International trade is not only about competitiveness. It is also shaped by barriers such as quotas, import price controls or domestic subsidies – all factors standing in the way of free trade. Some obstacles can be intricate. Supermarket chains, for instance, may require compliance with international norms for food safety, sustainability and quality. For example, for a supplier in a developing country to be "licensed to deliver", he or she may have to submit pesticide residue test reports from an internationally recognised laboratory, which may effectively be a formidable obstacle.

To learn more about international trade, go to R1.4 to play a game on this subject.

As already explained in Learning Block 2, several high-profile developments are taking place to lower international trade barriers. Trade negotiations are going on, and these have far-reaching effects on the future economic opportunities of low-income countries. The main ones are the Doha-round of the World Trade Organisation and the follow-up to the ACP treaties of the European Union as well as regional trade agreements in different parts of the world. These negotiations are dynamic and complex and require intense monitoring. Following the financial and economic crisis, for example, new trade restrictions were put in place in different parts of the world. Many low-income countries, however, cannot afford large delegations and may be less prepared. There is a risk of trade-barriers and non-trade barriers working against growth opportunities for the poorest developing countries, whereas on the other hand they stand to lose from the erosion of earlier preferential treatments, from lower tax income from import and export duties and from possible loss of employment after having to open up domestic markets for foreign competitors. For the least developed countries there are also several special opportunities. One example is the Everything But Arms

Figure 21: The World Trade Organisation deals with the rules of international trade and promotes free trade.

Regulation, which provides duty-free and quota-free access of almost all products – see Box 13. The challenge is to make use of these possibilities and understand the "opportunities amidst the procedures".

Box 13: Privileged access to the European Market: the Everything But Arms initiative

In February 2001, the European Council adopted the Everything But Arms, or EBA Regulation, granting duty-free access to imports of all products from the least developed countries except arms and ammunitions, with no quantitative restrictions (with the exception of bananas, sugar and rice for a limited period).

This regulation foresees that the special arrangements should be maintained for an unlimited period of time and not be subject to the periodic renewal of the Community's scheme of generalised preferences. Beneficiaries of the special arrangements are the fifty countries that are formally recognised as least developed countries by the United Nations.

The EBA provides the most favourable non-reciprocal regime available. Without asking for market access in return, the EBA gives the concerned countries duty- and quota-free access to the EU for all products, except arms and ammunition, and 41 tariff lines concerning rice and sugar, for which duty-free quotas were established until full liberalisation was achieved in September 2009 (rice) and October 2009 (sugar).

Figure 22: There are many inequalities in international trade. Farmers produce cheap food for consumers and get very low profits, while a few middlemen – and increasingly speculators – can gain huge profits from it.

3.4.2 Regulating speculation

The upwardly spiralling food prices in 2008 were not just a matter of short-term supply and demand; behind them was also market speculation, in particular the largely unregulated market in derivatives for agricultural commodities. A derivative is not based on an exchange of tangible assets such as goods or money. Instead it is a financial contract whose value is linked to the expected future price movements of the underlying asset or commodity. Derivatives can be traded for a large number of assets: share prices, mortgages, bonds, commodity prices, foreign exchange rates, and even the indexes of commodity prices. The idea behind derivatives is to spread risk for investors, but they can equally become the object of speculative trading.

In the period up to the 2008 explosion of agricultural commodity prices, the market in derivatives of agricultural commodities had increased steadily. The roots of this were in the century-old systems of "futures contracts". These contracts allow farmers to agree a guaranteed price for their next harvest well in advance, giving farmers income assurance ahead of planting their crops. Futures contracts are very important for farmers – but in global terms are mainly available to larger, wealthier farmers.

In course of the twentieth century, futures contracts started to be bought up and sold by financial speculators – who have nothing to do with the actual agricultural production, processing or selling of crops. The trade in future contracts, however, began to affect the actual prices of foodstuffs on the daily "spot markets", causing them to fluctuate even more wildly.

After the stock market crash of the 1930s, the United States government introduced regulatory measures to reduce speculative trade in agricultural commodities: "position limits" were introduced so that banking institutions could not deal in future contracts; only producers and traders in real commodities were allowed to do so. In the 1990s and early 2000s these regulations were weakened. Investment banks were allowed to create "index funds" to allow institutional investors to "invest" in the price of food, as if it were an asset like shares. These commodity index funds became the main vehicle for speculative capital involvement in food commodity markets. The number of derivative contracts in commodities increased by more than 500 percent between 2002 and mid-2008 (Jones 2010). By 2008 they dominated the majority of long-term positions in food commodities – for example maize (65 percent), soyabeans (68 percent) and wheat (80 percent).

The popularity of the agricultural commodity index funds was not due to developments on the agricultural market, but largely because commodities were seen as a "hedge" against financial trading risks in other sectors. Putting money in commodities was seen by some as a safeguard against losing money due to inflation. If institutional investors think inflation is going to increase, they may put more money into commodities. When inflation is expected to be low, they may take the money back out again. There was a strong belief among institutional investors that commodity prices were inversely correlated with shares and bonds, making them an excellent antidote to fluctuations in these market segments. The setback occurred in 2008, when perceived shortfalls sent the market soaring – creating food crises all over the world with the poor and food-dependent being very badly hit. This was exacerbated by speculative transactions. The high prices hurt consumers and producers alike.

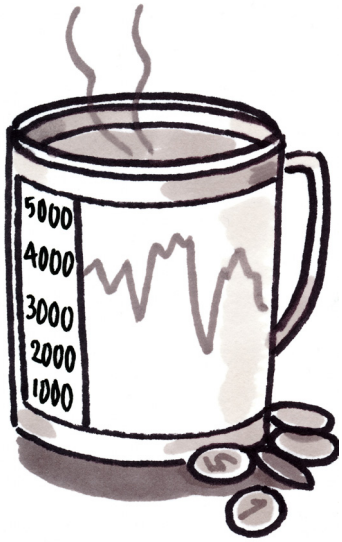

Figure 23: Coffee is bought and sold by roasters, investors and price speculators as a tradable commodity.

The commodity derivatives markets should be adjusted so that they can better help producers and purchasers to hedge their risks. These markets need to be regulated to allow a better assessment of future real prices, reflecting possible agricultural commodity shortages and not the effects of speculative behaviour. The derivatives market should also free up capital for use in genuinely productive investment.

To regulate the trade in derivatives, two main proposals have been put forward (Jones, 2010):

- **All food derivatives trade should go through a transparent central clearing system.** At present they are mainly traded by investment banks, which then build up an information advantage. Regulatory measures should focus on raising confidence in the good functioning of the market – such

as increasing the amount of information available on futures trading – and investigate suspicious behaviour of traders.

- **Strict position limits should be placed on financial players in food derivatives markets.** The US government has already reinstated the limits on positions. Position limits do not need to apply where derivatives are being used to hedge the buying or selling of real commodities, but all other transactions in derivatives should be limited. These limits would still allow financial markets to provide enough liquidity for real buyers and sellers of commodities to hedge with, and at the same they would prevent the excessive speculation that has gone on recent years. Preferably, one single position limit would set for derivatives of a commodity in all places where it is traded.

3.4.3 Fair trade and ethical trading

Figure 24: Farmers can benefit from providing ingredients for different fair trade products.

Ethical trading has emerged fast in the last three decades. Fair trade chains were the first to be developed. Fair trade chains have specific agendas - paying fair prices to farmers, ensuring acceptable working conditions and/or organic production methods. The trade chains typically use special labels and certificates of quality. The sales of and area planted under fair trade crops have expanded significantly. They meet a growing demand in high-income countries but increasingly produce for domestic markets in middle-income countries too. The area planted with organic crops stood at 31 million hectares in 2005, with retail sales reaching US$ 23.9 billion in the EU, Canada, United States and Asia in 2006. The biggest developing country producers of organic products are China and middle-income Latin American countries. Sub-Saharan countries account for a large proportion of organic cotton production, while Asia and Latin America dominate production of organic coffee and cocoa. Retail sales of certified fair trade products in high-income countries reached US$ 1.4 billion in 2005. Bananas and coffee are the most traded fair trade products (World Bank, 2008). Though critics argue that even in spite these impressive numbers the total volume of fairly traded commodities is small, in many ways the development of fair trade has been very successful and trade volumes continue to increase.

Go to two articles in R2.10 to discuss fair trade initiatives around the world.

Go to R4.6 to watch a video about the coffee sector and certification labels.

The World Bank (2008) cites studies that show that the costs and margins for coffee sold through fair trade are high, and that intermediaries receive a large part of the of the price premium. One estimate is that growers receive only 43 percent of the price premium paid by the consumer for fair trade roasted coffee. The high cost of processing and marketing is explained by the diseconomies of scale related to the small volumes and high associated costs: certification of supply-chain actors, membership fees, advertising and campaigning.

Apart from the relatively high transaction costs, there are a number of other constraints in the fair trade system. One is that production volumes are sometimes relatively small. This means that intermediaries and processing agents deal with both fair trade and non fair trade items. This makes it impossible to certify these intermediary organisations, as trade volumes are too small for them to completely

Box 14: The range of fair trade products has expanded significantly, and can be recognised by their special label (from van Steenbergen and Schiereck, 2010, p.58).

Examples of consumer labelling initiatives: some quality and certification marks

EKO
Dutch quality mark for organic products; only allowed on products containing more than 95% organic ingredients.

Fair flowers, Fair plants
Sustainable flower and ornamental plant production complying with the Environmental Program for Horticulture and requirements of the International Code of Conduct (ICC); independent Dutch foundation.

Fairtrade
Fair producer prices and employment standards; International certification system.

Forest Stewardship Council
Label for forest products. Forest management standards to meet the social, economic, ecological, cultural and spiritual needs of present and future generations; independent certification; international network.

KUYICHI
Fairtrade mark for clothing; sustainable garment production, combining organic cotton, recycled PET bottles, spare denim and naturally tanned leather.

MADE-BY
Label for fashion companies assuring that, to its best efforts, a brand produces with respect for social, economic and ecological conditions throughout the whole supply chain; initiative of Solidaridad.

Marine Aquarium Council
Conserving coral reefs and other marine ecosystems through certification of those engaged in the collection and care of ornamental marine life; International NGO involving aquarium industry, conservation organisations, government agencies, public aquariums and hobbyists.

Marine Stewardship Council
Certifying fishery and sea food business that support sustainable fishing; Global organisation working with fisheries, seafood companies, scientists, conservation groups and the public.

Oké Fruit
Label for fruit combining fair trade(Max Havelaar) and EKO (biologically produced) standards.

Rainforest Alliance
Seal that guarantees protection of the environment, wildlife, workers and local communities; International conservation tool by an independent third party.

RugMark
International certification label to end illegal child labour in the handmade rug industry and offer educational opportunities to children.

UTZ Certified
Certification comprises a code of conduct on sustainable production and sourcing, and online real-time traceability of Coffee, tea, cocoa and RSPO palm oil back to their origin products are the result of practices carried out according to a specific set of criteria balancing ecological, economic and social considerations.

"go fair trade". A second obstacle is that fair trade prices are set by bodies such as the Fair trade Labelling Organisation. However, when it comes to cotton for example, there is only one price for organic cotton, whereas in reality there are many varieties and qualities of (organic) cotton. This forces producers to go for the lesser quality varieties of cotton, as the margin on these are most attractive. Also see Box 15, on the history and challenges of the fair trade movement.

An emerging trend is that of ethical commodity trading that is not necessarily tied to fair trade labels. Agreements are being negotiated with large procuring organisations, such as edible oil companies or coffee importers, so as to encourage them to source supplies from ethical sources. The common process is for criteria to be formulated with different large players in the sector. An example is the palm oil agreement that was recently concluded by several large Netherlands-based purchase organisations with support of the Task Force Sustainable Palm Oil – bringing together oil refineries, agro-industries and supermarket chains – including large food conglomerates such as Unilever and Nestle. Under this agreement, no palm oil is in principle sourced from plantations that have been developed at the cost of protected forests. Such agreements have considerable effect, but work best with large players – including large producers. Though not impossible, it is more difficult to enforce such ethical trade agreements where there are a large number of small producers in play.

Box 15: Insights into fair trade (by Mans Lanting, 2010)

Short history

The mission of the fair trade movement is to create a world where ecological sustainability and social justice are the normal conditions of business. In 1988, Mexican coffee farmers were the first to promote coffee in terms of "fair trade" - coffee that was sold at a farm-gate price that was higher than the prevailing market price. The normally prevailing market price was too low for these small-scale Mexican farmers to make a decent living and thus they demanded better prices instead of aid. In the Netherlands, the Max Havelaar foundation was set up to trade this coffee.

Presently (2010), about 25 percent of all coffee sold in the Netherlands has been certified as fair trade under various labels (see Box 14). The large commercial companies selling coffee on the Dutch market signed a convention pledging to have 75 percent of their produce certified by 2015. Fair trade hence started small (one product = coffee, in one country = the Netherlands), but nowadays about 4,500 different products certified as fair trade are sold globally. The share of fair trade products in Western markets is roughly 10 percent (but different for each product) and growing rapidly (growth rate are in double digits despite the global economic downturn). FLO (the Fair trade Labelling Organisation) that grew out of Max Havelaar is the biggest labelling organisation, with 19 labelling initiatives in 23 countries and three producers' organisations as members. FLO has very strict regulations with regard to farmers' organisation compared with other labelling organisations.

Who defines what is "fair trade"?

The ISEAL Alliance is the global association that sets standards for fair trade labelling organisations to ensure that the standards used by them really guarantee that products are produced and traded in an ecologically sound and socially just way. ISEAL's mission statement covers different fair trade standards: ecologically sustainable, socially fair and economically just criteria (e.g. standards in terms of biodiversity, soil, water; labour, gender and cultural rights and value chains, economic resilience).

How are standards developed?

The members of ISEAL set their own standards within the above framework. FLO, one of the founding members of ISEAL, develops generic standards for different categories of suppliers of fair trade products (referred to as "producers"), as well as product standards. These fair trade "standards" are the collective requirements that producers and traders must meet so as to be fair trade certified. If it exists, a fair trade minimum price forms part of the product standards. This minimum price must be paid to fair trade producers for their goods, and is intended to cover the average producers' costs of sustainable production (COSP) per product. If possible, global or regional minimum prices are set, but otherwise national prices are set. Producers or workers (in the case of hired labour situations) of fair trade products

also receive a fair trade "premium" in addition to the minimum price. The determination of a minimum price may involve the determination of the related premium.

There is a difference in the way standards are set by different labelling organisations, based on their prioritisation of criteria. For example, three labels following ISEAL standards are based on different principles: (a) giving farmers from the South fair market access and price (FLO), (b) being able to certify plantations to sell on a larger scale (UTZ) and (c) wanting to protect the forest and biodiversity (Rainforest Alliance's SAN).

Some observations about fair trade in practice

Fair trade is a fairly recent movement (22 years old in 2010) that really started to grow quickly after 2000. This means that it is a business in development, and faces all the challenges associated with balancing demand and supply.

- **Volumes throughout the chain pose the main challenge**

  This is illustrated by issues that have emerged in the cotton chain in India:

  1. A medium-sized modern cotton gin in India can process about 300 million tons of seed cotton a day. To be able to make profit, it should run for about 200 days per year. Total quantity of seed cotton required is thus 60,000 million tons. This will yield about 20,000 million tons of lint. To be certified as fair trade, the cotton gin needs to comply with the standards throughout the year. More often than not, only 1 to 5 percent of the processed seed cotton originates from fair trade certified cotton farmers. Thus only this quantity is fully certified and receives a premium market price. The remaining 95 percent of the lint has to be traded on the conventional market against conventional prices.
  2. A small-scale spinning unit will use about 2 million tons of lint per hour – adding up to 48 million tons in a day and 17,500 million tons of lint per year. Thus, one ginning unit can supply one spinning unit. The spinning unit has to comply with the standards throughout the year, but the chances that the company can purchase only fair trade certified lint are slim. They will have to source from more than 20 gins to achieve this. Therefore the yarn produced will be roughly 16,000 million tons.
  3. One weaving machine might produce about 4,000 metres in length of denim a day. That means 12,000 m^2 of fabric (enough to make about 8,000 pairs of jeans) weighing roughly 8 million tons. Small-sized companies might have 10 machines, thus their daily consumption of yarn will be about 80 million tons, and 29,200 million tons per year. A company this size will therefore have to purchase from at least two spinning units, both of which need to produce fair trade yarn at full capacity. The chances of this happening are slim.
  4. **In conclusion:** fair trade certification usually means that only a small proportion of the produce can actually be sold at the fair trade premium. Usually about 90 percent will have to be sold on non-premium markets.

- **Prices for products also pose challenges – as they may not reflect normal market conditions**

  The cotton example shows the problem:

  1. The fair trade price (COSP, see above) for cotton was set at roughly 21 Indian Rupees (Rs) per kilogram of seed cotton.
  2. This price was set, regardless of the quality of cotton (staple length, colour and "micronaire", the measure of fibre fineness and maturity)
  3. The conventional market uses differential prices for cotton of different staple lengths: short (about Rs 14 per kg), medium (about Rs 19 per kg), long (about Rs 21 per kg) and extra-long staple (about Rs 30 per kg) cotton (2005 prices).
  4. The cotton is grown in very different regions under very different conditions. The very short-staple cotton is grown as an intercrop between main crops (e.g. chickpea, soya). A price of about Rs 17 would have been the COSP for short-staple cotton, but the COSP was set at Rs 21. This means that farmers growing short-staple cotton cannot actually participate in the fair trade certified chain.

- **Product COSP is not yet fixed**

  This is another problem that may be encountered. It may take as long as two years from the first application to finally settling the COSP price.

3.5 Expanding financing for farms

Many smallholders find it difficult to get credit. Financial services are crucial for farmers if they are to access dynamic markets. Often there is a "missing middle" for producer organisations and rural small and medium-scale enterprises (SMEs) that lack access to financial services. As some procurement organisations tend to pay only after a lengthy period, there needs to be a mechanism to bring liquidity into the supply system and avoid distress sales by cash-strapped farmers. There is also a risk for financial setback because of disasters and prolonged droughts – special insurance system may help farmers overcome such high risk and a diversification of income may increase their buffer capacity.

Go to the overview article in R2.4.4 to help get a discussion going on how to think beyond credit as a financial tool for farmers.

3.5.1 Developing a broader range of financial services

Following the rapid increase of microcredit services, there is a move to expand the range of "microfinancing" services, in particular to do local banking and to provide insurance services. The analysis is that in many places the need is not just for loans but also for reliable saving systems (see also Learning Block 2) to carry over from one year to another. In general, this is part of a move to make farmers more resilient by having stronger buffers (see also Learning Block 1) and avoid them becoming creditors only.

Another service that is being introduced for small-scale farmers is micro-insurance. An example is the micro-insurance system introduced by the World Food Programme in Ethiopia. If historical figures indicate that an extreme drought is likely to occur, money is immediately paid out, before the crisis arises, enabling farmers to buy food and grains. This is an example of index insurance: payment is triggered by an external indicator. Index insurance is insurance that is linked to an index, such as rainfall, temperature, humidity and crop yields, rather than actual loss, which is very difficult to measure and can be subject to much debate as to the scale of the loss and the reasons for it.

Setting up micro-insurance systems is promising but still challenging, because:

- The index data on which to base the payment may not be available or reliable.
- As the service is completely new, it is difficult to introduce and explain the difference between savings and premium payments.
- There is vulnerability to so-called "basis risk". Basis risk occurs when insurance payouts do not correspond to actual losses – either a payout is triggered but there no actual losses, or there are losses but no insurance payout. If this occurs too often the insurance scheme will not be viable and will start to resemble a lottery. The selection of the appropriate index is crucially important (Hellmuth *et al*., 2009).

Figure 25: Agro-ecotourism is one way for farmers to diversify their income.

Another option is the development of special lending programmes for farmers, especially the "larger" small farmers who are often strapped for equity. As discussed in Learning Block 2, microfinance is often not suitable for agricultural loans, as interest rates are high and in excess of farm profit margins. They can be useful to avoid distress situations for farmers, for example so that they are not forced into very disadvantageous transactions. Several microfinance organisations are also developing special agricultural packages. The experiences, in general, are listed here (CGAP/ IFAD 2005):

- A diversified "portfolio" that includes agricultural microfinance with other lending products reduces the risk for the microfinance providers.
- Lenders should not assume that a microfinance product for agriculture will in all cases be used for agriculture.
- The cost of reaching clients in remote locations is high – mobile phone technology, lending groups and flexible delivery mechanism can help. Using farmer groups and associations to do the first screening can also help.
- There is substantial demand for saving services, provided the right conditions are offered in terms of security, returns and flexibility in withdrawal.

3.5.2 Diversification

A trend in several countries is for farms to not only produce agricultural commodities but to provide other paid services as well. Much of this income diversification is agricultural tourism. This trend – from farm holiday accommodation to therapeutic farms – is well-established in high income countries. It is finding its way elsewhere too. In the Mekong Delta in Vietnam for instance small farmers were given credit to upgrade the sanitary facilities in their farmhouse so as to be able to lodge tourists. There many other opportunities in

Go to R2.11 for an article about agro-tourism in the Central Andes.

Also see an overview article in R2.12 about enhancing farmers' entrepreneurship.

Do your students know of different ways that farmers diversify their income sources in their country? Can they think of opportunities for diversifying income further?

agro-eco tourism: local hunting, harvesting crops or other types of volunteer work, for example.

There are numerous other forms of farm income diversification. In Indonesia for instance small town urban investors are purchasing dairy cows. They give these in the care of small farmers. The caretaker-farmer is to feed the animal, look after its health and arrange a regular supply of milk to the urban owner. In return the farmer is paid "board and lodging" charges.

3.5.3 Payment for environmental services

A concept that has received considerable attention in recent years is "payment for environmental services". Small-scale farming – if done in a particular way – can serve several environmental objectives that go beyond the remit of the individual farm. Examples are erosion control or carbon sequestration. The basic idea in payment for environmental services is to financially compensate farmers for their contribution to these objectives and to encourage good farming practices in this respect.

For more information on PES, see two articles on this subject in R2.13: one provides two global views on the value of PES, and the other looks at the example of payments for watershed services.

Examples of payment for environmental services for instance are:

- farmers being compensated to undertake sustainable land management and erosion control measures in the catchments of hydropower reservoirs so as to minimise siltation and extend the economic life of the reservoirs;
- farmers being compensated not to use agro-chemicals in the recharge areas of aquifers that are being used to pump up mineral water; or
- farmers being subsidised to undertake watershed protection activities in urban catchments – so as to reduce the risk of downstream flooding.

At first glance, this concept is appealing, and in many cases presents a cost-effective way of safeguarding environmental values. In spite of this, application of payment for environmental services is not widespread. There are a number of reasons:

- in many situations there is no single party that has a large enough interest in the environmental services and is able to pay for it;
- the actual monitoring, measurement and compliance can be very tedious – particularly in a situation where there is a large number of small farmers – opening up a window for corruption; and
- there is the "moral hazard" argument: paying people not to do harm is considered very questionable.

The "payment for environmental services" concept remains relevant in the discussion on climate change mitigation measures. In theory, local forestry protection, reforestation and carbon-positive farming practices could contribute to the reduction of greenhouse gasses. In practice so far however, it remains exceptionally difficult to link this with climate change funding and is therefore difficult to implement.

3.6 Sources for this learning block

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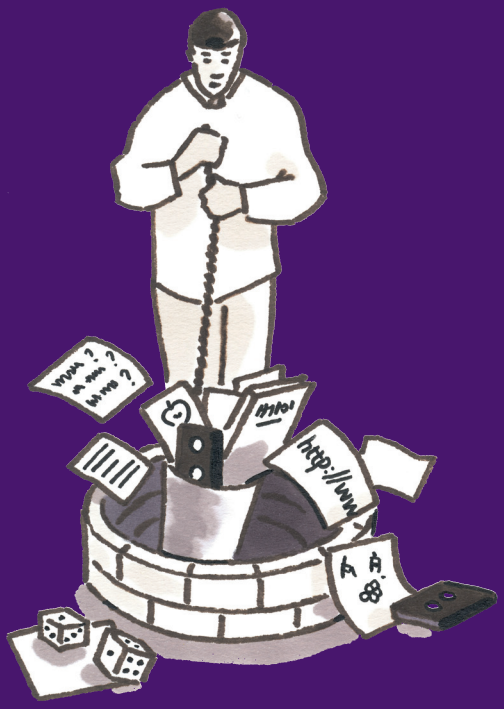
EDUCATIONAL RESOURCES
for Module 6



This section contains resources that can help students develop a deeper understanding about marketing and financing dynamics of small-scale farming systems. Throughout the three learning blocks, different educational resources have been highlighted that can be used to stimulate discussions and as material for assignments. These include exercises, games, articles, photos, videos, a farmer interview checklist and field exercises, as well as references for further reading. They are brought together in this section.

Contents of this section

R1. Exercises and Games

This section includes four exercises and one game to support different lessons from the three learning blocks.

Figure 26: Exercises and games can help students understand issues better.

R1.1 The Microfinance game

(Source: Microfinance Games, (2005) by X. Giné, P. Jakiela, D. Karlan, J. Morduch)

Objectives of the game: To generate understanding about the microfinance mechanism and to get the experience of risk-taking.
Time involved: 30-60 minutes
Suggested use: Section 1.4 Agricultural financing
Number of participants needed: 4 or more
Materials: pen, paper

Methodology:

- Ask each participant to draw the game sheet presented on the next page.
- The game consists of 10 rounds - 5 at an individual level and 5 at a joint level.
- At the individual level, the participants are in each round given a "microloan" of 100 points with the instruction to invest the 100 points in one of two projects: a safe project (Project A – "Sorghum") which yields a return of 200 points with certainty; or a riskier project (Project B – "Hybrid maize") that pays out 600 points with a 50 percent chance of 0 points – See Box 18 for more details. *(Please note: Do not refer to the choices as "safe" and "risky" to the students).*

Box 16: Projects for investment

Project	Description	Return rate
Project A "Sorghum"	In project A, the points are invested in sorghum which is a food crop resistant to drought and high temperatures. Investing in this food crop will give a steady income without too high risks.	200 points every time
Project B "Hybrid maize"	In project B, the points are invested in hybrid maize, which is generally higher yielding with more market potential. However, if the growing conditions and the timing of planting are not met, the income will go from profit to nothing.	600 points with 50 percent chance of 0 points

- Participants should fill in the Microfinance Game sheet every round (see Box 17).
- Individuals whose project succeeds have to repay their loan, while those whose project fails do not; wealth from prior rounds cannot be used to repay the current round's loan. This means that 100 points will be repaid every round for individuals whose project succeeds.

- In each round, Project A has an expected (and certain) net return of 100 points after repaying the loan, whereas the expected return rate for Project B is a 50 percent chance of 500 points and 50 percent chance of zero). For Project B, place 5 pieces of paper with "Yes" and 5 with "No" shuffled into one pile, face downwards. Pull one paper at each round (do the same for the joint rounds).
- After the first 5 rounds, ask each participant to join together with another one. As in the first rounds, both participants receive 100 points to invest in one of the two projects, which must also be paid back. The difference is that in these rounds the two participants are together responsible for their investments and repayment.
- Use the discussion questions and the completed game sheet to evaluate the played rounds.

Discussion:

- Did you invest in the "safe" or the "risky" project? What were the reasons for these choices?
- Did you make different choices when you were with another participant? Why, why not?
- Was there a difference in how men and women chose to invest their points? Why, why not?
- Why do you think that microfinance is often given as a group loan and to women?
- What are the risks that farmers are taking when investing in their agricultural businesses?
- Do you think that microfinance is a good way of making credit accessible to small-scale famers? What are the positive and negative sides of small loans?
- What would you invest a microloan in? Do you consider that a "safe" or "risky" idea? Why? Do you think that you can predict what will happen with your investment? How?

Box 17: Microfinance Game sheet

Rounds - Individual	Project	Points earned (- payback)
1		
2		
3		
4		
5		
Total		

Rounds - Joint	Project	Points earned (- payback)
1		
2		
3		
4		
5		
Total		

R1.2 Ecological Footprint exercise

Objectives of the game: To get a clear understanding of the Ecological Footprint tool and how it relates to students' home country.
Time involved: 1 hour
Suggested use: Sub-Section 2.3.1
Number of participants needed: Go through the questions in plenary once they have been worked out individually or in groups.
Materials: Project table on screen or give handouts.

Methodology:

Prepare beforehand:
- Read sub-Section 2.3.1 before doing this exercise.
- Ask students to respond to the questions below, and discuss them. This can be done in groups first, and then discussed in plenary.

How to play the game:
- Ask students to read Section 2.3.1 about the Ecological Footprint Network. Not all – but a large number of countries are mentioned.
- Ask them to try to find their own country in the table and see whether their country's footprint exceeds its own biological capacity or not.
- Go through the table in Box 18 and respond to the following questions (do not give the students the answers until the end!):

√ Which country has the highest Ecological Footprint? *(Answer: United Arab Emirates. It has a Footprint of 10.4 global hectares per capita).*

√ Which countries still have large surplus biocapacity? *(Answer: Congo, Bolivia, Paraguay, Canada and Finland).*

√ Do rich or poor countries have most excess capacity in their cropland footprint? *(Answer: Interestingly – on croplands developed countries are more in the plus than middle income or low income countries.)*

√ Developed countries have a large "overshoot" – they use much more global hectares than their biocapacity allows. What is the major factor and what is the implication? *(Answer: The major factor is the carbon footprint. It takes up almost half of the footprint of high income countries. Without the carbon footprint there is no overshoot).*

√ Look at the separate table with global trends. What is the driving factor for the increased global footprint - population growth or changing consumption habits? *(Answer: Both play a role but population growth has been the driving factor. The per capita footprint has increased but not so much: although consumption patterns changed production systems have done so too – more or less keeping pace).*

Box 18: Ecological Footprints around the world (from Ecological Footprint Network, 2009)

Global Footprint Network
Advancing the Science of Sustainability

ECOLOGICAL FOOTPRINT AND BIOCAPACITY, 2006

Based on National Footprint Accounts 2009 edition: November 25, 2009

	POPULATION (MILLION)	ECOLOGICAL FOOTPRINT (global hectares per capita)							BIOCAPACITY (global hectares per capita)						ECOLOGICAL (DEFICIT) OR RESERVE
		Ecological Footprint of Consumption	Cropland Footprint	Grazing Footprint	Forest Footprint	Fishing Ground Footprint	Carbon Footprint	Built-up Land	Total Biocapacity	Cropland	Grazing Land	Forest	Fishing Ground	Built Land	
World	**6.592,9**	**2,6**	**0,57**	**0,22**	**0,28**	**0,10**	**1,37**	**0,06**	**1,8**	**0,56**	**0,26**	**0,74**	**0,18**	**0,06**	**(0,8)**
High Income Countries	1.022,1	6,1	0,93	0,19	0,70	0,28	3,85	0,11	3,3	1,16	0,32	1,18	0,57	0,11	(2,7)
Middle Income Countries	4.281,1	1,8	0,46	0,17	0,19	0,08	0,82	0,06	1,7	0,47	0,24	0,76	0,14	0,06	(0,1)
Low Income Countries	1.277,0	1,0	0,36	0,10	0,23	0,02	0,26	0,05	1,0	0,35	0,22	0,29	0,08	0,05	(0,0)
Africa	**942,5**	**1,4**	**0,48**	**0,20**	**0,29**	**0,04**	**0,35**	**0,05**	**1,5**	**0,42**	**0,45**	**0,46**	**0,12**	**0,05**	**0,1**
Algeria	33,4	1,9	0,76	0,14	0,13	0,03	0,81	0,04	0,8	0,37	0,35	0,04	0,01	0,04	(1,1)
Angola	16,6	0,9	0,34	0,19	0,13	0,09	0,14	0,04	3,4	0,22	2,01	0,78	0,31	0,04	2,4
Benin	8,8	1,0	0,50	0,05	0,30	0,03	0,10	0,03	0,8	0,48	0,05	0,19	0,03	0,03	(0,2)
Botswana	1,9	3,9	0,23	1,78	0,19	0,01	1,60	0,06	4,3	0,15	3,02	0,70	0,33	0,06	0,4
Burkina Faso	14,4	1,4	0,67	0,22	0,37	0,01	0,02	0,08	1,3	0,69	0,22	0,34	0,00	0,08	(0,0)
Cameroon	18,2	1,1	0,54	0,13	0,24	0,04	0,09	0,05	2,0	0,59	0,13	1,14	0,13	0,05	0,9

	POPULATION (MILLION)	ECOLOGICAL FOOTPRINT (global hectares per capita)							BIOCAPACITY (global hectares per capita)						ECOLOGICAL (DEFICIT) OR RESERV
		Ecological Footprint of Consumption	Cropland Footprint	Grazing Footprint	Forest Footprint	Fishing Ground Footprint	Carbon Footprint	Built-up Land	Total Biocapacity	Cropland	Grazing Land	Forest	Fishing Ground	Built Land	
Central African Republic	4,3	1,4	0,68	0,38	0,29	0,00	0,02	0,07	8,4	0,65	0,38	7,31	0,00	0,07	7,0
Chad	10,5	1,8	0,61	0,77	0,29	0,00	0,01	0,07	3,4	0,60	1,54	1,07	0,10	0,07	1,6
Congo	3,7	1,0	0,30	0,03	0,41	0,08	0,09	0,05	13,2	0,23	4,05	8,35	0,51	0,05	12,2
Congo (DRC)	60,6	0,7	0,16	0,01	0,49	0,01	0,01	0,05	2,7	0,14	0,13	2,29	0,05	0,05	1,9
Côte d'Ivoire	18,9	0,9	0,36	0,05	0,21	0,13	0,13	0,06	1,7	0,74	0,36	0,48	0,01	0,06	0,7
Djibouti	0,8	0,9	0,37	0,28	0,05	0,04	0,17	0,03	0,8	0,00	0,28	0,00	0,54	0,03	(0,1)
Egypt	74,2	1,4	0,41	0,02	0,13	0,06	0,69	0,08	0,3	0,21	0,00	0,00	0,02	0,08	(1,1)
Eritrea	4,7	0,8	0,19	0,27	0,20	0,04	0,03	0,04	1,7	0,13	0,27	0,11	1,18	0,04	1,0
Gambia	1,7	1,1	0,50	0,14	0,19	0,08	0,12	0,04	1,2	0,38	0,14	0,21	0,42	0,04	0,1
Ghana	23,0	1,6	0,42	0,05	0,57	0,16	0,35	0,05	1,1	0,51	0,32	0,18	0,06	0,05	(0,5)
Guinea	9,2	1,5	0,46	0,35	0,52	0,03	0,04	0,06	2,9	0,42	1,06	0,80	0,60	0,06	1,5
Guinea-Bissau	1,6	1,0	0,39	0,34	0,16	0,00	0,05	0,06	3,3	0,49	0,41	0,34	2,05	0,06	2,4
Liberia	3,6	1,2	0,30	0,02	0,70	0,03	0,06	0,04	2,6	0,19	0,81	1,19	0,37	0,04	1,4
Libya	6,0	3,2	0,81	0,18	0,10	0,10	1,95	0,04	1,6	0,37	1,14	0,02	0,00	0,04	(1,6)
Madagascar	19,2	1,2	0,30	0,43	0,26	0,04	0,08	0,06	3,2	0,28	1,70	0,92	0,21	0,06	2,0
Mali	12,0	1,9	0,62	0,83	0,18	0,01	0,12	0,08	2,5	0,64	0,98	0,76	0,07	0,08	0,7
Mauritania	3,0	3,1	0,38	2,02	0,21	0,00	0,44	0,05	6,3	0,16	4,09	0,06	1,93	0,05	3,2
Morocco	30,9	1,3	0,70	0,15	0,06	0,06	0,32	0,05	0,9	0,46	0,20	0,08	0,11	0,05	(0,4)
Namibia	2,0	3,0	0,71	1,39	0,00	0,04	0,80	0,05	8,7	0,40	1,99	0,41	5,87	0,05	5,7
Niger	13,7	1,7	1,13	0,19	0,27	0,00	0,05	0,04	1,9	1,09	0,72	0,07	0,00	0,04	0,2
Nigeria	144,7	1,6	0,63	0,06	0,21	0,04	0,61	0,05	0,9	0,60	0,20	0,02	0,02	0,05	(0,7)
Senegal	12,1	1,2	0,47	0,24	0,22	0,09	0,18	0,04	1,4	0,37	0,22	0,52	0,21	0,04	0,1
Sierra Leone	5,7	0,8	0,20	0,04	0,37	0,08	0,05	0,03	1,0	0,15	0,41	0,18	0,21	0,03	0,2
Somalia	8,4	1,5	0,20	0,76	0,49	0,00	0,01	0,05	1,6	0,11	0,77	0,28	0,39	0,05	0,1
South Africa	48,3	2,7	0,78	0,21	0,30	0,10	1,29	0,06	1,7	0,68	0,70	0,02	0,25	0,06	(1,0)
Sudan	37,7	2,2	0,70	0,99	0,22	0,00	0,27	0,05	2,8	0,63	0,99	0,97	0,17	0,05	0,6
Tanzania	39,5	1,0	0,31	0,31	0,25	0,00	0,11	0,05	0,9	0,31	0,31	0,15	0,06	0,05	(0,2)
Tunisia	10,2	1,9	0,82	0,10	0,21	0,12	0,58	0,04	1,1	0,67	0,10	0,06	0,28	0,04	(0,7)
Zambia	11,7	1,2	0,44	0,15	0,36	0,01	0,16	0,05	2,9	0,51	1,29	0,99	0,03	0,05	1,7
Zimbabwe	13,2	1,0	0,25	0,36	0,28	0,00	0,12	0,03	0,7	0,18	0,37	0,14	0,01	0,03	(0,3)
Asia	**3.983,9**	**1,5**	**0,38**	**0,06**	**0,14**	**0,08**	**0,80**	**0,06**	**0,7**	**0,33**	**0,08**	**0,15**	**0,10**	**0,06**	**(0,8)**
Armenia	3,0	1,6	0,58	0,22	0,06	0,00	0,72	0,06	0,7	0,30	0,29	0,07	0,02	0,06	(0,9)
Azerbaijan	8,4	2,3	0,62	0,26	0,07	0,01	1,26	0,07	1,0	0,54	0,26	0,11	0,02	0,07	(1,3)
Cambodia	14,2	0,9	0,46	0,07	0,25	0,00	0,08	0,04	0,9	0,45	0,12	0,20	0,14	0,04	0,0
China	1.328,5	1,8	0,36	0,13	0,15	0,06	1,08	0,07	0,9	0,35	0,12	0,22	0,08	0,07	(1,0)
India	1.151,8	0,8	0,28	0,01	0,12	0,01	0,31	0,04	0,4	0,27	0,00	0,02	0,04	0,04	(0,4)
Iran	70,3	2,7	0,66	0,17	0,05	0,13	1,57	0,09	1,0	0,55	0,21	0,07	0,07	0,09	(1,7)

	POPULATION (MILLION)	ECOLOGICAL FOOTPRINT (global hectares per capita)							BIOCAPACITY (global hectares per capita)						EECOLOGICAL (DEFICIT) OR RESERVE
		Ecological Footprint of Consumption	Cropland Footprint	Grazing Footprint	Forest Footprint	Fishing Ground Footprint	Carbon Footprint	Built-up Land	Total Biocapacity	Cropland	Grazing Land	Forest	Fishing Ground	Built Land	
Israel	6,8	5,4	1,03	0,09	0,36	0,15	3,69	0,07	0,3	0,20	0,01	0,03	0,02	0,07	(5,1)
Japan	128,0	4,1	0,58	0,03	0,28	0,47	2,68	0,07	0,6	0,13	0,00	0,33	0,08	0,07	(3,5)
Jordan	5,7	2,0	0,69	0,08	0,17	0,07	0,94	0,08	0,3	0,12	0,02	0,03	0,00	0,08	(1,8)
Kazakhstan	15,3	4,4	1,18	0,15	0,13	0,01	2,91	0,06	4,3	1,62	2,28	0,25	0,07	0,06	(0,1)
North Korea	23,7	1,4	0,31	0,00	0,14	0,01	0,88	0,05	0,6	0,27	0,00	0,24	0,00	0,05	(0,8)
South Korea	48,1	3,7	0,69	0,04	0,24	0,61	2,09	0,06	0,3	0,14	0,00	0,09	0,00	0,06	(3,4)
Kuwait	2,8	7,9	0,71	0,10	0,19	0,12	6,65	0,14	0,5	0,03	0,01	0,00	0,33	0,14	(7,4)
Kyrgyzstan	5,3	1,3	0,55	0,11	0,03	0,00	0,50	0,09	1,5	0,53	0,75	0,08	0,06	0,09	0,2
Laos	5,8	1,0	0,41	0,08	0,39	0,01	0,07	0,10	1,4	0,41	0,08	0,77	0,04	0,10	0,3
Lebanon	4,1	2,1	0,66	0,15	0,27	0,09	0,91	0,05	0,4	0,20	0,06	0,06	0,01	0,05	(1,8)
Myanmar	48,4	1,0	0,50	0,01	0,33	0,00	0,06	0,07	1,6	0,52	0,01	0,61	0,35	0,07	0,6
Oman	2,5	3,5	0,59	0,18	0,15	0,40	2,09	0,12	2,5	0,11	0,08	0,00	2,22	0,12	(1,0)
Pakistan	160,9	0,7	0,29	0,01	0,08	0,01	0,30	0,04	0,4	0,27	0,00	0,01	0,04	0,04	(0,4)
Qatar	0,8	9,7	1,37	0,20	0,27	0,43	7,23	0,18	3,9	0,12	0,00	0,00	3,62	0,18	(5,8)
Saudi Arabia	24,2	3,5	1,29	0,11	0,14	0,14	1,62	0,18	1,3	0,50	0,16	0,21	0,25	0,18	(2,2)
Singapore	4,4	4,5	0,66	0,06	0,30	0,32	3,14	0,02	0,0	0,00	0,00	0,00	0,02	0,02	(4,5)
Sri Lanka	19,2	0,9	0,30	0,01	0,15	0,26	0,16	0,04	0,4	0,20	0,02	0,04	0,05	0,04	(0,6)
Syria	19,4	1,6	0,54	0,16	0,08	0,03	0,76	0,06	0,9	0,55	0,22	0,04	0,00	0,06	(0,7)
Tajikistan	6,6	0,9	0,39	0,15	0,02	0,00	0,26	0,06	0,5	0,23	0,18	0,01	0,02	0,06	(0,4)
Thailand	63,4	1,7	0,54	0,01	0,17	0,21	0,73	0,06	1,1	0,64	0,01	0,18	0,17	0,06	(0,7)
Turkey	73,9	2,8	1,01	0,08	0,26	0,04	1,37	0,08	1,5	0,90	0,13	0,31	0,05	0,08	(1,4)
Turkmenistan	4,9	3,8	0,74	0,49	0,00	0,01	2,46	0,12	3,4	0,86	2,25	0,02	0,15	0,12	(0,4)
United Arab Emirates	4,2	10,3	1,98	0,19	0,49	0,38	7,19	0,06	1,4	0,14	0,00	0,13	1,03	0,06	(8,9)
Uzbekistan	27,0	1,7	0,39	0,08	0,03	0,00	1,16	0,07	0,9	0,52	0,23	0,06	0,03	0,07	(0,8)
Viet Nam	86,2	1,0	0,32	0,00	0,19	0,00	0,44	0,06	0,6	0,32	0,00	0,16	0,01	0,06	(0,5)
Yemen	21,7	1,0	0,32	0,16	0,03	0,02	0,40	0,05	0,7	0,14	0,15	0,05	0,28	0,05	(0,3)
Europe	**731,3**	**4,5**	**1,06**	**0,12**	**0,50**	**0,22**	**2,49**	**0,12**	**3,0**	**1,01**	**0,19**	**1,43**	**0,28**	**0,12**	**(1,5)**
Albania	3,2	2,6	0,96	0,25	0,08	0,02	1,18	0,08	1,0	0,53	0,12	0,20	0,09	0,08	(1,6)
Austria	8,3	4,9	0,72	0,16	0,73	0,11	2,98	0,19	3,0	0,60	0,17	2,02	0,00	0,19	(1,9)
Belarus	9,7	4,2	1,43	0,23	0,41	0,12	1,93	0,08	3,4	1,36	0,34	1,58	0,02	0,08	(0,8)
Belgium	10,4	5,7	1,84	0,38	0,56	0,17	2,44	0,31	1,1	0,32	0,12	0,28	0,05	0,31	(4,6)
Bosnia and Herzegovina	3,9	3,4	1,07	0,18	0,47	0,06	1,54	0,08	1,7	0,58	0,13	0,86	0,00	0,08	(1,7)
Bulgaria	7,7	3,3	0,77	0,22	0,36	0,04	1,69	0,17	2,7	1,20	0,19	0,99	0,10	0,17	(0,6)
Croatia	4,6	3,3	0,49	0,09	0,56	0,06	2,03	0,11	1,8	0,22	0,15	0,98	0,34	0,11	(1,5)
Czech Republic	10,2	5,3	1,03	0,12	0,99	0,07	2,95	0,16	2,6	1,11	0,14	1,22	0,00	0,16	(2,7)

	POPULATION (MILLION)	ECOLOGICAL FOOTPRINT (global hectares per capita)							BIOCAPACITY (global hectares per capita)						ECOLOGICAL (DEFICIT) OR RESERVE
		Ecological Footprint of Consumption	Cropland Footprint	Grazing Footprint	Forest Footprint	Fishing Ground Footprint	Carbon Footprint	Built-up Land	Total Biocapacity	Cropland	Grazing Land	Forest	Fishing Ground	Built Land	
Denmark	5,4	7,2	1,10	0,21	1,24	0,60	3,77	0,28	5,2	2,50	0,04	0,29	2,09	0,28	(2,0)
Estonia	1,3	6,4	0,44	0,15	2,40	0,14	3,15	0,13	9,0	0,67	0,39	3,21	4,59	0,13	2,6
Finland	5,3	5,5	1,27	0,03	1,02	0,38	2,67	0,14	13,0	1,38	0,00	8,66	2,81	0,14	7,5
France	61,3	4,6	0,81	0,16	0,63	0,30	2,49	0,21	2,8	1,28	0,28	0,89	0,18	0,21	(1,8)
Germany	82,6	4,0	0,93	0,07	0,51	0,14	2,21	0,18	1,9	0,87	0,10	0,64	0,08	0,18	(2,2)
Greece	11,1	5,8	0,93	0,25	0,43	0,12	3,94	0,08	1,4	0,79	0,10	0,14	0,25	0,08	(4,4)
Hungary	10,1	3,2	1,16	0,06	0,41	0,03	1,39	0,17	2,6	1,72	0,11	0,57	0,01	0,17	(0,6)
Ireland	4,2	8,2	1,06	0,72	0,64	0,33	5,19	0,25	4,3	0,98	0,91	0,25	1,88	0,25	(3,9)
Italy	58,8	4,9	1,02	0,20	0,50	0,24	2,88	0,08	1,0	0,53	0,08	0,27	0,07	0,08	(3,9)
Latvia	2,3	4,6	0,97	0,15	2,39	0,16	0,86	0,07	7,2	1,03	0,72	3,34	2,08	0,07	2,6
Lithuania	3,4	3,3	0,35	0,09	0,93	0,33	1,54	0,10	3,7	0,70	0,92	1,64	0,29	0,10	0,3
Moldova	3,8	1,7	0,72	0,06	0,07	0,00	0,84	0,05	1,1	0,95	0,05	0,07	0,01	0,05	(0,6)
Netherlands	16,4	4,6	1,22	0,21	0,41	0,18	2,44	0,14	1,0	0,27	0,06	0,08	0,50	0,14	(3,6)
Norway	4,7	4,2	1,19	0,04	0,59	0,18	2,05	0,15	6,1	0,69	0,03	3,23	2,01	0,15	1,9
Poland	38,1	3,9	0,65	0,01	0,66	0,11	2,38	0,07	1,8	0,82	0,13	0,71	0,12	0,07	(2,0)
Portugal	10,6	4,4	0,85	0,19	0,14	0,74	2,41	0,04	1,2	0,24	0,26	0,57	0,08	0,04	(3,2)
Romania	21,5	2,7	0,84	0,09	0,33	0,05	1,21	0,14	2,3	0,84	0,18	1,00	0,10	0,14	(0,4)
Russia	143,2	4,4	1,51	0,05	0,43	0,15	2,23	0,06	6,3	1,55	0,33	4,18	0,21	0,06	1,9
Slovakia	5,4	4,9	0,59	0,06	0,59	0,07	3,48	0,15	2,7	0,83	0,09	1,60	0,00	0,15	(2,3)
Slovenia	2,0	3,9	0,79	0,06	0,78	0,10	2,07	0,09	2,4	0,22	0,25	1,80	0,00	0,09	(1,5)
Spain	43,9	5,6	1,16	0,17	0,46	0,53	3,25	0,05	1,3	0,84	0,13	0,24	0,06	0,05	(4,3)
Switzerland	7,5	5,6	0,72	0,20	0,43	0,14	3,98	0,11	1,3	0,26	0,17	0,73	0,01	0,11	(4,3)
Ukraine	46,6	2,7	0,87	0,01	0,17	0,11	1,45	0,07	2,2	1,47	0,14	0,40	0,15	0,07	(0,4)
United Kingdom	60,7	6,1	0,93	0,20	0,58	0,23	4,00	0,18	1,6	0,62	0,11	0,11	0,56	0,18	(4,5)
Latin America and the Caribbean	**564,7**	**2,4**	**0,58**	**0,71**	**0,36**	**0,11**	**0,60**	**0,08**	**5,4**	**0,72**	**0,90**	**3,40**	**0,33**	**0,08**	**3,0**
Argentina	39,1	3,0	0,43	1,36	0,20	0,20	0,71	0,09	7,1	2,32	1,94	0,78	1,91	0,09	4,1
Bolivia	9,4	2,4	0,47	1,22	0,16	0,01	0,47	0,07	19,3	0,67	2,75	15,77	0,07	0,07	16,9
Chile	16,5	3,1	0,67	0,32	0,95	0,55	0,49	0,12	4,1	0,45	0,53	2,16	0,83	0,12	1,0
Colombia	45,6	1,9	0,31	0,78	0,13	0,04	0,52	0,08	3,9	0,22	1,32	2,19	0,04	0,08	2,0
Costa Rica	4,4	2,7	0,44	0,26	0,73	0,05	1,13	0,09	1,8	0,35	0,65	0,60	0,11	0,09	(0,9)
Cuba	11,3	2,3	0,96	0,11	0,12	0,04	1,05	0,05	1,1	0,59	0,09	0,20	0,14	0,05	(1,3)
Dominican Republic	9,6	1,4	0,46	0,13	0,12	0,07	0,54	0,04	0,6	0,25	0,13	0,12	0,02	0,04	(0,8)
Ecuador	13,2	1,9	0,36	0,40	0,25	0,11	0,74	0,06	2,3	0,33	0,40	1,33	0,20	0,06	0,4
Guatemala	13,0	1,7	0,36	0,22	0,55	0,03	0,51	0,05	1,1	0,35	0,22	0,41	0,05	0,05	(0,6)

	POPULATION (MILLION)	ECOLOGICAL FOOTPRINT (global hectares per capita)							BIOCAPACITY (global hectares per capita)						ECOLOGICAL (DEFICIT) OR RESERVE
		Ecological Footprint of Consumption	Cropland Footprint	Grazing Footprint	Forest Footprint	Fishing Ground Footprint	Carbon Footprint	Built-up Land	Total Biocapacity	Cropland	Grazing Land	Forest	Fishing Ground	Built Land	
Haiti	9,4	0,5	0,25	0,04	0,10	0,02	0,05	0,02	0,2	0,15	0,04	0,01	0,02	0,02	(0,2)
Mexico	105,3	3,2	1,00	0,18	0,32	0,10	1,58	0,07	1,7	0,65	0,31	0,50	0,17	0,07	(1,6)
Nicaragua	5,5	2,3	0,61	0,62	0,42	0,12	0,43	0,06	3,3	0,74	0,66	1,25	0,57	0,06	1,0
Panama	3,3	3,2	0,47	0,55	0,23	0,68	1,22	0,05	3,4	0,33	0,56	1,79	0,70	0,05	0,2
Paraguay	6,0	3,4	0,32	1,68	0,87	0,01	0,41	0,07	10,8	1,30	2,68	6,67	0,06	0,07	7,4
Peru	27,6	1,8	0,53	0,24	0,18	0,45	0,30	0,10	4,1	0,41	0,57	2,73	0,27	0,10	2,3
Venezuela	27,2	2,3	0,51	0,36	0,13	0,19	1,07	0,07	2,7	0,29	0,34	1,91	0,05	0,07	0,3
Canada and USA	**335,5**	**8,7**	**1,07**	**0,08**	**1,16**	**0,17**	**6,13**	**0,09**	**5,7**	**2,17**	**0,29**	**2,22**	**0,89**	**0,09**	**(3,0)**
Canada	32,6	5,8	0,54	0,26	1,05	0,23	3,60	0,08	17,1	4,30	0,26	8,39	4,05	0,08	11,3
USA	302,8	9,0	1,12	0,06	1,17	0,16	6,41	0,09	4,4	1,94	0,29	1,55	0,56	0,09	(4,6)
Oceania	**33,8**	**5,8**	**0,26**	**2,33**	**0,88**	**0,52**	**1,75**	**0,06**	**12,8**	**1,90**	**4,95**	**2,82**	**3,09**	**0,06**	**7,0**
Fiji	0,8	3,7	0,55	0,18	0,48	0,41	1,99	0,07	2,5	0,48	0,11	1,32	0,50	0,07	(1,2)
New Zealand	4,1	7,6	0,44	2,45	1,12	1,21	2,21	0,14	12,0	1,04	3,47	5,03	2,36	0,14	4,5
Papua New Guinea	6,2	1,7	0,21	0,02	0,30	0,87	0,21	0,11	3,7	0,30	0,05	2,59	0,70	0,11	2,0
Solomon Islands	0,5	1,7	0,42	0,01	0,25	0,75	0,10	0,20	3,2	0,50	0,01	2,42	0,08	0,20	1,5

Notes

- Regional totals include countries not reported individually.
- Unless otherwise noted, all data from Global Footprint Network, 2009. *The Ecological Footprint Atlas 2009*, **www.footprintnetwork.org/atlas**
- Population data from the UN FAO.
- 0.0 = less than 0.05
- Totals may not add up due to rounding

R1.3 The Interactive Value Chain game

Objectives of the game: To identify the various actors in a value chain and understand the different roles and places in the chain
Time involved: 1 hour
Suggested use: Section 2.5 Development of value chains and market mechanisms
Number of participants needed: 6 or more
Materials: pen, paper (flipchart), scissors

Methodology:

Prepare beforehand:

- This exercise can be given following a lesson on value-chain development.
- Make photocopies of the two pages below (76-77), cut out the cards and give one to every participant (or more cards per person if there are fewer people). Ask one of the participants to co-ordinate the game (do not give a card to this person).

How to play the game:

- Ask the participants to take their card(s) and to stand in a line.
- Ask the co-ordinator to get the rest of the participants to form a value chain from "producer" to "consumer". The "co-ordinator" is in charge of changing positions of people if needed as well as seeing the overview of the chain. Every participant with a card has a place directly in the chain or next to the chain. The actors in the chain are the ones primarily involved in producing, processing and marketing the product. The actors next to the chain are the support actors – services and finance.
- When the chain is ready (all participants have a place in the chain or next to it) ask the co-ordinator to draw the chain (that they made) on a chalkboard or flipchart paper.
- While the participants are still standing in their positions, discuss the chain using the questions below.

Discussion:

- What are the primary activities (in the value chain) and the support activities (next to the value chain)? Are these correctly positioned in your chain? Why? Why not?
- Where in the chain is value added to the product? Could this be done earlier or later in the chain? What would be more beneficial for the farmer?
- Which actors are essential to create the chain? Are there actors in the chain that could be excluded? Which actor and why?
- What communication and interaction do you think is needed between the actors to have a well-functioning value chain?
- Is the chain you created a local or international one? What are the differences in actors? Can you give examples of international and local chains that you know about?

FARMER

PROCESSOR

LOCAL CONSUMER

CONSUMER IN OTHER COUNTRIES

SUPPLIER OF AGRICULTURAL INPUTS

WHOLESALER

FARMERS' CO-OPERATIVE

TRANSPORTER

LABOUR UNION

TECHNICAL ASSISTANT

TRADER

EXPORTER

FINANCE INSTITUTE

RETAILER

R1.4 International Trading game

(source: www.christianaid.org.uk/learn)

Objectives of the game: To generate interest in the global trade system and to discuss how fair and unfair trading relationships are.
Time involved: 1.5 hour; 20 min preparation time is needed to read through the game instructions, copy and cut out cards and shape sheet.
Suggested use: Sub-Section 3.4.1 International trade liberalisation
Number of participants needed: 10 and more
Materials: pen, paper, scissors

Methodology:

Prepare beforehand:

- Read through the game instructions, copy one shape page per group and cut out the "New trading situation cards".
- Divide the participants into three groups and designate the number 1, 2 or 3 to each (if more than 10 participants make two of every group category). The number of participants per group is shown in the table below. Select one participant as a banker with the money bills (these bills can be drawn on paper or you can use other things like stones or leaves instead).

How to play the game:

- Every group represents a category of countries with different resources. Divide the resources per group. During the game, participants are only allowed to use the resources they are provided (see Box 19).
- The aim for every group is to get as high an income as possible. This is done by producing, buying and selling resources. The game is played in rounds of 15 minutes. Within these 15 minutes, every group has the time to produce products from their resources (see Box 20 for instructions for making products –shown as shapes and costs), to buy material from other groups (every group sets its own price for its resources), and to exchange and sell products and materials with the other groups. At the end of each round, the group can sell its products to the bank. Only a quota of 4 products per product type and round is possible to sell for every group. The bank can refuse to buy the product if it believes the quality is not good enough.
- After every turn, each group notes how much it sold, bought and produced.
- In the second round, a "New trading situation" card is drawn by the banker that is applicable for every group and the groups must change their strategies to be able to manage the new situation. (see cards on pages 80-81)
- After 4 rounds (or more) each group presents its income, what its members have accomplished and what difficulties they had during the game.
- End the exercise with a discussion about trading using the question list below.

Box 19: Group/resource schedule

Groups	Players per group	Resources	Countries
1	4	6 * 100 money bills 10 sheets of paper Scissors 3 pencils	UK Italy US France
2	3	2 * 100 money bills 6 sheets of paper	India Brazil Peru Nigeria
3	2	2 * 100 money bills 4 sheets of paper 2 pencils	Tanzania Kenya Cambodia Ghana

Discussion:

- What was the game about? What was difficult, easy?
- How did you experience the unfair division of resources? How can you relate this to current global trade relations? What do you think are the reasons for the unfair trading?
- What are the different actors involved in global trade? How is the decision-making power of farmers? How can this be improved?
- What factors are influencing trade relations?
- How did the new trading situations affect your group? Do you know of similar situations in your country?

Box 20: Instructions for making "products"

The shapes on the following page are a template for the different products that the groups can produce. If possible, give every group a copy of these shapes. To make the products each group can only use the resources (paper sheets, scissors, pencils) it has available to it. The groups without scissors and pencils must come up with other ways to cut out the shapes. It is up to every group to decide how many shapes it fits on a paper and who in the group will be doing what. The amounts stated on the shapes are what the products are worth.

Shapes for "products"

New trading situation cards

There is a general strike among the workers which means that only one person per group will be able to produce products.

There is a quota introduced by the richer countries which means that groups 2 and 3 can only sell a maximum of 2 products per price category.

The market value of the products drops to half the price for all countries.

There has been a discovery of new resources in groups 2 and 3. This means that they will receive two extra paper sheets per group.

There is a global financial crisis. The crisis hits the richer countries the most which means that group 1 loses half of its money and groups 2 and 3 lose 1/3 of their money.

Several NGOs from industrialised countries have decided to support small-scale production. This means that one person from group 1 will go help group 3.

There is an increased interest for Fair trade products. If you want your products certified you have to pay 100 euros but then you will receive 25 euros extra per product when you sell them.

Due to climate changes there is drought and the available resources are fewer. Groups 2 and 3 have to give away one sheet of paper each to the bank.

R2. Articles about practical experiences

Figure 27: Articles from ILEIA's archive can be used to stimulate discussion on practical implications of small-scale cropping system's sustainability.

Objective: To use articles about marketing and finance issues from small-scale farming around the world to deepen the lessons from the three learning blocks.

Materials: All articles can be retrieved from the LEARNING pages on ILEIA's website (www.ileia.org) - and a selection of articles (indicated by a page number) is included at the end of this section.

Methodology: These articles can be used as additional reading material, as part of classroom discussions, or as part of student assignments. For example, students can use articles to prepare presentations addressing specific questions raised in the learning blocks. Some questions are suggested.

R2.1 Marketing and small-scale farming (2 articles)

See page 92.

Where to use these articles: Section 1.3 Local marketing systems

R2.1.1 IMPROVING DAIRY PRODUCTS AND MARKET LINKS (PERU, 2004)

What it is about: Small livestock farmers in Cajamarca in Peru who are not able to sell their milk to the bigger companies process it into *quesillo*, a fresh curd cheese. This article is about how the quality, knowledge and prices for this product were improved.

Suggested questions:

- What can farmers do to improve the quality of their products? What are the technical and social "inputs"?
- Why is the selection of extensionists such a critical aspect? What are the role and tasks of extensionists in improving quality?
- What are the results of the programme of improving dairy production in Cajamarca?
- How are farmers linked to the market? How can it be improved?
- How is quality controlled and enhanced in your region?

R2.1.2 MARKETING BIODIVERSITY (PERU, 2004)

See page 95.

What it is about: Farmers in the Andes are increasingly shifting towards the conventional yellow potato that is better known to consumers and can more easily be sold on the market. To reverse this trend, the *International Potato Center* (CIP) in Peru has started to look for new ways to make use of traditional Andean varieties.

Suggested questions:
- What are the environmental and social benefits of the traditional Andean potato varieties?
- How can farmers make consumers aware of these facts?
- What were the marketing concepts presented in the article? What are the steps to develop them?
- Do you think that potato chips using traditional varieties have a potential market? What could be other ways for farmers to conserve the traditional varieties and at the same time earn a living?

R2.2 Post-harvest issues (2 articles)

Where to use these articles: sub-Section 1.3.2 Post-harvest handling and storage

See website

R2.2.1 REVIEWING POST-HARVEST OPTIONS WITH FARMERS (TIMOR ISLAND, 2004)

What it is about: This article is about how extensionists and farmers are jointly analysing different post-harvest options to been able to explore the alternatives and to find good solutions to the problems that arise.

Suggested questions:
- What are the four post-harvest options presented in the article?
- What determines how farmers treat their harvested crops/fruits/legumes? How do farmers make the decisions?
- How is the quality of the crop product influenced by the post-harvest options?
- What are the most common post-harvest options and treatments in your region?

R2.2.2 CARING FOR THE HARVEST: BACK TO BASICS (PHILIPPINES, 2004)

What it is about: This article presents basic information on post-harvest management through an extension programme in the Philippines.

See page 97.

Suggested questions:
- What does post-harvest management mean?
- What measures can be taken to avoid post-harvest losses in fruit and vegetables?
- What effects come from different harvesting times?
- What are additional post-harvest concepts presented in the article?
- How can innovation be stimulated? What knowledge do you think is needed? What kind of knowledge do you think small-scale farmers possess?
- What were results coming from the post-harvest extension programme?

R2.3 Improving cassava processing for the market (Tanzania, 2004)

Where to use this article: sub-Section 1.3.4 Grading and processing
What it is about: Cassava is an important staple food in tropical Africa, and has the potential to become a cash crop in many African countries. New market opportunities for cassava products may help to enable communities to develop their livelihoods and emerge from poverty

See page 99.

Suggested questions:
- What are factors that complicate cassava commercialisation in Tanzania?
- Why was new technology needed? Which new product did it produce?
- What do you think is a good way of introducing new technology?
- What did the pilot trials show? Why were the outcomes different?
- Why are linkages between processors and markets essential?
- What happened with the gender roles when the cassava became commercialised? Why do you think this happened and should such a situation be different?

R2.4 Finance (4 articles)

R2.4.1 LOCAL RESOURCES: GREAT CAPITAL (UGANDA, 2010)

See page 102.

Where to use this article: sub-Section 1.4.1 Small-scale farmers' financial buffer
What it is about: This is a case study of microfinance from Uganda where a non-governmental organisation is working with several village associations lending money through their own group loan schemes.

Suggested questions:
- How did the farmers' associations raise funds for the Group Loan Schemes?
- How have farmers used the loans? What have been the long-term benefits?
- The article states that these microfinance practices have a bottom-up approach, what does that mean?
- Do you know of any attempts to get group loans running from your country? Did it work? Why or why not?

R2.4.2 HELPING CREDIT DO ITS WORK (BURKINA FASO, 2009)

See website

Where to use this article: Section 2.6 Changing financial systems
What it is about: The lack of access to credit is a major issue in many rural communities. Many private organisations in Burkina Faso are working to improve this situation by providing financial services. This article describes the activities, the benefits and the development of these financial services.

Suggested questions:
- How can financial services be a tool for farmers to improve yields and outputs?
- What are normally the problems related to repayment? How are these solved?
- Why are women more often targeted for credit funds? How does this influence their livelihoods and family situations?
- Do you believe that all farmers have the ability to turn credit into a good business investment? What support and stimulus might they need?

R2.4.3 ENSURING FINANCE WITH A CONTRACT (ZAMBIA, 2010)

See page 106.

Where to use this article: sub-Section 3.3.3 Setting up national commodity exchanges
What it is about: Zambian breweries have developed a clear beer from locally grown sorghum. Small-scale farmers now grow sorghum for the brewery and the contracts give them a secure income.

Suggested questions:
- How are the contracts positive in an agronomic and an ecological point-of-view?
- What do you think are the reasons that companies want to engage small-scale farmers in such a project?
- Do you think that contract farming can be successful and sustainable? What are the negative and positive aspects of contract farming?
- What has been the government's role in this project? Could that be improved?
- Do you know of cases of contract farming of small-scale farmers in your country? What were their experiences?

R2.4.4 THINKING BEYOND CREDIT (GLOBAL, 2010)

See page 109.

Where to use this article: sub-Section 3.5.1 Developing a broader range of financial services
What it is about: This article looks at the existing credit programmes for farmers and questions whether it is a good tool for the poor to get out of poverty. The article suggests and discusses other ways for farmers to build their own resource base and independence.

Suggested questions:
- What does the author of the article mean by "reproduction and development" of the resource base?
- What is the criticism of microcredit presented in this article? Do you agree with these statements? Why, why not?
- What are alternatives to formal credit that are mentioned? Do you have examples?
- In what ways can policies strengthen the autonomous resource base of farmers? Do you know of cases in which favourable policies were introduced?

See website

R2.5 Filipino handicrafts provide income and protect the forest (Philippines, 2008)

Where to use this article: Section 2.2 Increasing integration and globalisation of markets

What it is about: The Philippines is one of the world's major producers of handicrafts. Nevertheless, only two percent of all handicrafts imported by the European Union from developing countries come from the Philippines. This presents an interesting marketing opportunity, and with it, some challenges.

Suggested questions:

- In what ways do the described handicrafts promote sustainable use of natural resources?
- Why is it difficult to find a market for the handicrafts? What are the activities suggested to change this? What are the differences between the local and international markets?
- What is special about the handicrafts from the Philippines? How are they promoted?
- How are handicrafts based on rural resources in your area marketed? Who are the consumers?

R2.6 Supportive policies secure a future for family farmers (Brazil, 2009)

See page 113.

Where to use this article: Section 2.2 Increasing integration and globalisation of markets

What it is about: This article is about how a new government policy aimed at addressing hunger and poverty together with local initiatives and entrepreneurs can manage to increase food self-sufficiency and improve livelihoods.

Suggested questions:

- What were the problems in the municipality before the policy?
- What are the arrangements and agreements between the government and the farmers with regard to the policy? What is the market?
- How has the policy changed the livelihoods and farming practices of farm families?
- What do you think will happen if the policy changes - will the farmers be able to find new markets for their products?
- Are you aware of any similar policies in your country?

R2.7 Organic markets (2 articles)

Where to use these articles: Section 2.3 Changing demand and preferences for agricultural products

R2.7.1 GROWING A LOCAL ORGANIC MOVEMENT: THE MEXICAN NETWORK OF ORGANIC MARKETS (MEXICO, 2008)

See page 116.

What it is about: In Mexico, the amount of organic production has increased dramatically. This article presents how The Mexican Network of Organic Markets is organised. It describes the participatory certification system and the planning for future market growth.

Suggested questions:

- What are the reasons behind an increase in the organic market share in Mexico?
- How are organic markets related to community building?
- What is a participatory certification system? What are the results of the social interactions?
- How can the problem of lack of funds and expertise be overcome? What are the selling points and product range?
- Do you think that these types of market arrangements will continue and last in the future? Why, why not?

R2.7.2 CREATING A GREEN MARKET – EXPERIENCES FROM GREEN NET (THAILAND, 1998)

See website.

What it is about: The organic market has been booming in Thailand as the awareness of consumers and the presence of "green" shops increase. To meet these changes, organic farmers and an organic network have some challenges to overcome to meet consumer demands.

Suggested questions:

- What are the reasons behind a boom in the organic market?
- What improvements does the article suggest for improving organic marketing?
- How important is the labelling of organic food products? What are the reasons for having an organic label?
- What do you think characterise a consumer buying organic products? How can their needs and demands be met by the producers?
- What institutions should collaborate to create better organic sales and a strong network?

R2.8 Value chains and small-scale farming (2 articles)

Where to use these articles: Section 2.5. Development of value chains and market mechanisms

R2.8.1 TWO VIEWS: DO VALUE CHAINS HELP FARMERS OUT OF POVERTY? (GHANA, 2009)

See page 120.

What it is about: Value chains refer to all the steps that a product takes, from its point of origin to the consumer. In this article, two views of value chain development are presented, both based on experiences in Ghana, West Africa.

Suggested questions:

- What are the main points each view presents on value chains?
- What are the constraints small-scale farmers come up against when wanting to enter into value chains? And what are the benefits of such a relationship?
- What is your opinion on this subject: Is value-chain development a key to poverty reduction in rural areas? What do you know about farmers' experiences in your country?

R2.8.2 ADDING VALUE TO LOCAL LIVELIHOODS (LAOS, 2009)

See page 122.

What it is about: This article is about a community in Northern Laos, in which farmers have managed to get a better price for their products and more control over value chains. The key to their success was joining together to set up and invest in their own agro-enterprises.

Suggested questions:

- How has a joint effort been beneficial to this community? What was its agro-enterprise approach?
- What were the reasons that farmers received a low price for their products before joining forces?
- How did the value chain change? In what way is this better?
- How did the farmers in this article add value to their products? Can you think of other ideas?
- How can an agro-enterprise work in a sustainable way according to the article? Do you have other suggestions about this?

R2.9 Communication technologies support trade in Africa (Africa, 2008)

See page 124.

Where to use this article: sub-Section 3.3.2 Improved market information system
What it is about: Information and Communication Technologies (ICT) is increasingly contributing to economic growth in rural markets in Africa. Mobile

phones and internet market information are observed to be in a good position to change unequal trading patterns.

Suggested questions:
- How are different kinds of ICTs used by the agricultural sector and rural communities?
- What information is shared, for whom and by whom?
- Even though there are observed successes with the new technologies, problems also arise. What are these problems and how can they be overcome?
- What kinds of ICTs are used in rural areas in your country? How are they used?
- Can you think of other ways in which rural communities could benefit from using ICTs?

R2.10 Fair trade (2 articles)

Where to use these articles: sub-Section 3.4.3 Fair trade and ethical trade

R2.10.1 FAIRTRADE FRUIT: SUCCESSES, CHALLENGES AND DILEMMAS (GLOBAL, 2008)

What it is about: The challenges that come with growth are presented, as are the dilemmas regarding the expansion of the organic and Fair trade export markets based on the experiences of Europe's foremost importer of Fair trade fruit.

See page 126.

Suggested questions:
- What are the core principles of Fair trade?
- Do you consider Fair trade to be a "niche" or "mainstream" market? Why, why not?
- What are the problems and challenges that arise with the growth of the Fair trade market? And how is the company trying to organise it?
- How are new technologies used to link producers and consumers?
- What are the dilemmas with fair trade presented in the article?
- Do you know any farmers that are producing for the Fair trade market? What are their experiences?

R2.10.2 DIRECT TRADE THAT BENEFITS POOR COMMUNITIES IN INDIA AND THE U.K (INDIA, 2008)

What it is about: An initiative is presented which aims to establish an alternative and direct trading mechanism that will benefit poor communities, called "Just change". This has been successful in directly linking communities in India and the U.K., and encouraging them to trade amongst themselves.

See website

Suggested questions:
- What were the reasons for starting this initiative?
- How has the initiative been successful? Do you think that this approach could be adopted by other communities?

See page 128.

- What criticism does the article pose about Fair trade? Do you agree with this? Why, why not?
- What are the struggles poor communities have with global trade and trade relations? Do you know of any examples related to this?

R2.11 Tasting the results of a joint effort (Bolivia, 2009)

Where to use this article: sub-Section 3.5.2 Diversification
What it is about: This article illustrates projects aimed at creating marketing options for the crops grown in the Central Andes. These activities focus on strengthening linkages between producers and the local and international markets, as well as between farming communities and the tourism sector.

Suggested questions:
- What do you understand by agro-tourism?
- How can tourism help conserve the agricultural heritage of communities?
- How do you think rural communities could better attract tourists? What could be a marketing strategy?
- What do you think tourists will learn from the community and vice versa?

R2.12 Enhancing farmers' entrepreneurship: creating conditions for growth (Global, 2009)

See website

Where to use this article: sub-Section 3.5.2 Diversification
What it is about: Rural entrepreneurship has many different dimensions. This article provides an overview of entrepreneurship issues related to innovation, access to markets, risk-taking, empowerment and sustainable land use.

Suggested questions
- What would you say are characteristics of an entrepreneur? Can everyone become an entrepreneur? What does it mean in a rural area?
- Why is it difficult for small-scale farmers to participate in the markets? What are the risks involved?
- What are the three pathways of change that are mentioned in the article? What are the relationships between the three pathways and sustainable land use?
- In your region, what pathways do rural entrepreneurs take? How does this influence their livelihoods and land use?

R2.13 Payment for Ecological Services (2 articles)

Where to use these articles: sub-Section 3.5.3 Payment for Ecological Services

R2.13.1 TWO VIEWS: SHOULD FARMERS BE PAID FOR ECOSYSTEM SERVICES? (GLOBAL, 2010)

What it is about: One proposed mechanism to promote environmentally friendly farming is through Payment for Ecological Services (PES). Two global views are presented on this issue.

See website

Suggested questions:

- What would be the benefits for both farmers and society if PES was implemented?
- What are negative aspects of PES?
- What do the two views on this subject have in common and how do they differ?
- What do you think about PES? Could farmers be compensated for their sustainable practices in your country?

R2.13.2 PAYMENTS FOR WATERSHED SERVICES (2010)

What it is about: The economic value of goods like food and non-timber forest products, as well as other services such as water quality and carbon sequestration is not always recognised. Payments for Environmental Services (PES) seek to address this problem. This article describes "equitable payments for watershed services" pilot projects running in Tanzania, Indonesia, Guatemala and Peru.

See page 130.

Suggested questions:

- What are the benefits of the "Equitable payments for watershed services"?
- Who are the stakeholders recognised in the watershed?
- Who is involved in the negotiations and what is negotiated?
- What are the key conditions for equitable PES?
- What are the challenges with introducing PES?
- Do you think this could work in your country? What could be other solutions to create more sustainable land and water use?

R2.1.1

Photo: ITDG

Improving fodder production enhances milk and cheese quality.

Improving dairy products and market links

Sonia Pezo and Daniel Rodríguez

In the upper basin of Llaucano River in Cajamarca, Peru, a community of some 7000 farmers depend primarily on rearing livestock. Animal husbandry is supplemented by a number of other agricultural and forestry activities. The sale of dairy products is the main source of income and employment – it is the first link in a marketing chain that reaches all the way up to departmental and national level.

The department of Cajamarca is one of the main milk-producing areas in Peru. Larger dairy farmers – about 30% of the farmers – sell their milk to big companies like Nestlé (formerly INCALAC) and the Peruvian Leche Gloria. Farmers who are not able to supply the minimum quantity of milk required by these big companies (15 litres per day) or who are not on the milk collection route, usually process their milk into *quesillo*, a fresh curd cheese. There are also small rural companies that collect milk of small-scale farmers and either sell the milk or make cheese themselves, depending on the seasonal price fluctuations of *quesillo*.

In general, families that produce *quesillo* are relatively poor. They produce cheese in an artisan way and with very low levels of technology and hygiene. Their cheese forms the basis for the creamy "Cajamarca" cheese that is produced by small and medium-sized companies in the city of Cajamarca and sold in major coastal cities such as Lima, Trujillo and Chiclayo.

The *quesillo* producers constitute the weakest link in this production chain. They receive a very low price for their product, partly because of its low quality, but also because of the fact that they have to sell to intermediaries in their region.

A proposal for change

Based on studies carried out with CIRAD (*Centre de Coopération Internationale en Recherche Agronomique pour le Développement*, France) and participatory research, ITDG Latin America designed a proposal in 2002 for integrated development of the area, to be carried out with the support of the European Community and the Fondoempleo Programme of the Peruvian government. Part of this proposal focused on producers of dairy products.

The initial proposal was thought through and discussed with the producers of *quesillo* in the area. The proposal suggested that specially trained farmer extensionists would offer training as well as technical and commercial assistance to a group of *quesillo* makers living near the extensionists' farm. This would help to ensure both a better quality product and a fairer system of commercialization.

Another objective of the project was to contribute to the development of social capital by enhancing mutual confidence among the farmers and increasing their capacity to work together, through the system of extensionists and farmer groups.

ITDG trained the farmer extensionists on improving milk quality, production of improved *quesillo* and other dairy products, business management, organization and leadership, and on basic equipment for quality control of dairy products. The extensionists were also equipped with materials to carry out training and technical assistance.

After their own training, the farmer extensionists offered training to neighbouring farmers on four main subjects: hygienic milking, prevention of mastitis, milk quality, and the production of better quality *quesillo*, in order to improve the farmer's cheese production. In practice, however, things worked out differently. The small-scale producers preferred to sell their milk to the farmer extensionist rather than making *quesillo* themselves, the reason being that although higher quality *quesillo* fetches a better price, production costs also increase. Selling good quality milk directly to the farmer extensionist means that the farmers receive a decent price and get the serum (whey) back, which can be used as food for pigs and dogs. The farmer extensionist in turn is able to obtain good quality milk and make good quality cheese, as a result of the training provided.

Thus, the initial proposal of improving farmer's cheese production on an individual basis changed into a system where a group of farmers deliver good quality milk to their farmer extensionist. The extensionist, in turn, provides training and technical assistance to the farmers, and prepares *quesillo* for sale. This could be seen as a step backward for the farmers, but in fact it is a step forward. The farmers now receive a better price for their milk and have the guarantee of a more stable income.

Farmer extensionists

The selection of good farmer extensionists was a critical aspect of the project. Clear selection criteria were established on the basis of ITDG's previous experience with training farmer extensionists. In the case of Cajamarca, two criteria were essential: knowledge of and experience in the production of *quesillo*; and experience with commercialization. Based on these criteria, the extensionists were selected by their own communities so that they would be widely recognized and accepted. The extensionists for milk and cheese production have set up a formal association called ANDELAC.

It is important to mention that as part of the broader programme for integrated development of the area, ITDG also trained agricultural extensionists specialized in pasture management and the supply of seeds, as well as livestock extensionists who provide cattle feed and animal health services. There is a shortage of grass seed and limited access to animal health services in the area, and these problems had to be addressed in order to develop the whole livestock sector. These farmer extensionists have also set up formal associations.

The linkages and exchange of knowledge between these associations of extensionists is strengthened through quarterly meetings. In these meetings, workshops on self-evaluation, motivation and exchange of experiences are carried out. At present there are 60 extensionists, organized in three associations.

Given the fact that state extension systems are being trimmed down, one of the great challenges of rural development projects is to be able to offer long-term technical assistance and training. The system of farmer extensionists is a good alternative, provided the extensionists can meet the needs of small producers and charge a fee for their services to ensure the quality and sustainability of the system. Extensionists live in the localities, know the area and are always close to where they are needed. Small producers pay for their services and the costs are within their means.

Organizations at regional level with knowledge in subjects related to agriculture and livestock provide technical input to the

Photo: ITDG

Better hygiene and milk quality are important for improving quesillo production.

training programme. For example, the *Servicio Nacional de Sanidad Agraria* (SENASA) supports training in the subject of animal health. This gives the extensionists a greater recognition with their clients.

Results

Improved income
The estimated additional monthly income of agricultural extensionists averages US$100, whereas livestock extensionists earn an estimated US$60 extra per month. The producers of *quesillo* that decided to become milk suppliers have improved their income by overcoming the losses suffered in the process of small-scale *quesillo* production due to the poor quality of the product and the necessity of selling to middlemen. It is worth mentioning that the extensionists obtain income from other sources as well, because they have not stopped carrying out their own regular economic activities.

More employment
In the local small-scale milk processing plants the number of permanent labourers has increased from 1 to 2 persons. In addition, the plants employ 1 or 2 extra staff when the milk supply is high.

Increased attention to improving milk production
Milk suppliers now make use of improved grass and improved irrigation practices, and actively participate in organizations.

Better negotiation capacity
Business negotiations have started taking place at different levels, as a result of the training in business management. Visits of the most important businessmen of the sector to the extensionists also helped to establish contacts. The farmer extensionists are now doing business with an increasing number of clients.

Social capital
The project is obtaining important results in promoting social capital in its intervention areas. Through the organization of the extensionists and the respective farmer groups that form part of the milk chain, commercialization is jointly carried out, with a smaller degree of intermediation. The negotiation capacity has significantly increased, which has important economic consequences for the milk producing families and the producers of *quesillo*.

At a higher level, ANDELAC has begun to participate in a co-ordination platform at departmental level on the specific subject of the milk chain. For the first time in the region, small, organized producers are making their voice heard to the different participating actors in the milk chain. Public sector organizations like SENASA, the Ministry of Agriculture and municipal authorities participate in this platform. The private sector is represented by the organizations of cheese producers of the city of Cajamarca, quality control laboratories, and several NGOs working in the region also participate.

Some lessons from the experience

Although it is still early to draw conclusions and lessons from the experience, we think it is important to share some of our reflections with technicians and institutions that have similar objectives: to support the sustainable development of small producers.

The first observation is that production-oriented projects must be adapted to the reality and real needs of small-scale producers, taking into account the characteristics of present and potential market demands. In this way, the small-scale producers will quickly opt for competitive strategies that are economically beneficial to them.

A process of participation is very important in this type of projects, where the main actors are the local producers. Their capacity is strengthened through an integrated training programme that takes into account the different steps in the productive chain.

The sustainability of the rural extension services is a key factor for the future of the rural communities. Sustainability in this case is directly related to the additional income that these services generate for the farmer extensionists. Linking these services with research and development organizations in the public and private sectors is also very important.

The weak economic position of small rural companies limits the practical application of the knowledge obtained from training and technical assistance. For this reason, an injection of capital is required to allow an increase in production and the application of improved manufacturing practices.

The work on commercialization with small-scale rural producers requires a process of building social capital at the level of associations. This requires close guidance in order to build trust and improve the negotiation capacity and the organization of the people involved.

■

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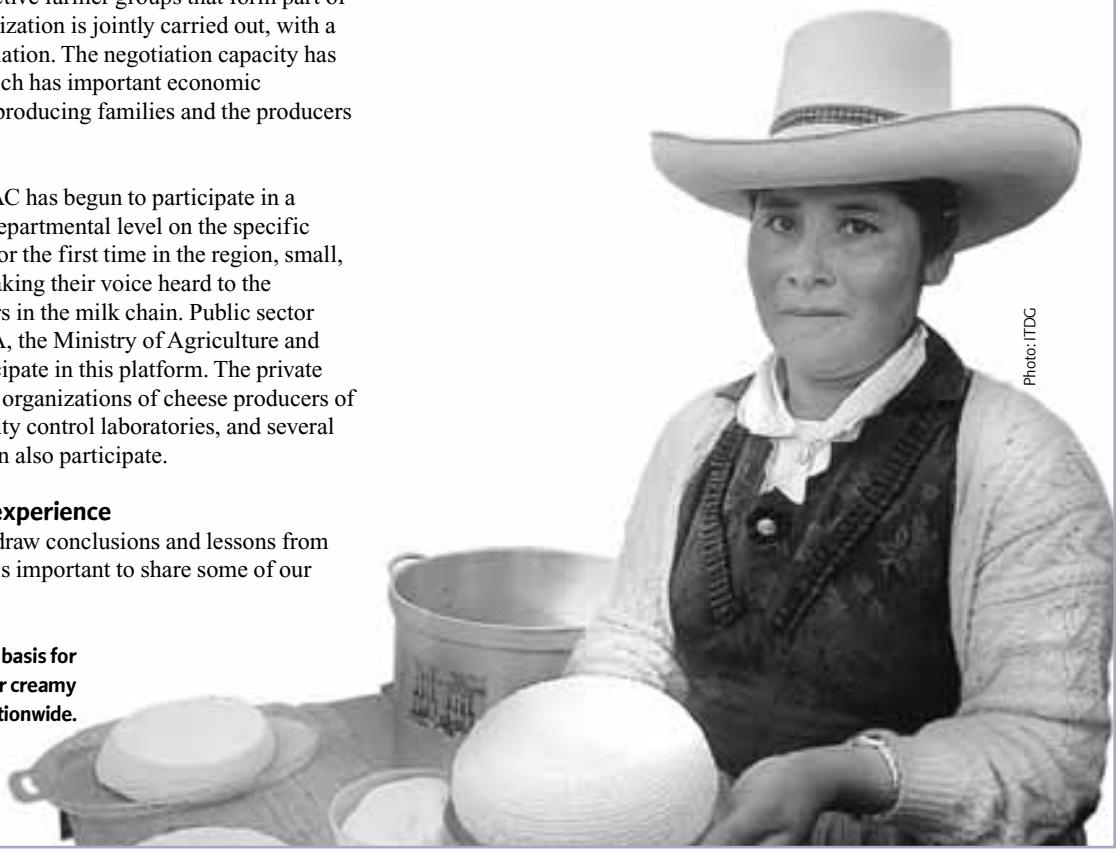

Photo: ITDG

This fresh quesillo is the basis for making the popular creamy "Cajamarca" cheese, sold nationwide.

Marketing biodiversity

R2.1.2

Thomas Bernet and Walter Amoros

Farmers in the high Andes of Bolivia, Ecuador and Peru traditionally grow hundreds of different varieties of potatoes. Selected over centuries for their taste, texture, shape and colour, these potato varieties are very well adapted to the harsh conditions that prevail in the high Andes, at altitudes ranging from 3500 to 4200 metres. Farmers generally produce these native varieties with minimal or no use of agrochemicals.

Photo: T. Bernet

Harvesting native potatoes. Aymara, Peru.

Despite the nutritional benefit of these varieties and their resistance to drought and frost, as well as pests and diseases such as potato blight, the production has decreased in the last decades. Farmers are increasingly shifting towards conventional yellow potato varieties that are known by the consumers and that can more easily be sold on the market.

This scenario endangers the continued production of the native potato varieties traditionally grown for subsistence in different parts of the Andes. To reverse this trend, the *International Potato Center* (CIP) in Peru has started to look for new ways to make use of these varieties in order to keep them in farmers' fields and preserve the rich biodiversity and cultural heritage they represent.

Consumer-focused lab research

Knowing that there is an increased interest in exotic, tasty and natural products, CIP scientists began experimenting with making potato chips out of native potatoes. They discovered that many varieties were delicious and, because of their high dry matter content, absorbed much less oil than typical potato chips during frying. They started to screen around 350 yellow, red and purple-fleshed potato varieties found in CIP's gene banks, which counts almost 4000 varieties. Thirty varieties were selected for their good frying qualities and attractive shapes and colours. These varieties are also interesting from a nutritional perspective: yellow varieties contain high levels of Vitamin C whereas red or purple potatoes hold high levels of antioxidants that have a protective function in the human body. Since the potato chips are made of unpeeled potatoes, consumers will ingest the minerals, vitamins, and fibre present in the potato skin.

Marketing Approach to Conserve Agricultural Biodiversity

Having achieved good results with this initial work, CIP faced a difficult question: how should it proceed in bringing these native coloured potato chips to the market, benefiting both farmers and consumers?

CIP started to think of a feasible strategy to engage as a non-profit institution in this venture. After a thorough reflection on how to link potato chips with the market, the *Marketing Approach to Conserve Agricultural Biodiversity* (MACAB) concept was developed. This is a new research and development approach aiming at helping to conserve biodiversity by using a market-oriented focus. MACAB defines a number of steps to be followed, from the discovery of interesting crop attributes to the development of an elaborated and tested marketing concept and the selection of a company that best represents farmers' interests as well as biodiversity conservation (See Reference for a downloadable version of the MACAB approach).

Development of a market concept

Following the guidelines of the MACAB approach, CIP hired a consultant to help identify the most interesting market segments for this potential product and elaborate a sound marketing concept. It was his task to identify *to whom* these native coloured potato chips should be sold, *why* and *how*. He obtained most answers to these questions from potential consumers who were involved in the process of developing the marketing concept (see Box).

As a first step, the chips were presented at an international cooking fair, where 72 personal in-depth interviews with consumers helped to evaluate which product elements are perceived as most valuable. The consumers mostly valued the product's exclusiveness and the fact that the product is healthier and more "natural" than conventional chips. The fact that the product benefits small producers and helps with biodiversity conservation was considered less important.

As a result, a rather exclusive marketing concept was developed with emphasis on "*natural & healthy*". The brand name "Jalca Chips" – Jalca being the agro-ecological zone where these coloured native potatoes are grown organically and under harsh natural conditions – backed up the positioning of the product. A prototype package was developed, mentioning the social benefits generated by the product on the back, as this had proven to be less important to potential consumers. This package was then tested in a five star hotel, where customers were confronted with a "real" product. Their comments were used to improve the final product package.

How do farmers benefit?

To launch the product on the market, CIP involved a collaborating private company in processing the first 600 kilograms of native potatoes harvested in Aymara, a farmer community in the Department of Huancavelica that collaborates with CIP in conserving native potato varieties. Lima Airport's Duty Free section was chosen to be the first market segment, providing an excellent exhibition opportunity for this product and generating an optimal image for native potatoes at an international level. There is much hope that under these circumstances Jalca Chips will enhance the interest in native potatoes in general and provoke new marketing opportunities that will allow small-scale farmers to benefit from future expansion of native potato production.

At the same time, CIP has been looking for ways to directly benefit farmers with a percentage of each package sold. It is planned that ten percent of the retail price of each package of Jalca Chips sold will go to the Native Potato Project, which carries out activities that help small-scale farmers use and conserve their native potato varieties. This project could then become an interesting information platform for consumers, as they would find not only the description of the activities they indirectly support but also information on native potatoes in general, including nutritional facts and recipes.

Good coordination with the processing company is essential for the success of the initiative. It is very important to select the processing company that demonstrates professionalism in all its activities, from a favourable relationship with farmers to high quality in the production and commercialization process. CIP is currently evaluating the best way for achieving optimum collaboration between farmers, the processor and CIP, in order to create the best conditions to help Andean farmers use and conserve their precious native potato varieties. ■

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Steps for developing marketing concepts

1. Identify a product with interesting characteristics

Not surprisingly, taste is one of the key values for most consumers when selecting a product. However, it is rarely the only factor in the decision to purchase. Elements such as colour, shape, ease of use, nutritional elements, user-friendly packaging etc. can all add value to a product. Potential consumers should be given the opportunity to taste the product and give their opinion on the advantages and disadvantages. They are the experts!

2. Analyze ways of increasing the value of the product at reasonable cost

If the products seems interesting to consumers, what is the best way to differentiate the product and guarantee product quality at a low cost? Focusing on the perception of different types of consumers, the most important advantages and disadvantages of the product must be determined. This information together with a rapid market survey on competing products will provide essential information on how the product can make a real difference for a specific group of consumers.

3. Design a marketing concept

With the information obtained it should be possible to design and implement a marketing concept that targets a specific consumer group emphasizing the two, or maximum three, most interesting elements that make a purchase worthwhile. The consumer must clearly perceive this main message and easily understand the main advantages of the product, compared to other products. These must be adequately visualized on the package and can be intrinsic, like natural, healthy or nutritious, or extrinsic, like colour, taste, smell, shape, size or ease of use. All aspects of the package – size, shape, material, brand name, photos, drawings, and texts – must be in harmony with each other and emphasize the main message to the consumer.

4. Evaluate the marketing concept using Focal Groups

Once a prototype package is designed, the real "test" will begin. One or several special meetings are planned with six to eight people who represent (in terms of socioeconomic level, sex, age and consumption habits) the market segment that is the focus of the product. The facilitator must carefully plan and execute the different steps for this meeting, with questions that are specific but open. The following sequence of steps is best:

a. Obtain the participants' perceptions of the product before demonstrating it
b. Obtain their opinions of the package
c. Obtain their perception of the product after they taste it
d. If the perceptions about package and product are not in accordance with each other, evaluate the reasons.

5. Refine the marketing concept

With the results of the focal groups, the marketing concept is corrected and improved. The package must clearly position the product in the market but without generating conflict of perception at the moment of purchase and the moment of consumption. To prevent this from happening, the final package can be re-evaluated and approved in a new focal group.

Photo: T. Bernet

Marketing concept of Jalca Chips.

Caring for the harvest: back to basics

R2.2.2

Ramon A. Diño

Mango (Mangifera indica). Source: Plant Resources of South-East-Asia, Vol. no.2. Pudoc, Wageningen. 1991.

For years, extension in the Philippines has focused on improving production. The farmers appreciated the increased yield, but did not realize that these increases often were lost again as a result of huge post-harvest losses. Typical post-harvest losses in the Philippines were estimated to be somewhere between 28 - 42 percent. When this estimate was released in the early 1980s, the Department of Agriculture initiated a research and extension programme to help farmers reduce the losses and change the equation of farmers' livelihoods.

In recent years, decentralization of agricultural services has meant the transfer of research and extension services to local governments, which often have a low priority for agricultural development. Agriculture and Fishery Councils (AFCs) at national, regional, provincial, municipal and village levels are now actively working with the Department of Agriculture, for the dissemination of post-harvest technology. Their tasks are twofold: to serve as an advisory council for the agriculture and fishery sectors and to monitor and evaluate the implementation of national programmes in agriculture in their areas of responsibility. Membership of the AFCs is mostly voluntary and includes farmers, NGOs and local agencies, as well as government agency representatives, providing an open line of communication between these different actors, at different levels. Ever since the Department of Agriculture actively promoted post-harvest management, the AFCs have enthusiastically performed their role in advising the farmers of the nature and scope of post-harvest systems.

Through persistent work of extension agents, farmers are now familiarized with the practical means of avoiding post-harvest losses. They are encouraged to come up with their own practical applications of the concepts that are taught, improving on the basics as they go along.

Fruit and vegetables – focusing on the basics

The improvements that have been gradually introduced into fruit and vegetable production illustrate the types of efforts being made to reduce crop losses and increase their post-harvest storage and shelf life. Improvements were realized by combining the basics: determining the right stage of maturity for harvest and taking greater care during harvest and transport to avoid damaging the crops.

A number of simple measures can be taken as early as planting time to help avoid damage during harvesting. Farmers already knew that the post-harvest condition of a crop should be taken into consideration as early as planting time. By distancing rows and hills properly, a farmer ensures that harvesting can be carried out efficiently and with minimal damage to the crop.

Care should also be taken during harvesting when fruit and vegetables are pulled or twisted from stalks or branches (for example tomatoes or mangoes) and when they are being dug up (cassava, sweet potato). The way in which tools are used is also important because if they are used roughly, they will damage edible roots.

When fruit and vegetables are being harvested, they should be kept as clean as possible. The condition of leafy vegetables and stems, for example, will be improved if they are cut instead of pulled. Not only will this save farmers the time and expense of washing off soil and dirt, but the damage caused by such handling will also be avoided. In the same way, fruits like mango should be harvested cleanly. Mangoes drip latex and if they are stored or transported with latex on their skins, they will not only look unattractive to consumers but they will also rot quickly. Special care is needed when handling, storing or transporting fruits that have a delicate skin, such as star apple (*Chrysophyllum cainito*). A torn skin will expose the fruit to microorganism attack and result in rapid decay. For perishable fruit and vegetables, less injury simply translates into better quality and longer life.

Farmers are often surprised at the difference that the time of harvesting can make. Harvesting fruit and vegetables during the early, cool period of the day helps improve storage life and quality. Some fruits, however, like citrus and mangoes, are best harvested in the late morning, because the oil glands of these fruit are full in the early morning, causing immediate discolouration of the peel if they are accidentally pressed or bumped. After harvesting, fruit and vegetables should never be left in direct sunlight. Harvesting under wet conditions is also to be particularly avoided. Wet fruits and vegetables are more susceptible to microbial growth, and soil particles may cling to wet crops, exposing them to soil-borne rot organisms.

Encouraging innovation

In the province of Sorsogon, located on the tropical southern-most tip of the island of Luzon, farmers were introduced to new methods of sorting, packaging and storage to preserve the longevity and freshness of their agricultural products. The farmers were challenged to apply the newly learned techniques and encouraged to use their initiative in modifying them and developing their own techniques.

The more advanced process of post-harvest treatments like irradiation, de-greening (changing citrus colour from green to orange), use of sprout inhibitors and pre-cooling are still beyond the knowledge and means of local farmers, but familiarization with these technologies was provided (theoretically) to farmers in classes, to stimulate their minds to think of locally applicable systems that may approximate, or be adopted as alternatives for these highly sophisticated techniques.

Increasing farmers' post-harvest know-how and enabling them to handle their crops in a cost effective way has had a positive effect on their livelihoods. Not only have they become aware that good results can be achieved by applying precautionary measures, they have also become more alert to other possible problems and dangers. Uneven and roughly paved roads, for example, should be improved so that fruit and vegetables are not bounced around excessively during transportation, causing damage. And if the bins used to hold fruit and vegetables from field to market are filled too full there will certainly be some spillage and loss.

Utilizing waste

In conventional understanding, post-harvest management means the handling of an agricultural product after harvest to prolong storage life, freshness and an attractive appearance. Considering this definition in one farmer group, there ensued a discussion on whether the use of plant parts normally discarded after harvest, such as rice straw and abaca (*Musa textiles*) pulp should be included in the concept of post-harvest systems. There was a general consensus among the farmers that the utilization of harvested products either on the farm (for example organic fertilizers) or to generate income, should be considered as part of post-harvest management, rather than separately as waste utilization.

Farmers in Sorsogon have begun to discover ways and means of expanding post-harvest concepts and in doing so have been able to augment their income. In the town of Gubat, for example, farmers traditionally burned rice straw after the harvest. Now many farmers have started to compost the rice straw into organic fertilizer. Using this fertilizer on their farms reduces input costs and improves the soil, while at the same time avoiding the pollution caused by burning. They also sell the fertilizer to other farmers at a reasonable price.

In Bulusan, the local AFC has refined this process still further. Farmers use the rice straw first as bedding material for mushroom growing and after an eight-week growing period, farmers are able to harvest between six and ten kilos of mushrooms. Apart from the additional income they get from selling mushrooms, important nutrients are added to their household diet. The old bedding material can be recycled as compost and provides an important source of fertilizer for next season's crops.

Results

Improved management has now reduced post-harvest losses in the province of Sorsogon from a previously estimated 28% to around 15%.

The post-harvest programme has also been taken up at the political level and some senators and congressmen have devoted part of their congressional aid fund to help construct warehouses, improve farm to market roads, and build large concrete multi-purpose pavements where farmers can sun dry their rice and maize. Before these pavements were introduced farmers dried their grain on mats or on the road where it can be damaged by passing vehicles, eaten by birds or chickens or stolen by petty thieves.

The adaptations of technology combined with the innovative application of indigenous knowledge and local creativity have enabled farmers to enhance the natural cycle. Efforts to increase farmers' understanding of the post-harvest system have helped to increase their confidence in their own abilities and ideas. As a result, many are now actively contributing to the development of new knowledge, fusing traditional know-how and modern insights to create greater self-sufficiency and food security. ■

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Handling and storage of leafy vegetables

Paul B. Okon, A. E. Uko and Uche C. Amalu

Leafy vegetables tend to deteriorate quickly after harvest, especially in dry and warm tropical conditions. A number of measures can be taken to maintain their freshness for a few days. In Nigeria, native leafy vegetables such as fluted pumpkin (*Telfairia occidentalis*), waterleaf (*Talinum triangulare*), bush okra (*Corchorus olitorius*) and amaranth (*Amaranthus* spp.) are specially conditioned to avoid rapid deterioration. In the dry and warm Calabar area, farmers harvest during the cooler part of the day, and exposure to the sun is avoided at all times. Stems are cut to equal and controllable length and washed with potable water.

Storage at ambient temperatures

Storage in buckets: Pumpkin and amaranth leaves are bunched up and dipped in a bucket with water, then the tips of the stems are left in the water. Waterleaf and bush okra are not dipped but rather sprinkled. The leaves are covered with a thin polythene sheet and tied to the bucket, which is kept in a cool place. Every day the polythene sheet is removed temporarily and water sprinkled on the leaves. This way the leafy vegetables will remain fresh for about 6 days.

Storage in clay pots: Clay pots of convenient size are washed clean and placed on a firm support. A layer of sterilized (boiled) wet jute bag is put at the bottom of the pot and a wire gauze is placed on top of it. The washed vegetable leaves are laid on top of the gauze and covered with another layer of wire gauze and a second jute bag. This bag is kept moist at all times.

Transport to markets

If the leaves have to be transported to market over a long distance, bunches of vegetable leaves are wrapped in a clean or sterilized wet jute bag that is kept moist. Alternatively, vegetable baskets are made from raffia or other flexible plant material with a smooth surface. The inside of the basket is completely lined with wet jute bags. ■

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Improving cassava processing for the market

R2.3

Quirien van Oirschot, Theresia Ngendello and Andrew Westby

Cassava is an important staple food in tropical Africa, and has the potential to become a cash crop in many African countries. It is estimated that in the future, cassava is likely to be used more and more in processed forms for food, animal feed and other starch derived products. New market opportunities for cassava products may help to enable communities to develop their livelihoods and emerge from poverty.

This article describes the experiences of a collaborative project to support cassava commercialization through the introduction of improved processing technologies in the Lake Zone of Tanzania.

Photo: Q. van Oirschot

Pile of dried cassava roots, makopa, in the western part of the Lake Zone.

Traditional processing of cassava

In East Africa, people use relatively simple processing methods for cassava. In the Lake Zone of Tanzania it is mainly consumed as *udaga*, which is made from fermented roots that are cleaned and crushed or pounded into smaller pieces. After that the pieces – with a diameter ranging from 5 cm to 2 mm – are dried for about 4 days and sold. *Udaga* is normally pounded into flour and consumed as a stiff porridge named *ugali*. Sometimes *udaga* flour is sold on the market or in supermarkets. On the west side of the Lake Zone people also produce *makopa* – dried whole roots that can be milled and used for *ugali.*

These traditional products can be produced relatively cheaply using little equipment. However, the processing methods may be too labour intensive for commercial use and the flour is usually not of a high enough quality.

Baseline studies

Baseline research on social, economic and technological issues confirmed the fundamental importance of agricultural production and cassava processing for both food security and income. The studies also showed that there is scope for diversification to new, higher quality cassava products. This is supported by following observations:

- Between 60 and 80 thousand tons of wheat flour are annually imported to the Lake Zone, suggesting that there may be a market for cheaper locally produced cassava flour.
- Cassava market prices are low, ranging from 50 to 200 Tanzanian Shilling (TSh) per kilogram (0.06-0.26 US$/kg) while maize prices range from 180 to 350 TSh/kg and wheat flour from 330 to 500 TSh/kg. This means that there is scope for added value products of cassava at prices still below those for maize and wheat.
- Higher prices are paid for products with higher quality characteristics such as white colour, and good quality products sell faster.
- A surplus of cassava is produced in the region. Many farmers expressed interest in cassava processing equipment during previous technical demonstrations, but the equipment had not been available to them.

A factor that might complicate cassava commercialization is that the area is poor and many people earn less than US$1 per day. In addition, the market situation is not optimal. Market linkages are weak and producers rely on external traders. Farmers or processors often sell to village assemblers, who sell to larger wholesalers or traders who then sell to retailers.

The conclusion of the study was that any processing techniques promoted should be affordable to small cassava producers/processors, be available locally, and generate products for which there is a consumer demand.

A new technology

First the availability of the technology was addressed. Manual chippers with equivalent cost to a bicycle (US$100) seemed the most appropriate. Two local manufacturing enterprises were trained to build the machines in collaboration with the *Southern Africa Root Crops Research Network* (SARRNET). The machines and their products were tested in three villages, and recommendations from the processors were used to improve the initial models. Efficiency tests revealed that the machine from one manufacturer could chip 66 kg per hour while the other model chipped 95 kg per hour. The total time to chip a sack of roots (100 kg) may be 1.5 hours for an average skilled operator, while the traditional process of making *udaga* would take almost four hours for a similar sized sack. This means that although the rate of chipping is not as high as that of a motorized cassava processor (about 500 kg/hr) it is higher than the rate obtained through the traditional processing technique (about 30 kg/hr).

A new product

The manual chippers produced long cassava chips that are 2-4 mm thick, 5 mm wide and 20-50 mm long. They dried quickly and looked attractive. Drying is an important step in the processing of cassava. Current drying systems use canvas sheets placed on the ground. Better quality was obtained when the cassava was dried on elevated tables as this reduces contamination from sand and animals. It is easier to spread the product on a table. Drying tables can be constructed from locally available materials.

Tests revealed that the chips are acceptable, with a good appearance and colour but somewhat stickier than the traditional *udaga* or *makopa*. Overall the new chips were found to be as good as or better than the traditional product, particularly in relation to colour and appearance, factors that are important for marketability.

The chippers are most suitable for sweet cassava varieties that contain low levels of toxic cyanogen. Bitter varieties – containing higher levels of cyanogens – can also be processed by the chippers, but the chips contain cyanogens levels that are similar to levels found in traditional *udaga*, which is higher than the FAO/WHO recommended safe level of 10 mg per kilogram.

Market testing

The marketability of cassava chips was tested in pilot trials. Cassava chips produced at the research centre were taken to several urban (Mwanza) and rural (Ukerewe) markets. The traders were allowed to keep 20% of the income they generated through this exercise. The chips drew a lot of attention on the markets. In Mwanza they sold quickly and retailers obtained the same price per volume for chips as for traditional *udaga*. Since the chips occupy a higher volume than *udaga* it means that the price received per kilogram is higher, in this case by about 30 percent. Some customers commented that the flour from chips is sticky when cooked, but had a good smell, appearance and colour. Customers in urban markets came back for more the next day. At Ukerewe Nansio Market it took longer to sell the chips.

Validation

The next challenge was to integrate this technology into the resource base of communities. Motivated individuals or community groups had the opportunity to test the equipment if they made a down payment of 5000 TSh (US$6.50). Simple contracts were set up stating that after the trial period they would start to pay for the machine or return it. Below are example case studies from four different locations.

Case 1

At Ukerewe Island many households were said to be interested, but only one woman was prepared to make the down payment. The woman was satisfied with the chipping machine, but used it only for home consumption. She said that the machine gave her status and that she saves labour – requiring only half of the normal time – during the chipping process and when pounding into flour. Her husband operates the chipper. When the project finished the woman had started payments towards owning the machine.

Case 2

An existing, well-organized group of farmers and processors based near Mwanza and the research institute used three hand chippers. The group consists of both men and women of all ages. With help of researchers, linkages with a supermarket in Dar es Salaam were developed. The group delivered initially between 100 and 200 kg cassava chips per month to a Dar es Salaam supermarket for a price of 150 TSh per kg (US$ 0.19). The supermarket milled the chips into flour, packed it in 3 kg bags and sold the product for 750 Tanzanian Shilling. The branch manager commented that the flour was of good quality because of the white colour. The group has made a profit and would like to invest in a motorized cassava chipper as they see the opportunity to supply the supermarket with up to one ton per week. They have been brought into in contact with a credit scheme developed as part of the project.

Case 3

In the remote village of Nyarutembo four machines were loaned to individual farmers and to groups. They produce cassava cheaply, but rely mainly on itinerant traders that pass by to purchase the processed cassava products. Access to transport is very limited. Initial trials included visits to the district markets to catalyze the formation of linkages between farmers and traders. Processors agreed to organize themselves and try to market the chips themselves in Bukoba, where prices are twice as high as those obtained from itinerant traders. After three months they delivered the equipment back as they had not found a market. Their lack of access to transport limited their market access.

Case 4

One farmer group in Shinyanga decided to purchase a motorized cassava grater. The group processed all their cassava into cassava flour in a very short time, but they had not identified a buyer or market. Providing ideas, or links to possible buyers did not work. After eight months of storage insects attacked the product, making it worthless.

To facilitate access to capital for investment a financing scheme was set up with a micro-finance association (TAMEA). The scheme was set up to enable farmers and traders involved in growing, processing and marketing cassava to obtain credit for both the purchase of capital assets and working capital requirements. TAMEA used their expertise to select suitable farmers and traders. Only farmer groups are able to obtain credit. This credit scheme was set up in such a way that it could continue after the project had finished.

Photo: Q. van Olrschot

Manual chipper for making cassava chips.

Lessons learnt

Linkages

Considerable input is needed by many different actors to make these processing systems work. Many useful linkages have been established or strengthened through this project. New linkages have been established, including between researchers and machine manufacturers; between microfinance institutes and traders; and between machine manufacturers and farmers. Linkages were strengthened between researchers, NGOs,

extension services and farmers. This was done through a workshop, presentations at agricultural shows, regular visits to farmer communities, visits to markets, and involvement of extension workers and NGOs in fieldwork.

Effective linkages between processors and markets are essential in order to gain real benefits from using improved technologies, but such linkages do not always exist, particularly in remote areas. Case 2 illustrates that a secure market can give a high profit while Case 3 in Nyarutembo illustrated lack of access to markets with the lack of linkages. Farmers may not always be able to set up linkages themselves. Networking is costly and may involve transport, or other forms of communication. The lack of direct return on investment is a major obstacle for a poor farmer or processor. Farmers with more capital are more likely to take more risk (Case 4). These middle class farmers may have better chances of success in pilot tests if a market is identified. The location of pilot groups is also important. Access to markets and assistance from local institutions are vital. The group near Mwanza was successful in marketing the product because they did ask for help.

Photo: Q. van Oirschot

Flour made of udaga being sold at a market place.

Motivation

Asking farmers or processors to make a contribution towards the cost of the equipment is a good way to screen for motivation in getting involved in cassava processing. The down payment of US$6.50 was enough to discourage the non-serious participants. The motivation of traders to sell cassava chips at the markets was triggered by allowing them to keep 20% from the price obtained for the cassava chips. This is equivalent to the average profit margin of an urban retailer.

Traditional cassava processing for home consumption is a women's job, but men will become involved if *udaga* is produced commercially. It is therefore not surprising that more men became interested in processing when the manual chipper was introduced. In case studies 1 and 2 the men took over some of the physical work, like turning the wheel on the chipper, meaning less drudgery for women. Since traditionally *udaga* is traded both by men and women, it can be expected that chips will also be traded by both. It seems that both men and women will benefit from the manual chippers.

Markets

The fact that cassava chips sold so rapidly at Mwanza markets indicates that it may be easier to start testing new markets for a product in urban areas rather than in the rural markets. It is important to ensure that there is a market before production is started on large scale. Case 4, where a farmer community group had processed all their cassava in a short time, but were left with a stock of processed cassava infested by insects, illustrates a lesson learnt the hard way.

There is clearly a market for cassava chippers. Farmers receive information about the technology via the local research institute. However, interested farmers may not be able to pay for the chippers because it is difficult to get credit. One of the two manufacturers, Pamba, has so far sold 70 chippers (25 to the Research Institute, 25 to the Government of the Southern Province of Tanzania, and 20 to farmers directly).

Conclusion

This project introduced two products into the Lake Zone in Tanzania: the technology to produce a hand-operated machine and a 'new' product, cassava chips, prepared with the machine. It was demonstrated that there is a market for the cassava chips, so far especially in urban (super)markets. There is also a market for the chipper (70 machines have been sold, of which 20 outside this project). Farmers with a poor resource base and rural location have more limited access to markets. Access to urban markets and access to assistance in case of pilot trials is important for success. Better results were obtained when farmers were organized in groups. The existence of a group is also a condition to receive credit in microfinance schemes.

Acknowledgements

The authors would like to acknowledge contributions from: Massalakulangwa Farmers Group (Shinyanga and Mwanza), Joanna White, Duncan Burnett, Elisabeth Rwiza, Rahila Amour, Sicco Kolijn, Elias Kisamo, Gilbert Mwakyoma, Pamba Industries Co Ltd, and Vitanda Manufacturing Co. Ltd. This paper is an output from a project funded by the United Kingdom's Department for International Development (DFID) for the benefit of developing countries. The views are not necessarily those of DFID.

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Great local resources:

Photo: Folkert Rinkema

capital

The rural poor have no easy access to loans and grants from commercial banks or financial structures, because they lack collateral and modern business plans. But there is a lot of capital in rural areas that could be used to invest in farming. This is a case study of microfinance from Uganda.

Text: Alfred Lakwo

As in many other countries, small-scale farmers in remote rural areas in Uganda are hardly served by banks or financial institutions, and are commonly described as "unbankable". The reasons given are that they are hard to reach (geographically), that they have little or no collateral, and that they are involved in rather risky activities. The advent of microfinance has shown that lending money to small-scale entrepreneurs can have very positive results. But most of these programmes focus on urban areas. Other alternatives, like the popular savings and credit co-operatives (SACCOs), have equally excluded many poor rural people as they do not have the money with which to buy shares and become part of such financial programmes. In addition most of the government programmes which are specifically meant to help small-scale farmers in remote areas are strongly influenced by political and social connections – a kind of social capital that the majority lacks.
But all villages have local resources, even if just a few. Can a rural finance programme be based on them? Do rural villages in isolated areas have the possibility of raising their own funds and using these funds for loans? AFARD, the Agency for Accelerated Regional Development found some positive answers to these questions.

Changing the financial landscape

AFARD is a non-governmental organisation working in the West Nile Region of Uganda, some 400 km north of the capital, Kampala. Having worked for several years with local development projects, AFARD workers realised that very few money lenders work in remote villages, and that rotational credit schemes involve only a small number of people. In most cases, microfinance institutions only provide "booster" instead of "start-up" loans, which is what poor people mostly need. And because they lack collateral and business plans they cannot access these loans from commercial banks. But farmers need capital: they need to buy seeds or inputs, the average cost of which has been estimated as approximately 500,000 Ugandan shillings (circa 200 euros) per family per planting season. How to

close the gap between demand and supply? AFARD thought of trying a collective approach for all members of the community, not only those with established businesses. The optimal strategy had to be one that built on the existing solidarity between the poor (social capital) and on local possibilities for raising funds – even if this would only result in a small loan portfolio. Such an approach would provide equitable local access and ownership of the loan funds, with all participants making an equal contribution and receiving equal benefits.

During the first months of 2009, AFARD carried out a brief study in three districts of the West Nile Region (Nebbi, Arua and Yumbe). The study focused on the different strategies which the various village associations already used to raise funds. Some farmers' associations were raising funds by requesting mandatory fees (membership fees, annual subscription fees and monthly subscriptions), others through regular sales of labour, or the sale of specific products (like bricks and firewood). It was thus clear that many farmer associations did have ways of raising funds. These findings were shared among the groups, many of whom began to work out new ideas and went on to start, or further develop, their fundraising activities. Naturally, there were many differences between these groups. In some cases, AFARD helped with the formal constitution of village associations (generally building on existing ties and relationships). In others, the groups developed internal regulations and working rules. All the groups managed to work out new initiatives.

Three months after the first meetings, the associations had accumulated up to 3 million shillings (about € 1,200) and were ready to lend money through their own Group Loan Schemes. To help use these funds effectively, AFARD helped design a credit lending policy. This was reviewed by all the association members and finally adopted as the internal working guidelines. These regulations covered issues such as the approval of a loan, the loan period, interest rates, repayment modes, the fines to be imposed for delayed repayment without acceptable reasons, loan rescheduling in cases of death or sickness of a household member, and the termination of access to loans for anyone declared a bad debtor.

New opportunities

By the end of 2009, AFARD was working with 46 village associations, covering 4,271 households, all running their own Group Loan Schemes. These were circulating a total of 190 million shillings (about € 80,000) in the region, with more than 2,800 borrowers. Overall, in one year of working with the groups, the total money lent reached a total of 384 million shillings.

These loans provide a window of hope. Families are able to buy hand hoes, seeds or ingredients for making organic pesticides, all of which are used to boost production. In only a few months, many families increased the area with crops that sell well, such as cassava. There has also been a significant change in the perception of farming, as Mrs. Betty, a member of the Yiba group, explains: "With the loan I got from our group, I could increase my groundnut production. The high yield earned us enough money, so that our family was able to have a peaceful Christmas celebration. Everyone had a new dress." For her, farming is no longer a subsistence venture, but a commercial enterprise.

The loan period averages two months, the interest rate charged is 10 percent per loan period, and there is

Some farmer associations are developing new fundraising activities, while others are improving what they were already doing. Photos: Alfred Lakwo

a very high repayment rate (97 percent). While this interest rate is high, compared to the rates charged by formal microfinance institutions, members of the 46 groups insist that it is necessary in order to increase their loan portfolio. They also continue with their diversified resource mobilisation strategies, such as membership fees. Likewise, many groups are now collectively investing in profitable crops like Irish potatoes, and are cultivating larger areas and aiming at local markets. Some have also taken on value-addition activities by processing maize into flour and de-husking rice for sale.

Reaching "the unbankable"

Tapping into local resources and providing loans with the funds is also having other knock-on results. Both men and women are now involved in new businesses. This is different to how it was before, when women mostly grew food crops and men "robbed" whatever extra money women raised themselves. Such a change has been enabled by an increasing blurring of the distinction between food and cash crops. Women have entered the market economy, and now sell food crops and keep their earnings. Household access to credit has enhanced joint farm planning. Women prefer to grow marketable crops that they can sell and repay the loan. Women keep the rest of the money they earn to meet home needs and to further improve their farming activities.

Seeing that farming can be a profitable business also makes many youngsters feel less attracted to the cities. At the moment, youths constitute on average 14 percent of the membership of all groups supported by AFARD. Aware of unemployment and hardships in urban areas, many youths have taken up farming as a productive venture from which they can generate incomes, improve their livelihoods and gain social status; something they had lacked for decades. Access to credit and organisational strengthening of youth groups have played an important role in realising this.

Another important aspect of the approach is the "democratisation" of credit. All farmers who belong to a group automatically qualify for a loan, given that all of them have made equal contributions to the loan fund. They all pay the same amount of membership and subscription fees and provide the same farm labour (except in the case of bad debtors, those who twice fail to repay a loan without acceptable reasons). And many associations are using part of their profits (up to 7 percent) to support people living with AIDS and orphans.

A bottom up approach

There is little doubt that having money to invest plays a critical key in reducing poverty. Poor farmers need cash in order to improve their farming practices and livelihoods. It enables poor farmers to set up small businesses (of a size their local markets can handle) from which they can increase their incomes and even accumulate assets (bicycles, cows or a radio). Access to credit has changed the way smallholder farmers see agriculture and the strategies they follow – they are able to select better varieties, plant early, and stick to sustainable practices. While the results need to be measured more clearly, there seems to be a preference for organic pesticides, better soil management and conserving local biodiversity.

All this shows the huge and untapped (and often ignored) potential that there is for small-scale farmers to raise funds locally. This is true microfinancing from below: an effective alternative to approaches that are based on the idea that poor people know nothing about money or how to manage it. Well used, this approach can help build attitudes of self-reliance and develop sustainable farming practices.

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Steps to establishing a Group Loan Scheme

Start by establishing a large group (more than 50 members); focus on building leadership and on team work – but above all involve all members in all the planning work.

Consider what measures for mobilising resources are feasible and acceptable to the community.

Ensure that all group members approve the use of the funds generated for loans, regardless of the size of these funds. Their use should coincide with the process of setting up a transparent and fraud-free guideline and the establishment of a loan committee that ensures compliance with the guidelines.

Make sure that regular supervision takes place, ensuring that guidelines are followed, that accurate and timely reports are provided to members, that bad debtors are excluded, that all records are kept and are accessible to members.

The Eagle flies in Zambia

Eagle, a clear beer produced in Zambia, is made from locally grown sorghum rather than from expensive imported malt. Small-scale farmers now grow sorghum for the brewery. Contracts with the company allow farmers to produce sorghum alongside other crops – and to have a secure income.

Text: Nawa Mutumweno

Zambian Breweries, a subsidiary of the South African brewing giant SABMiller, has developed a clear beer made from locally grown sorghum. Until recently, sorghum was used mainly to brew opaque beer, and clear beer was made largely from imported malt. Since the Eagle brand was launched in April 2005, it has offered new opportunities for a large number of subsistence farmers, who for the first time have access to a regular commercial market for their produce. It is also giving Zambians their first taste of a lager they can afford.

Alfred Mulele is the chairman of the Kazungula Agricultural Cooperative Society Limited, a small co-operative of small-scale farmers in Mushelekwa Village in southern Zambia. Mr Mulele's co-operative was one of the first to promote and market sorghum, a drought-resistant cereal that is well suited to the climate and soil conditions of this part of the country.

For several years, the Kazungula co-operative has had an order with Zambian Breweries, and this has proved helpful for farmers in the region. "Initially, sorghum was seen as a poor man's crop and many farmers shunned it for maize," Mr Mulele explains, "but this initiative has proved that sorghum is a viable commercial crop that is also useful at household level. Farmers continue to grow crops like maize, groundnuts, millet and cowpeas mainly for their sustenance, and do this alongside sorghum, from which they earn some income."

Double benefits

Sorghum is Zambia's third most important crop, after maize and finger millet, and is traditionally used for making opaque beers. With the backing of a USAID/IFAD-funded project run by CLUSA (the Cooperative League of the United States of America), Zambian farmers have been helped to produce a crop that meets the standards

set by the brewery. CLUSA provides farmers with loans to procure inputs and implements, as well as giving professional and technical advice on how to meet the quality standards required for beer production.
The main source of funds needed every farming season come from the brewery itself, through the contract it has signed with the farmers. This contract provides for a secure market and a fixed price, ensuring a secure income. In most cases, the brewery provides advance payments, which are paid back after harvest. This helps farmers acquire the necessary inputs (seeds, fertilisers or pesticides), invest in their farms and also save money, without having to rely on informal moneylenders. As part of the contract, farmers commit themselves to selling a certain quantity of sorghum to the brewery every year, and to ensuring a certain quality.
The contracts have also proved to be positive in an agronomic and an ecological sense. Thanks to the standards set by the company, and to the advice that they regularly provide, more and more farmers have opted to employ conservation agriculture to produce sorghum. Their reasoning is simple: conservation agriculture results in a more reliable output and in higher yields. It is based on simple technologies, requiring a minimum of equipment, and is easy to implement with hand hoes or with oxen. One major advantage of conservation farming is that when the heavy rains start to fall, the farmers only need to plant the seeds, in comparison to the many tasks which conventional farmers need to carry out (combining land preparation and sowing) which complicates and delays the job when timing is critical. Farmers who adopt conservation farming experience other benefits too: better crop yields, improved soil fertility, better rainwater harvesting, nitrogen fixation, and fewer weed problems. These benefits are not limited to sorghum: results of individual trials in Zambia have shown that conservation farming by itself also increases maize yields by at least 75 percent, and those in cotton by 60 percent.

Increasing numbers

The idea behind the ambitious sorghum contract farming initiative was to produce value-for-money beer for lower-income African consumers. At present, more than 4,500 small-scale farmers in 14 districts are selling their sorghum directly to Zambian Breweries. Taking into account the country's extended family set-up, this means that at least 60,000 people benefit from this system. More than 500 hectares have been planted with top-grade sorghum, and the total yields exceed 300 tonnes of grain, with a revenue of more than 216 million Zambian kwacha (approximately US$ 43,000). The Zambian government recently reduced the excise duty on Eagle Lager from 35 to 30 percent, in order to encourage Zambian Breweries to continue engaging smallholders in this project. According to the company, the reduction in taxes has helped them to buy more sorghum from small-scale farmers (as well as increasing beer sales). SABMiller is encouraging other farming communities to grow sorghum and sign similar contracts, and is now trying a similar approach in Uganda, Zimbabwe, Tanzania and Mozambique. These figures, and the opinions of farmers like Mr Mulele, clearly show that contract farming offers many opportunities for small-scale farmers. This has also been seen with other crops. But the whole approach

Stronger organisations have more bargaining power, helping secure a high and sustainable income.
Photo: Simon Mukwaya

Special brand: small-scale and sustainable

As the Eagle Lager case shows, contract farming can offer small-scale farmers a stable income and a supply of inputs, services and loans, which can play a very important role in their farming system. International companies are increasingly aware of their role and corporate responsibility in ecological sustainability and poverty reduction. This offers opportunities for a significant development of small-scale sustainable agriculture. Enterprises like Unilever and SABMiller want sustainable supplies of key raw materials, in a way that provides better living conditions for farmers, maintain soil fertility and protect water availability, quality and biodiversity. For them, securing supply of sustainable raw materials is a question of business risk management, and an opportunity for growth, allowing them to differentiate their brands as being sustainable and fair. In an opinion paper from the Overseas Development Institute, "Making contract farming work with co-operatives" (2007), Martin Prowse points out the advantages of small-scale farmers over large-scale farmers, as they are the most efficient agricultural producers and are cheaper in terms of labour costs. Contract farming can overcome the constraints that small farms face, such as lack of capital and capacity to adopt technological innovations, and can deliver scale benefits. The SABMiller Enterprise Development Report, "Making a difference through beer", from 2009, claims that many farmers taking part in their smallholder programmes have moved from subsistence farms to small-scale agribusinesses and now have more disposable income and more secure livelihoods. In South Africa, their farmers have an average income of around US$12,000 a year, considerably higher than other farmers in the same region.

Further reading

More information on the relation between farmers and large business can be found on the publications of companies like Unilever, such as their "Sustainable Development Overview" (2009). The IIED Gatekeeper Series has several issues dedicated to contract farming, among them: "Unlocking the potential of contract farming: Lessons from Ghana", and "Contract farming in India: Impact on women and child workers". These are all available online.

is not risk free. Agro-industrial firms may not always be as reliable as Zambian Breweries, or they may easily exploit a monopoly position. Farmers may lose autonomy and control over their farm enterprises, become indebted because of production problems (drought, severe incidence of pests), not being able to comply with their side of the contract, and thus not being able to pay back the loans received before sowing. And as more farmers are contracted to produce the same variety of the same crop, the issue of lack of diversity comes into play, which can have severe consequences.

Conditions needed Can contract farming be successful and sustainable? A number of conditions need to be in place. First of all, the reluctance of many agribusiness firms and large companies to engage in long term and binding contracts with small-scale producers needs to be overcome. Local governments can help here by trying to develop a conducive environment for agribusiness. Government extension services and NGOs (large and small) can help farmers to develop their negotiating skills with potential customers so that they get a good price for their commodities. Just as importantly, they need to continually work on strengthening the organisational skills of small-scale farmers. Stronger organisations can have more bargaining power and can also play a bigger role in the flow of market information and market trends, thus playing a more decisive role in protecting farmers' interests and agricultural development in general.

Contractual arrangements vary from commodity to commodity, and can be signed by individual farmers or farmer groups. As with other ways of providing financial services, the potential for defaults is always a major concern and needs to be covered by strong contacts between those providing and receiving a loan. To address these issues, a leading cotton agribusiness firm has introduced the "distributor system", in which a group leader, who is also a farmer, becomes the link between the firm and the other farmers (between 30 and 100). This leader is then trained in basic agronomic aspects of crop production and in basic bookkeeping. The company does not deal with the farmers directly, but through the distributor. In return the distributor gets a commission on the collections he makes from the small-scale farmers in his group. Such innovations help ensure that credit fulfils its role, and that farmers benefit from it.

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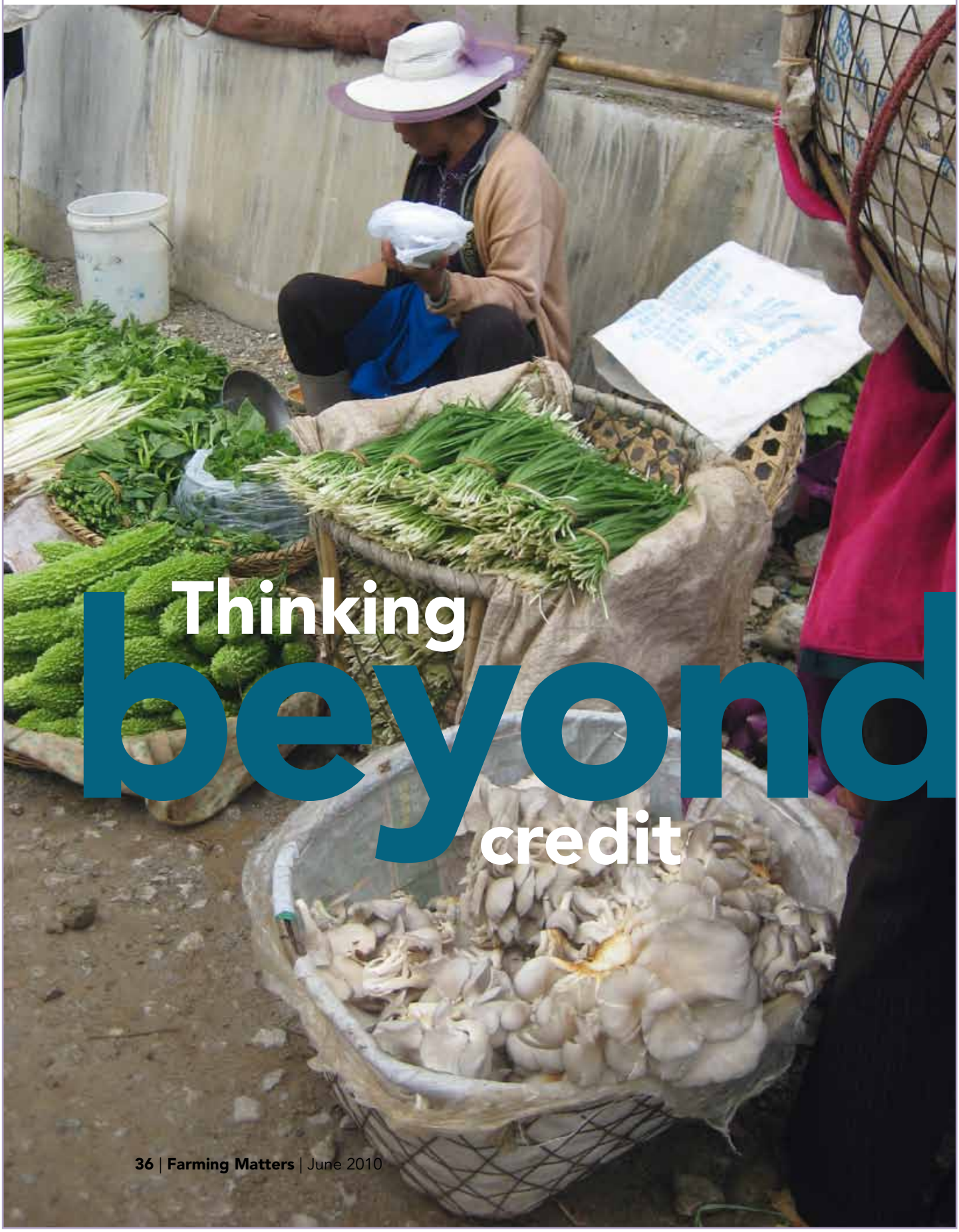

Thinking beyond credit

Credit is often seen as an indispensable vehicle for the poor to get out of poverty, or as the tool that allows farmers to get access to new technologies, to increase productivity and their incomes. But many existing credit programmes often undermine farmers' independence, tie them into dependency relationships, and oblige them to take all the risk. There are better ways to help farmers build their own resource base and independence.

Text and photos: Jan Douwe van der Ploeg

The need for credit plays a key role in many sad realities. Take for example Peru, where many smallholder households are never far from hunger despite having fields laying idle which could well be worked, providing food and additional income to the family. What is lacking is the money to provide seeds and fertiliser, hire a donkey or tractor to prepare the land and pay for the irrigation water. *No hay medios*, as they say in Peru. "We don't have the means." Credit really does seem to be part of the way out of such a situation, even though the combination of credit, highly volatile markets and a risky climate has ruined many farmers before. Many farmers have had to sell their resources to pay back previous loans and have outstanding debts that they cannot repay. For them credit is unobtainable as the banks consider them to be delinquents.

Here we have one of the rural development dramas in a nutshell: credit got people into trouble, yet it is what they need to get out of trouble and they cannot obtain it anymore.

Autonomy and freedom

Farming always requires a multi-facetted resource base. Alongside land, water, animals, seed, fertiliser, labour, knowledge, buildings, instruments and networks, farmers need working capital. Often, this working capital comes from the savings created during previous cycles of production. In fact, farming is not only about using these resources in order to produce. It is as much about the reproduction and development of this resource base. During the process of production, the resources are reproduced. Heifers are bred to be at least as productive as the cows they are replacing. The fertility of the soil needs to be maintained – and preferably improved. When harvesting potatoes, the seeds for next year need to be selected and put aside. All these resources carry the promise for good and hopefully better harvests in the future. This process of reproduction not only applies to the material resources, but also to social resources, the labour force within the family (and/or the wider community), to networks and knowledge. It also applies to working capital.

The resource base available to farmers is the result of previous cycles. It has been created through the sturdy work and the dedication of the farming family. As the outcome of their own labour it represents autonomy (or independence, as farmers themselves often say). It avoids the need to enter into dependency relations with others. The means needed to produce are at hand. Slicher van Bath, the great agrarian historian, referred to this as "farmer's freedom". He argued that this was a double freedom. First, it is freedom from dependency and associated exploitation. There is no need to rent land from a big landowner and no need to get a loan from a local lender requiring high interest payment. But there is also freedom to farm in a way that corresponds with the interests and prospects of the farming family. Others cannot prescribe how the farmer should operate. Farmers themselves design the way they want to farm and to develop their farms. "Freedom from" and "freedom to" are indispensable ingredients of a prosperous farming sector.

The history of farming can be seen as a struggle for autonomy, a struggle that occurs within single farms, but also takes place at the level of farming communities and farmers' movements. Many co-operatives have grown out of such movements, including credit and savings co-operatives set up to address the credit issue.

Dependency and survival

The historically created and autonomous resource base is being threatened in many parts of the world. The squeeze on agriculture (increasing costs together with stagnating or even decreasing output prices), the urban bias in state policies and technological models that imply many external inputs, have all contributed to eroding the self-governed resource base. Where

"Credit often closely ties farming practices to the agro-industrial logic and the needs of the agro-industry"

once autonomy was central, there is now a wide and dense network of dependency relations on the input-side of the farm. These add to the dependency relations on the output-side of the farming. Very often, the former are considerably tightening the latter. Dependency on the capital market is a typical example. Credit obtained from banks often links farms closely to agro-industrial groups. Agricultural co-operatives and individual smallholders in Peru, for instance, received loans from the Banco Agrario in the form of "permissions for withdrawal" which they could only use at the large agro-commercial companies to access prescribed seeds and agro-chemicals. There was no possibility to use the credit in an alternative way for, say, cattle or fruit trees. These loans came with strings that specified which crops had to be grown, in what way and, especially, to whom they had to be sold. Thus, the credit mechanism closely tied farmers to the logic and needs of agro-industry. Through such tied credit the "freedom to" is nearly completely lost.

There are considerable differences between farms, regions and countries in the balance between autonomy and dependency. In some countries farmers and their institutions have far more autonomy over their resources. In many other countries, poor market conditions and adverse rural and agrarian policies have impoverished farmers and eroded their resource base. Despite this, some farms have been able to maintain – or to reconstruct – a strong resource base, often by minimising the use of external inputs and avoiding high financial burdens. The relevance of this strategy of "farming economically" becomes more evident in times of crisis, as these relatively autonomous farms are better placed to survive the difficult times.

Alternative mechanisms But what is to be done when, for whatever reason, farm households get into trouble? Let us first scrutinise the different mechanisms that might be employed. At the level of the single farm there is a wide array of potential solutions. Informal credit (often between different farmers, where one of them contributes land and labour and the other the required capital), saving groups (such as *tontines* in several African

"Autonomous" farms are far better placed to cope with difficult times

countries) and social networks (for mutual help) are the first category. Co-operation and an equal distribution of risks are important features of these strategies. This is in stark contrast with the unequal risk distribution entailed in formal credit. Secondly, there are mechanisms like multiple job holding (very important in Chinese agriculture), and temporary transnational migration (very important in considerable parts of Latin America and Eastern Europe, but also, not that long ago, in countries like Portugal). These mechanisms allow farmers to earn an income that they subsequently invest in their agricultural activities. In this way farmers construct their own working capital. Thirdly, there are new mechanisms based upon creating new economic activities within the farm (such as on-farm processing, direct marketing, agro-tourism, energy production, etc.) that can generate a considerable cash-flow and

now increasingly linked to local small-scale farmers. At least 30 percent of the food purchased for these schemes has to be acquired locally from small-scale producers. This provides an enormous stimulus for farmers. Access to this newly created "market" means that they can considerably improve their livelihoods and build savings that subsequently help to improve their farming. The supply of school meals, rather than relying on supermarkets and/or large corporate farms, has been linked into an attractive and highly effective programme to strengthen the resource base of small-scale farmers.

The agenda An autonomous base of self-controlled resources is essential for agricultural growth and the emancipation of the peasantry. However, the creation (or recovery) of such an autonomous resource base is hardly possible through

All over the world, farmers are showing that there are alternative mechanisms to a tied credit

reduce the need for credit. The problem, though, is that considerable working capital is often needed to start up such new activities. But sometimes a step-by-step development is possible.

At the regional level, social movements may help considerably. The agro-ecological movement in Latin America for example, helps farmers to change to farm practices that require far less external inputs, and this may help to reduce dependency on capital markets. The same movements may also help to change rural and agrarian policies. The delivery of microcredit is another example – it is especially relevant for rural women and the very poor.

National policies that favour agriculture can also considerably help to strengthen the autonomous resource base of farms. Often these policies are far more effective. Brazil's recent experiences are exemplary. The programmes for public procurement (that includes the distribution of school meals) are

existing formal credit mechanisms. Of course, credit can be helpful, but only under some conditions. First, it needs to be part of a wider programme that aims at strengthening the resource base of farms. Second, it needs to be untied so as to allow farmers to use it in the way they deem appropriate. Thirdly, the implied risk needs to be equally shared. Reviews of successful experiments may well reveal additional criteria. Just as farmers design ways of farming that carry the promise of progress, new credit mechanisms that can help them are crucial.

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Photo: Sofia Naranjo

Outside the Conviver office, farmers arrive with sacks full of produce to be delivered to schools and hospitals through the Food Acquisition Programme.

Supportive policies secure a future for family farmers

Mirandiba, in north-eastern Brazil, provides few opportunities for family farmers to make a living. With long dry seasons, few local jobs and poor access to markets, it is difficult to meet a family's needs. Men often migrate in search of work. However most return after finding they are still unable to escape poverty. This situation repeated itself for many generations. Now, an innovative government policy is breaking the cycle by giving family farmers the opportunity to earn a decent livelihood from their independent work in agriculture.

Sofia Naranjo

Located in Pernambuco, Mirandiba is a typical rural municipality that shares many characteristics with other poor rural areas around the developing world. Half of Mirandiba's population of 13 000 people live in the rural area. From the working population, 57 percent are engaged in agricultural activities. In 2000, it was found that 76 percent of the population earned less than the monthly minimum wage. Poor family farmers generally do not own any land and live as sharecroppers or tenant farmers, whilst also working as casual wage labourers.

In this semi-arid region there are prolonged dry periods of around six months each year, and recurring droughts. Farmers grow their staple food, cowpeas (*Vigna unguiculata*), in a diversified system with maize and other crops like pumpkins and melons. During the short rainy season farmers try to produce the maximum quantity of cowpeas and maize. However they are rarely able to meet their families' yearly food needs. At times they are forced to sell some of their produce in order to buy clothing and medicines. Access to markets, however, is limited, and they must rely on middlemen who pay them low prices. When the farmers' cowpeas reserves start to run out they are forced to buy more, but at higher prices. Consequently, family farmers are not able to be food self-sufficient despite their best efforts, and cannot make a living from selling their products.

Before the new government policy started, the main and often only way farmers in Mirandiba were able to earn an income was working as casual wage labourers for meagre daily rates. Local casual work was irregular and limited to the short growing season, forcing farmers to neglect their own family farm. During the dry season it was commonplace for men to migrate in search of jobs, usually to large irrigated horticultural

plantations. Sometimes entire families would migrate to these plantations for several years and the whole family, including children from the age of ten years, would work. For decades, these families lived in great deprivation. They felt they had no future in agriculture, but no alternative to it either, particularly as the majority of adults are illiterate.

Local initiatives

It is against this backdrop that the grassroots non-governmental organisation *Conviver no Sertão* (Living Together in the Outback) started its work. This NGO originated from another Brazilian NGO, AS-PTA (*Assessoria e Serviços a Projetos em Agricultura Alternativa,* Consultancy and Services to Projects in Alternative Agriculture). AS-PTA worked in Mirandiba in 1998 for two years. When they left, the local staff formed Conviver no Sertão. Successfully securing national and international funding, Conviver worked on water resources and home gardens, expanding into new areas. In 2003 Conviver set up a small fruit pulp factory and managed to convince farmers from four local communities to collect and process a native plum *umbu* (*Spondias tuberosa*) into pulp.

The aim of the pulp factory was to add value to local products and provide farmers with an alternative income. Unfortunately they did not have a market for the pulp, so it simply accumulated in the freezers. Unwilling to give up, in 2004 Conviver secured funding to buy equipment for a larger processing factory. That year they were also able to make a deal with the local town council. The council agreed to buy 300 kg of pulp a month to distribute at local schools to make juice for school dinners. The factory however, was producing far more pulp than was being sold. The town council also started to falter in their agreement by delaying payments or requesting decreasing quantities of pulp each time. By 2005 more family farmers had got involved in the pulp factory, less was being sold to the town council and the stock had built-up to over 12 000 kg with no market to go to.

Fruit pulp production by family farmers had been successful but its commercialisation had not. A tiny town in the remote semi-arid region does not offer a substantial market demand, nor provide easy access to other markets. The answer to their commercialisation problem appeared in 2005 when Conviver learned about the Brazilian government's innovative policy, the Food Acquisition Programme (*Programa de Aquisição de Alimentos*) or PAA.

The Food Acquisition Programme

The PAA was created in 2003 to address hunger and poverty by buying products directly from family farmers at prices that would benefit them and using these products to feed people in schools, nurseries, care homes, hospitals and other social service institutions. Funds come from two Brazilian ministries: the Ministry for Social Development and Fighting Hunger (*Ministério do Desenvolvimento Social e Combate à Fome* - MDS) and the Ministry for Agrarian Development (*Ministério do Desenvolvimento Agrário* – MDA). The agencies in charge of purchasing the products are the MDS in some cases and the Brazilian National Agricultural Supply Company (*Companhia Nacional de Abastecimento* – CONAB) in others. There are five different arrangements through which these agencies can buy from family farmers. CONAB manages one of the arrangements which was created in 2003 and re-named in 2006 as "Purchase from Family Agriculture with Simultaneous Donation" (*Compra da Agricultura Familiar com Doação Simultânea* – CPR-doação).

The way the CPR-doação works is simple. Associations or cooperatives of family farmers must first establish a contract with CONAB. This specifies which farmers will participate, which products they will produce and in what form (raw or processed). They also note which social institutions will benefit from the donations. The prices for all products are negotiated and agreed in advance, a total value for the contract is settled and resources earmarked for it. The farmers have a year to produce and deliver the products until they reach the total value of the contract. Once the goods are delivered to the social institutions the funds are released and the family farmers receive their payment on a monthly basis. This way the farmers have a previously established contract, a guaranteed purchase at defined prices, and a major incentive to produce. The PAA promotes agroecology through a price increase of 30 percent to farmer associations that prove they employ agroecological farming methods. Since August 2006 the maximum amount a family farmer is allowed to earn through the PAA is 3500 reais (R$) a year (approximately US$ 2065), equal to the Brazilian minimum wage at the time (previously the limit was R$ 2500 a year).

Photo: Sofia Naranjo

Vitoria, Eliana and Edeneide (from left to right) - the whole family gets involved in the home gardens and fruit orchards.

Encouraging participation through success

Conviver found out about the PAA in 2004 and immediately went to meet with CONAB of the state of Pernambuco. They set up a contract worth R$ 250 000 (close to US$ 150 000) as they aimed to include 100 farmers. However it was difficult to convince enough farmers to join. They were reluctant to produce and deliver products in advance, based on the trust that the government would eventually pay them. As a result only 82 family farmers from eight farming communities

in Mirandiba joined. Since Conviver had the pulp factory running for over a year they were able to include fruit pulp in the contract, and being a value-added product, it received a high price. Pulp production extended to other fruits aside from *umbu*, for example papaya, mango, acerola (*Malpighia glabra*), caju (*Anacardium occidentale*) and caxi (*Lagenaria siceraria*). *Conviver* knew some farmers produced a few of these fruits and distributed tree seedlings to those who did not. The PAA offered the opportunity to market other products as well. Therefore Conviver included in the contract vegetables that the farmers had been growing in their home gardens (green pepper, aubergine, lettuce, coriander and beetroot) as well as products that farmers produced traditionally (pumpkin, cassava, sweet potato and goat meat). The products were taken to the Conviver office by the farmers and delivered in local schools, nurseries and homes for the elderly. Product deliveries began in February 2005 but by the time the contract period was over, they had not managed to reach the total value of the contract. Fortunately CONAB allowed them an extra six months and the farmers were able to achieve the contract value by the end of June 2006.

As commercialisation proved to be successful and others saw the participating farmers were being paid regularly and receiving good prices, interest in joining the PAA grew enormously: a total of 240 families got involved in the second contract. Although it took six months for CONAB to officially approve the contract, the farmers were enthusiastic about this new entrepreneurial opportunity and a large number continued producing and delivering products despite having no guarantee of payment. In December 2006 the contract was approved for a value of R$ 760 000 (around US$ 450 000) which amounted to 371 tonnes of food products delivered from July 2006 to November 2007. For the third contract, which commenced in December 2007, 393 farmers from 18 farming communities in Mirandiba signed up.

Increased food self-sufficiency and better livelihoods

Research in two participating communities found that for the majority of farmers, their situation started to improve around 2004. This was due to various social policies implemented by the Lula government, such as the *Bolsa Familia* (Family Bursary) and the retirement pension. The Bolsa Familia provides funds for bringing up children. The maximum a family can get is R$ 122 (US$ 72) a month but on average they tend to receive around R$ 95 a month. The pension provides a minimum wage (R$ 380 a month) to the elderly. These policies raised the income of farming families. However, they were solely assistencialist; they did not require or give an incentive for families to work and simply provided money. The PAA, on the other hand, required farmers to produce in order for them to increase their income and improve their living conditions. Furthermore, it was an incentive for hundreds of farmers to get involved in local commercialisation. The 240 farmers who participated in the second contract earned on average R$ 106 a month, an amount comparable and often higher than the amount provided by the Bolsa Familia. These farmers had never had access to a market that allowed them to make a decent livelihood from selling their own produce. Even the few farmers who engaged in a small agroecological fair in the town of Mirandiba found that the income and benefits they got from the PAA were far more significant than those from the fair. In general, the farmers perceived the PAA as a guaranteed unlimited market that would buy any amount they produced; therefore they felt encouraged to increase their output as much as possible in order to maximise their earnings.

The PAA also enabled farming families in Mirandiba to be more food self-sufficient. The families claimed that their higher income permitted them to reduce substantially, or eliminate completely, their need to work as casual wage labourers or to migrate in search for jobs. This meant that farmers had more time to dedicate to their family farm, increasing their production for consumption and for commercialisation through the PAA. As they ate more food from their own production, they spent less of their limited cash on purchasing food, freeing up money for other important uses. Even during the dry season farmers who had access to water preferred to stay in their communities and continue producing vegetables for the PAA instead of migrating.

A crucial impact of the PAA is that it gave farmers renewed hope and enthusiasm to make a living from independent family farming whilst at the same time increasing their self-esteem and happiness. The setting up and running of PAA contracts was lead by a few hardworking, ambitious farmers who encouraged others in their communities to participate. The PAA provided the opportunity for several farmers to acquire or improve a range of business and managerial skills and to take on new responsibilities and jobs. Although not all participating farmers fully embraced the PAA and a small number actually abandoned the contract, in general the PAA has enabled hundreds of farmers to flourish – especially those who were willing to put in the effort. It has renewed their enthusiasm for family farming and awakened an entrepreneurial spirit, encouraging farmers to dedicate more time and make investments in their farms and home gardens. Many farmers expressed their joy of being independent family farmers and claimed they wanted to continue farming for the rest of their lives as now they felt they have a future in it.

Sustaining the benefits for the future

Despite the substantial improvements these farmers have experienced, they are not blinded by success and are fully aware that the PAA might change or end at any point. This is why the farmers' associations from the 18 communities involved in the third contract formed a large co-operative. This co-operative has two aims: to facilitate the management of future PAA contracts, and more importantly, to search for alternative markets to the PAA so they are able to continue living off their independent agricultural production even if the PAA is discontinued.

The PAA is a telling example of how a government policy, that provides a guaranteed institutional market to poor family farmers, can significantly improve their lives and allow them to continue farming. The PAA has enabled hundreds of farming families in Mirandiba to leave the cycle of poverty behind, and allowed them to survive and progress as independent family farmers. Several governments throughout the world, as well as some development agencies, have school feeding programmes and similar projects to provide food to populations in need. If this food were purchased from local family farmers, then both farmers and consumers would benefit. In a world where industrial agriculture and globalised food markets offer little hope and opportunity for poor family farmers, such institutional markets could provide them with a feasible and effective alternative which enables them to stay on the land and have a future as independent and diversified family farmers. ■

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Acknowledgements
I am grateful to Conviver (Vavá, Guiomar, Magnus, Sandro, Porfiro, Arnaud, Daiane, Zuleide and Rita); Gilván, Cida and the community of Feijão; Gonzaga, Neide and the community of Jardim. I would also like to express my gratitude to my supervisors Malcolm Hudson and Nazmul Haq from the University of Southampton, and to Lavínia Pessanha from ENCE and Ana Paula Ferreira from ActionAid Brazil.

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The participatory certification committee in action. The farm visit is viewed as an educational experience for all those involved.

Growing a local organic movement: The Mexican Network of Organic Markets

Erin Nelson, Rita Schwentesius Rindermann, Laura Gómez Tovar and Manuel Ángel Gómez Cruz

Over the past several years, in response to the rapid growth in global demand for organic goods, the amount of organic production in Mexico has increased dramatically. Indeed, while Mexican agriculture as a whole has suffered severe crises, the organic sector has boomed, and today more than 83 000 producers farm organically on over 300 000 hectares of land. Of these producers, 98 percent are small scale, farming an average of three hectares, and over 50 percent are indigenous people. Unfortunately, as is the case in many developing countries, the vast majority of organic production remains focused on export crops –particularly coffee, but also cocoa, coconut, and other fruit and vegetables– with 85 percent of organic goods being sent to foreign markets. From an environmental point of view, export-oriented production is extremely damaging because of the amounts of fossil fuels required for transportation. In addition, packaging for export consumes precious resources and creates mountains of waste. Moreover, an export-oriented focus constrains the degree to which domestic markets are developed, and it leaves Mexican producers highly vulnerable to international market fluctuations.

An alternative organic vision

These problems have not gone unnoticed in Mexico. In fact, as in many other countries, a local organic movement has been growing alongside the more conventional industry. For example, some Mexican grocery stores now carry organic goods, and a number of organic speciality shops and cafés have opened, primarily in and around Mexico City. One of the more grassroots efforts, which focuses specifically on small scale local organics, has been the emergence of a number of organic markets across the country. Supported by committed producers and consumers, and in many cases linked to universities and non-governmental organisations, 17 of these markets are already well established in nine states, and new initiatives are continuously being developed. Since 2004, these markets have joined together to form the Mexican Network of Organic Markets.

While remaining independent entities with distinct characteristics, the markets do share a common vision. Besides the desire to improve the environment by supporting organic agriculture practices, the Network views sustainability in broader terms, regarding social and economic justice. In the Network's view, promoting social and economic justice includes making healthy, safe, organic products more readily available to all Mexicans – and not just to those who live in urban centres and can afford to pay high premiums. Towards this goal, the organic markets focus on goods produced locally by small scale farmers, as well as on linking consumers directly with producers. By reducing the transportation and packaging of products and by eliminating intermediaries, the organic markets make it possible for small scale producers to earn more from their production while at the same time offering relatively affordable prices to consumers. Supporting these kinds of linkages also serves a more philosophical purpose – of building community solidarity and trust relationships.

Indeed, community building is at the heart of Mexico's local organic markets. They are not conceived of as simply places where people go to buy and sell goods. Rather, they are meant to be spaces where commerce and consumption can become a political, social, ethical, educational, and enjoyable act. In an effort to combine these various elements, the vast majority of the Network's markets offer a wide variety of workshops, lectures and other activities for both adults and children. In addition, many also host cultural events such as dance or musical performances, or other special events such as anniversary celebrations or fairs. As a result, the markets are dynamic initiatives that seek to support organic agriculture in

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a truly holistic sense, helping move towards environmental, social, and environmental sustainability.

Challenges facing the Mexican Network of Organic Markets

Although the number of local organic markets in Mexico is growing rapidly and there are a considerable number of highly committed producers, consumers, and organisers working tirelessly in support of the movement, each market confronts some significant challenges, and many of these are common across the Network. One of the primary challenges for each market is the struggle to secure the physical and human resources required in order to function. Unfortunately, market profits are generally not yet at a level that enables groups to pay for things like space rental or salaries to co-ordinators. Thus, the markets are heavily dependent on donations of resources and volunteer labour, which can be problematic.

A lack of funds also limits the degree to which the Network can pursue training and education programmes for both producers and consumers. Significant numbers of producers have demonstrated interest in shifting to organic production and accessing an organic market, but they lack the necessary expertise, and cannot access the educational resources needed to assist them in the endeavour. The difficulties in getting access to extension services exacerbates another problem in terms of growing local organic markets – insufficient supply of locally produced organic goods. In fact, although insufficient demand is often cited as a problem for local organics, the reality for many existing organic markets is that sometimes consumers come looking for goods and find them either sold or not available at all. In response to this problem, the markets are constantly searching for new producers to expand the supply of existing products and introduce new ones to meet consumer needs and preferences. The Network would also like to facilitate the inter-market exchange of products; however, a lack of funding for transportation has meant that this has not yet been possible.

Participatory organic certification system

Another major challenge confronting local organic markets are the economic and bureaucratic barriers that make it difficult for the small scale producers involved to obtain organic certification. This can make ensuring consumer confidence in the integrity of the products for sale difficult. In response to this issue, the organic markets that participate in the Network support the notion of participatory certification, and are working to develop smoothly functioning "Participatory Guarantee Systems". Key aspects of these systems are that they minimise bureaucracy, do not require any payment from the producer, and incorporate an element of social and environmental education for producers and consumers. In a major step forward for participatory certification in Mexico, the Network successfully lobbied for its inclusion in the recently passed law governing organic agriculture. As a result, products certified through participatory processes can now legally be referred to as "organic".

In Chapingo's organic market, for example, the first step for a producer wishing to achieve participatory certification is to contact the market co-ordinator and fill out a questionnaire regarding current and past production practices. This questionnaire is reviewed by Chapingo's participatory certification committee, which consists of local consumers, producers, agricultural researchers and students. The committee uses a combination of the norms of the National Organic Program of the United States and those of the Mexican certification body Certimex as a reference. If, based on the questionnaire, the producer meets the requirements for organic certification, a visit to the farm is scheduled.

This farm visit is not viewed as an inspection *per se*, but rather as an interactive experience designed to be educational for all those involved. During the visit, committee members consult a checklist that includes basic data about the farm operation (e.g. size of territory, number of crops, etc.), as well as basic organic control points such as the following: source of seeds and water; soil, pest and disease management practices; post-harvest treatment of crops; and the potential for contamination from neighbouring farms.

Following the farm visit, the case is discussed in a meeting of the entire certification committee. If producers comply with all standards, they are granted organic status within the market and certified without condition. In most cases however, certification comes with a set of conditions. The most common ones include the need to develop natural barriers to prevent contamination from neighbouring conventional farms, and to thoroughly compost manure before application to crops. Provided that the producers work with the committee to meet these conditions, and that they are not in serious violation of organic standards, they can then begin to sell their goods in the "natural" section of the market, which is physically separated from the organic section and marked with a sign. Follow-up visits and continuous communication are used to ensure that the conditions are being

The birth of a local organic market

One of the first markets created was in the community of Chapingo – home to Mexico's principle agricultural university. The Chapingo initiative began with a group of people at the university who organised courses and workshops on organic agriculture, as well as tasting sessions where members of the public could sample organic goods. They also contacted local organic farmers and began to organise a system of organic product delivery for consumers at the university and in neighbouring communities. By 2003, the number of consumers and producers involved in the project had grown to such an extent that the organisers decided to move from the order and delivery system to a fully functioning public market (or "*tianguis*"). Thus, in November of that year, the Chapingo market was officially inaugurated in a building lent out free of charge by the university.

Today, the Chapingo Organic Market opens every Saturday from 10:00 to 15:00 and has more than twenty participating vendor tables. There is a growing number of consumers coming from the surrounding communities and also, in many cases, from Mexico City, which is about an hour's drive away. The products offered include fruit and vegetables, meats, dairy products, eggs, baked goods, honey, coffee, processed goods such as syrup, oil, *salsa* and dried fruit, biodegradable cleaning and beauty products and artisanal work. In addition, consumers can enjoy a brunch of *tlacoyos*, *quesadillas* or *tamales* and drink coffee, chocolate or hibiscus juice. The market does not just offer goods for sale – it also has a small library with books about environmental and organic agriculture issues, an information table with books and pamphlets, and a space to hold free educational workshops for children and adults.

In many ways, the Chapingo market is representative of the other markets that form the Mexican Network of Organic Markets. Most of the markets run on a weekly basis, include educational elements such as workshops and presentations, are working towards developing participatory certification systems, and are run primarily on volunteer labour. The Mexican Network of Organic Markets pursues a wide variety of activities (including public education, marketing and promotion), but one of the primary objectives of the Network is to assist in the creation of new markets. Today there are 17 functioning markets and 8 proposals for new ones. The long term goal is to have 100 local organic markets open in Mexico.

Photo: Erin Nelson / Laura Gomez

One of the workshops regularly organised as part of the Chapingo Organic Market. Producers and customers exchange ideas about dried herbs.

met, and eventually the producer may be eligible for full organic status (refer to Figure 1 for the full picture of the process). Because transparency and community involvement are integral aspects of the system, the results of all questionnaires and committee decisions are available to the public, and anyone who wishes to join the certification committee is more than welcome to do so. In addition, consumers are encouraged to interact with producers at the Chapingo market, and this interaction has led to the development of strong relationships of trust, and in some cases friendship, between the buyers and sellers of organic products. These relationships are an important means of supporting the participatory certification process, as they provide the consumer with an extra sense of security.

It should be noted that the process of participatory certification is not without its own set of problems and limitations. One of the most prominent challenges for the implementation of participatory certification is that it is currently all done on a voluntary basis. This places significant constraints on the amount of time that people are able to devote to the process. In addition, many participants come and go, and this creates a lack of consistency and continuity within the certification committee. Finally, a lack of training and education means that several people who are currently active in the committee still lack the sufficient expertise to carry out inspections. These challenges have made it difficult to keep up with the demand for certifying new producers who wish to enter the market, and also to consistently monitor the farms of existing market members.

Future steps

The Mexican Network of Organic Markets is expected to continue growing, as it is doing that now at a very fast rate. Looking into the future, the Network's plans include to:

- solidify the participatory certification systems (i.e. make sure that they are codified in writing and that they are followed homogenously in all markets);
- systematically determine the characteristics of the various markets (including number of producers involved, products available, income generated, resources invested, etc.);
- offer training for market managers;

Participatory Guarantee Systems

Tegan Renner

Over the past three decades, organic agriculture has evolved into a global system of third party certification and international trade. This system has seen tremendous growth in recent years, but it has presented more challenges than opportunities for small scale producers, especially those in the South. There are many who abide by the principles but who are unable to market their crops as organic because they lack the third party certification that the global market demands. The reality is that most farmers are not able to afford the high costs associated with third party certification. The amount of paperwork that is required is also often seen as an obstacle. Aside from these barriers, the fact still remains that international organic standards like the International Federation of Organic Agriculture Movement's (IFOAM) Basic Standards have been developed in the North, despite 75 percent of IFOAM's members being from the South. The result is standards that do not consider southern climates or economies.

In reaction to these challenges, small farmers around the world have created alternative systems of organic certification that are suited to their local ecological and economic realities. Still founded on the principles of organic agriculture, these systems are often loosely based on IFOAM's Basic Standards but with the necessary modifications made to reflect their community's needs, including different cultural means of quantitatively or qualitatively measuring "organic." Most basic are changes involving reduced certification costs and amounts of required paperwork, but more significant are the structural differences. Very much a community organisation, the shared emphasis of participation in all these alternative systems has led to the overall term, "participatory guarantee systems" (PGS). With a focus on the local community, standards are created jointly by the producers and consumers that the system will serve. In this way and others, both transparency and participation are entrenched as core values in these alternative systems of certification. Trust is also a cornerstone of PGS –not only because of the joint participation of its creation– but also because of the continued relationship between producers and consumers in direct purchasing at markets or farm-gate sales and a close relationship between producers who work together to keep the PGS functioning. Sharing information and experience with each other is one way that this trust is established. Capacity building is also a key component of PGS, and training is often a requirement, as well as meetings to discuss farm management issues and share

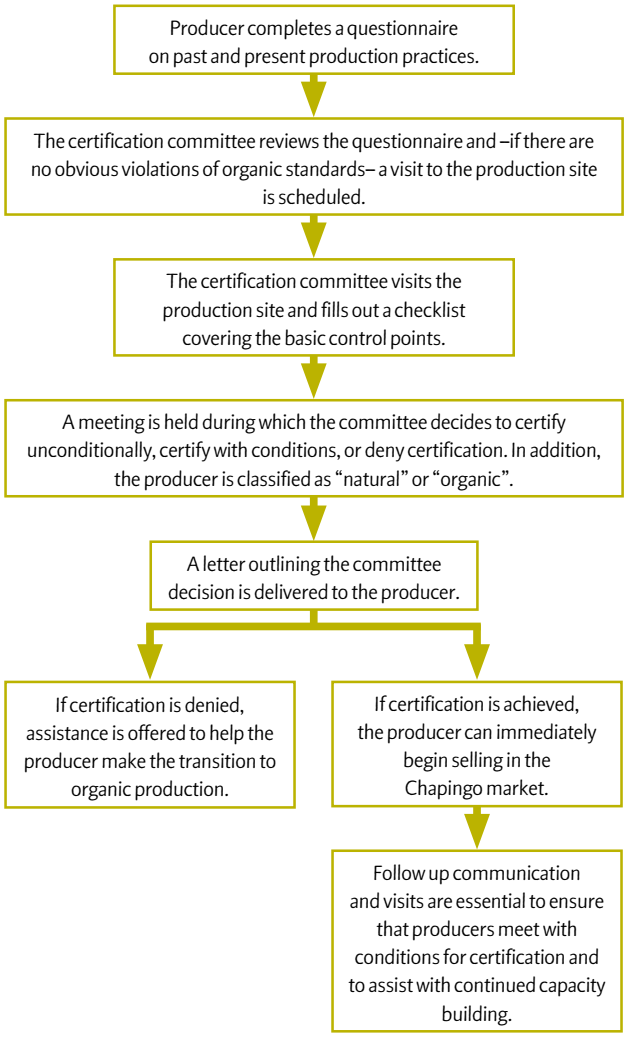

Figure 1: Steps to achieving participatory organic certification in Chapingo

- continue offering capacity building workshops on organic agriculture techniques as well as on price setting and small business management;
- address issues of gender within the local organic markets;
- increase promotion of the markets, for example by using radio and television and public events;
- visit elementary schools and offer education on the environment and organic agriculture; and
- continue to host meetings three times per year where all markets will be represented.

The rapid growth of the Mexican Network of Organic Markets demonstrates that there is a great deal of interest on the part of both Mexican producers and consumers to work together to create sustainable food systems. By increasing the links between producers and consumers and by providing high quality organic goods at prices that are fair for everyone involved, these markets help broaden the reach of the organic movement while simultaneously returning it to its philosophical roots. By facilitating the involvement of small scale producers and encouraging a focus on local food networks, the notion of participatory certification furthers this effort. Indeed, although still in its early phases, the Mexican experience with local organic markets and participatory certification offers an important alternative, not only to the conventional food sector, but also to the industrialised, export-oriented, "mainstream" organic sector. ■

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offer alternative certification

solutions. Most PGSs are non-hierarchical, which is achieved through a relatively even distribution of responsibility among producers who belong to the PGS.

From participatory-driven principles to action, the Ecovida Network in Brazil provides an example of PGS. This scheme, set up by local NGOs and research institutions, has 2300 farm families, 25 support organisations, 15 consumer groups, 8 marketing enterprises and 7 small scale agro-industries as members. Most farmer members of the Network sell individually or through farmers' groups at fairs and markets, but others sell to co-operative stores or agro-processing plants that are a part of the Network. Members are able to enjoy a price premium for their organic certification and are able to keep more of their profits as there is no intermediary.

IFOAM reports that there are dozens of PGSs around the world and they range in scale as well as approach. Though PGSs have common founding principles, how they run differs according to what is desired by the local community. It should be noted that even with a system like the Ecovida Network, the focus is still on direct local consumption. There are those within the PGS movement who wish to gain access to niche markets in the North, but this ambition is far from being realised. There are many signs that IFOAM recognises the importance of PGSs in direct, local consumption relationships, but not as an export-oriented system. Nevertheless, IFOAM has published a number of suggestions to guide NGOs and policy makers in promoting PGS. Ideas include building PGS credibility through the establishment of local markets, arranging access to urban areas for rural farmers, revitalising the link between socioeconomic issues and organic agriculture and many other actions to encourage PGS, both in regions where it is and is not established. PGS presents the opportunity for the organic movement to again support local consumption, in turn strengthening community ties, economies and rural livelihoods. ■

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R2.8.1

Do value chains help farmers

Many current global policies propose that farmers can get out of poverty by being (better) linked to markets. Government and NGO programmes thus often promote cheap agricultural input supplies, and support farmers to sell their products through "value chains". Value chains refer to all the steps that a product takes, from its point of origin (in this case, farm products) to the consumer. Many professionals think that improving conditions along the whole chain stimulates farmers to become more entrepreneurial and gain a better income.

Does an emphasis on value chain development indeed lead to farmers becoming more entrepreneurial? And is it the key to poverty reduction in rural areas? Here are two views on these questions, both referring to Ghana, West Africa.

Photo: Frank van Schoubroeck

"Developing value chains reduces poverty"

Victor Attuquaye Clottey, co-ordinator of the Network to Support Agricultural Intensification in sub-Saharan Africa.

"Agricultural value chain development is about linking farmers to people who can process, package, market and eventually buy the food they produce. In Ghana, the agriculture sector employs at least 55 percent of the working population, and most of them are small-scale farmers. This rises to above 75 percent in the rural areas. More than 35 percent of the country's gross domestic product (GDP) comes from agriculture. This pattern is not different from other economies in sub-Saharan Africa. Despite the enormous contribution of agriculture to national economies, the rural folk whose main livelihood activity is agriculture happen to be the most poverty-stricken in the developing world.

"Rural farmers have always taken opportunities to trade their products, to improve their ability to create wealth. However, how can farmers' inherent entrepreneurial capacities be enhanced even further? This is where value chain development as part of the overall development agenda has an answer.

"Markets have to be created by the farmers and agro-business people themselves and not by outsiders for them. Only then will they feel the pain and the gain from their transactions. This does not mean that the government should not provide the favourable environment for enterprises to thrive. After all, the state also gains and loses depending on the direction of the country's economic growth.

"Small-scale farmers, however, need coaching to play gainful roles in the agro-food industry. Coaching on chain development techniques is a sure way of empowering small-scale farmers to engage with suppliers and buyers of their produce, to develop a common strategy from which farmers and buyers both benefit. For example, pepper-growing communities in northern Ghana wanted to make the most of the market for peppers. They were already producing fresh peppers to bring in much-needed revenue at the start of the cropping season. However, they also needed extra income to get them through the long dry season. Farmers were thus supported to break into the high-value domestic and export market of dried pepper. The Savanna Agricultural Research Institute and its partners introduced farmers to appropriate varieties, drying technologies and linkages to markets. Today, pepper drying has

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out of poverty?

become a specialised enterprise in the communities, linking primary producers to assemblers who sort, grade and sell the dried pepper on both the domestic urban and export markets.

"But farmer empowerment through value chain development does not only come through promoting innovations in production and processing technologies. Improving the way a business is organised, managed and regulated is also necessary. Rural farmers can then shift from largely subsistence vocations to more business-like ones, integrating themselves into sustainable markets for their products.

"In rural northern Ghana, by setting up commodity-based value chains, farmers have steadily increased average income from pepper from US$ 199 in 2005 to US$ 482 per farm household in 2008. Income of soybean farmers increased from US$ 113 to US$ 434 while small ruminant farmers made a 15 percent increment to US$ 330 in 2007-2008. Households could change their roofs from thatch grass to aluminium sheets; acquire TV sets running on car batteries and family heads now own mobile phones. Similar outcomes can be found in Benin, Burkina Faso, Mali, Niger, Nigeria and Togo."

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"The poorest farmers do not automatically benefit"

Gertjan Becx, director of Resilience, a consultancy firm based in Wageningen, the Netherlands.

"Value chain development is an important concept for poverty reduction, as it implies a broad approach, embracing the complete agricultural system from planning to production to market. Programmes with an integrated value chain approach have a bigger chance of success than interventions based on production or marketing alone. However, increasing the efficiency of a value chain does not automatically result in benefits for poorer farmers. Smallholder farmers need support to become more entrepreneurial and enter agro-value chains to improve their abysmal economic conditions.

"We performed an analysis of rural livelihoods in distinct regions of Ghana, including some value chain analyses of main food crops. More than 1200 smallholder farmers were interviewed to understand the constraints they face when wanting to become more entrepreneurial. We define entrepreneurship as 'planned production for a defined market with a profit objective'.

"In our Ghanaian investigation we discovered four clusters of interconnected constraints that restrict entrepreneurial development of smallholder farmers. The first cluster includes constraints related to production and processing. Lack of capital, little access to (micro-) credit, poor soil or seed quality, lack of water, uncertainty about land entitlement, shortage of adequate labour, lack of traction, and lack of knowledge and technology, all hamper productivity increases. Moreover, because of chronic hunger, people are mentally and physically weak, so they cannot work to their full capacity.

"The second cluster contains the risks and uncertainties farmers face, like the erratic climate, lack of information, fluctuating markets, corruption, crime, and hostile institutions. Farmers feel highly vulnerable and see little chance of organising themselves, to be able to withstand the risks and achieve sufficient production for a value chain.

"The third cluster relates to the lack of incentives to invest. Often, rural agriculture is not profitable enough for farmers to invest in improvements. Farmers who do not own land have little incentive to invest in it. Moreover, farmers perceive that if they can make a profit, their extended family, patrons and the government (through tax) will claim most, if not all, of the fruits of their activities. Inadequate investment in rural infrastructure is also a serious constraint.

"The fourth cluster deals with the mindset of subsistence farmers. Culture and religion often restrict them from exploring new opportunities. Farmers are inclined to consume rather than to save and invest. Most importantly, subsistence farmers deeply mistrust their local, regional and national governments.

"We found that poor farmers have difficulties with long-term planning, markets and profit as many of them have developed 'coping strategies' in response to difficult circumstances. In a stable environment there is nothing wrong with coping strategies. However, in sub-Saharan Africa the environment is not stable: developments like population growth, soil depletion and climate change require farmers to keep adapting and investing in their farms.

"We concluded that agricultural entrepreneurship is necessary for small-scale farmers to escape the cycle of continuing poverty. But this will only be possible if they organise themselves into farmer-based organisations. Value chain development must take the constraints described above into consideration if they are to work for poorer farmers. Value chains can only overcome the cycle of poverty if they are deliberately designed to improve farmer livelihoods, so to be 'pro poor'."

Gertjan Becx (gertjan.becx@gmail.com) wrote this contribution together with Hans Eenhoorn (j.w.eenhoorn@inter.nl.net), associate professor of Wageningen University. The research report "Constrain constraints!" discusses the factors limiting smallholders to become more entrepreneurial. For more details, see Sources, on page 40.

Our digital newsletter, E-LEISA, contains a summary of the previous discussion on livestock and climate change. To subscribe to this newsletter, go to E-LEISA on the homepage of LEISA Magazine.

Open Forum

R2.8.2

Photo: Chantha Siliphanya

The Pakngao Farmers Enterprise attracted investments from farmers and business people that allowed it to buy a tractor and maize sheller.

Adding value to local livelihoods

In Laos, farmers get better prices for their products and more control over value chains when they join together to form and invest in their own agro-enterprises. Since 2007, 18 agro-enterprises have been formed.

Kheuavanh Pommathat and Stuart Ling

Northern Laos is changing fast. The rugged mountains, which were once the preserve of isolated tribes living a subsistence lifestyle, are now being carved up by roads, hydropower developments and rubber plantations. Foreign companies, from China, Vietnam and Thailand, are scrambling for land to invest in large agro-enterprises, producing rubber, cassava and maize. They receive the backing of government authorities, who give them land and tax concessions in their drive for foreign investment.

For illiterate and cash-poor small farmers, the options to access these markets are few. They can sign a contract agreement giving the company the right to buy their fresh, unprocessed product for an extremely low price. Or they can give up farming altogether and choose to work as a labourer on company land. However, a new agro-enterprise approach is being piloted by VECO, a non-governmental organisation, with small-scale farmers in the province of Bokeo. The idea is that local farmers form businesses, and take control of the value chain.

Box 1. Pakngao Farmers Group Enterprise

Until 2007, 47 farmers in Pakngao village sold their maize harvest to a Thai trader, receiving a low price because it was unprocessed. The trader captured the benefits of collection, transport and processing.

A local agro-enterprise for maize was set up later that year within a cluster of four villages of the Lao, Khmu and Hmong ethnic groups. The farmers decided to add value to their product to get a better price. Another 24 farmers were recruited to join in the business plan, which proposed the purchase of a tractor and sheller. Each farmer investor was willing to pay the local equivalent of US$ 735 each for a share in the enterprise, some borrowing money from within the village to finance their shareholding.

The group received a grant of US$ 4882 from the project. In their contract, these funds were to be reinvested within the group over a 15-year period (that is, it was not allowed to be paid out as profit to shareholders).

By the end of 2008, 120 farmers in four producer groups (one per village) had a contract to produce maize for the enterprise. The increased area, a higher yield as a result of ploughing, and higher prices through shelling resulted in a four-fold increase in their total income compared to 2007. With the resulting profits and even more local investors, the enterprise invested in a truck in early 2009.

The value chain approach

Put simply, the value chain covers every step from the farmer to the final consumer. Each step adds value. This might be a bulk buyer who dries the crop, or a company who repacks a product into attractive bags for the consumer. A simple value chain might be:

Producer group → ***Middleman (buyer)*** → ***Processor*** → ***Consumer***

In the case of maize for example, a farmer sells a green cob for about 700 Lao kip/kilogram (or US$ 0.08), but the consumer ends up paying 7000 Lao kip/kg by the time it has been processed and packaged into high quality pig food. To understand why farmers are receiving a low price, we first need to look at all the steps along the chain. It is also necessary to understand the institutional environment, such as the impact of government policies (such as taxes) on the chain.

In our maize example, a chain analysis showed that there were many reasons why farmers would receive a low price. Among these, we saw that:

- producers would mix different qualities (e.g. wet with dry), and so receive a low quality rating and price;
- producers had no storage facilities, and so would be forced to sell the green cobs straight after harvest at a low price;
- farmers were in debt to traders, and had to sell their maize immediately to pay back their loans; and
- different types of seeds, planting times and growing techniques would cause the maize to ripen at different times, increasing costs for traders and reducing quality.

Agro-enterprises for village clusters

For the pilot, 4-12 villages were strategically clustered. Participating farmer groups identified products with best potential. A small agro-enterprise was set up and a committee selected of more business-oriented farmers. These farmers are highly trusted members of the community who are prepared to invest money in the agro-enterprise. The new value chain therefore looks like this:

Producer group → ***Small agro-enterprise*** → ***Processor*** → ***Consumer***

The committee needs to encourage farmers to invest in the agro-enterprise (in the form of shares – or community savings) in the hope of seeing a return (profit). They also need to develop a business plan that is passed by all the investors in the group. The enterprises should aim to do more than just buying from farmers – they should also provide services (such as providing seeds, training and crop monitoring) and invest in value-adding (such as post-harvest processing and storage).

Findings of the pilot project

Although only one annual cycle has passed since establishing the agro-enterprises, there have been significant improvements in both product quantity and quality in the areas where they operate. The cases in Boxes 1 and 2 illustrate the success of the development process.

The Pakngao Farmers Group Enterprise, described in Box 1, collected savings at the village level to establish an agro-enterprise, in a way that could not be borne by individuals alone. In a place where banks are difficult to access, people were willing to invest their savings into an enterprise. It is unusual that farmers are in the position to invest so much money. However, these farmers, located along the Mekong river, are relatively more prosperous than those of the ethnic groups in more remote areas. Share prices in other village clusters in the programme varied, with some as low as US$ 147.

There also seems to be a positive effect when farmers see local businesses investing in their area, building infrastructure or buying processing equipment. Farmers have greater confidence that the agro-enterprise is serious about buying their crops on a long-term basis, so production naturally increased.

Apart from the success of adding value to peanut production, the Nam Phuk Farmers Group Enterprise mentioned in Box 2 shows the different solutions that come from considering an enterprise approach. Previously, efforts had been made to train and encourage farmers to produce their own biofertilizer using local materials, with only limited success. Now the enterprise approach had managed to promote sustainable agriculture among the local farmers with only a passing mention of soil fertility. A key factor was that the pelleted biofertilizer is much longer lasting and easier to spread than the unpelleted biofertilizer. As the necessary processing equipment costs about US$ 2000, it could only be purchased by the collective investment of the enterprise.

Box 2. Nam Phuk Farmers Group Enterprise

In 2007, Nam Phuk Farmers Group Enterprise was formed, with the aim of increasing income for local peanut producers. By 2008, their profits increased. Instead of selling fresh unshelled peanuts at a low price, they sold high value snacks to local restaurants. Supply was unable to keep up with demand.

By early 2009, the enterprise decided to produce pelleted bio-fertilizer, for their own farms and also to sell to neighbouring farmers. In their business plan, the justification given was that importing chemical fertilizers added a large cost. Besides needing to raise these funds, farmers found this high cost added too much risk in the event of crop failure. By mid 2009, the factory was established and producing bio-fertilizer using a mix of local ingredients.

Local agro-enterprises and sustainability

Several lessons have already been learned on how to make local agro-enterprises work in a sustainable way:

1. Local enterprises work best if they form themselves, have power over decision making and develop their own rules. In every village, there are farmers who have business potential, and it is more rewarding to identify those who are outside traditional power structures. Once they have the opportunity, they are motivated to sacrifice a lot of time and energy into making their business successful.
2. Regularly bring different stakeholders together that are either within or influence the value chain. Businesses should not be seen as only exploiting farmers but can be part of the solution.
3. Corruption, unfair taxation or bureaucracy can destroy small businesses. An association of several enterprises can lobby the government more effectively to create a favourable small business environment.
4. Where contract law is absent or difficult to enforce, agreements should be made between producers and enterprises signed by a third party (e.g. local government) to arbitrate in the case of disputes. To ensure the agro-enterprise stays locally owned, outside companies should be restricted from buying shares or having voting rights. Donor co-funding during the business planning stage is also an effective way to enable small agro-enterprises to invest and maintain their independence.
5. There needs to be a mechanism to provide organisational support to the new enterprises for several years. Important aspects are managing finances, understanding contracts, and recording minutes of meetings. The government could play a role by for example, giving tax free start-up periods on condition that profits are reinvested in the enterprise.

Future plans

The existing enterprises still need to be supported for several years, particularly with research, training, and advisory services. As well as facilitating the establishment of new agro-enterprises, VECO will encourage the formation of an association of enterprises which gives members a chance to learn, exchange and lobby for improvements in the local business environment.

■

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R2.9

Communication technologies support trade in Africa

Andreas Mandler

Trading agricultural commodities on rural markets in Africa is usually a personal affair. Small scale farmers generally know their clients very well, but they produce limited quantities, and have few alternative trading opportunities. In this traditional and static setting it is difficult to generate extra profits or to handle the fluctuation of prices. Smallholder markets in remote rural areas are neither competitive nor transparent. This generally unfavourable situation is often accompanied by other factors, such as limited transport and communication, incomplete education or the lack of capital to invest, so it hardly stimulates agricultural innovation and development.

The recent and widespread diffusion of mobile phones in Africa has enormous potential to change this. How the spreading of mobile telephones will affect African rural areas has been the object of many discussions. The latest Information Economy Report by the United Nations Conference on Trade and Development (UNCTAD), for example, sees a positive economic impact for all those involved in trade, including remote smallholder farmers. According to the report, the use of information and communication technologies (ICTs) contributes greatly to economic growth: "ICTs generate numerous innovations, thus increasing productivity through the creation of new products, services, and processes". What we are already observing is that mobile phones, in combination with other ICT devices, are in a good position to change trading patterns at local agricultural commodity markets.

The involvement of the private sector in telecommunications and similar activities in many countries has led to new FM radio stations, television, print media, internet providers and telecommunications companies. As the private sector is interested in investing in new technologies which could improve business volume, there are more and more initiatives being developed, and a broader spectrum of information and services is now emerging. Some of these initiatives are especially relevant for the agricultural sector. The most interesting case seems to be the internet supported market information systems, already operating in different regions in Africa. Although all of them provide agricultural market information, they are all structured differently. Some of these agricultural market information systems are currently in use in, for example, Benin (through ONASA - the National Food Security Support Office) and in Senegal (through the Manobi Development Foundation). Other initiatives work across countries, as is the case of "Trade at Hand", a project funded by the UN's International Trade Centre in Geneva, which operates in Burkina Faso, Mali, Mozambique and Senegal. What follows presents some of these structures, showing how well organised and systematically utilised ICTs can work for the benefit of farmers, particularly in the process of collecting market information and distributing it.

Photo: TradeNet

By registering information, a "tradepoint" helps people without internet access get this information easily via mobile phones.

Collecting and providing information

TradeNet, operating since 2004, offers online data on about 600 markets in 17 African countries, seeing itself as a platform for doing business. All information –including offers and inquiries– can be passed on by SMS on mobile phones, and is also stored on TradeNet's website. On request, the website sends specific information back to the mobile phone – so far free of charge. Through the website, it is very easy to identify local market prices and sellers. Local correspondents upload market information with the intention to attract buyers. TradeNet additionally placed market representation "trade points", making it possible for people without internet to register. In this way, TradeNet collects a wide range of market information, which is then available to everyone online or to registered users via SMS. Requesting market information may be a bit more complicated, as the SMS must be written in a specific way so that the computer system can read it. Of course, the website makes all the information available quite rapidly; and sellers can also be contacted easily through the SMS service. In general, TradeNet seems to be more appropriate for wholesalers who tend to buy larger amounts. So far, TradeNet reports approximately 6000 registered business users, all of whom have to pay a fee for every completed business deal.

The Kenya Agricultural Commodity Exchange (KACE) collects and provides regional market information, but in contrast to TradeNet, it focuses explicitly on the pro-poor effects of these processes. Back in 1997, KACE started working by setting up a Market Information and Linkage System (MILS), which reports market prices on a daily basis. At the moment, this system is formed by 12 different market dependencies, of which four are franchised entities. Depending on the size of the market, these dependencies become a Market Resource Centre (MRC), additionally providing a broad range of extra services. Among these, transport brokerage, warehouse and storage services, weighting service, quality control (testing for grain moisture), commodity grading, provision of farm inputs (fertilizers, seed), of financial services (micro-finance) or of short term trade credit (e.g. for hiring transport to markets). Additionally, the MRCs help in the preparation of documents, and provide mobile phone and e-mail services to their clients.

While KACE is collecting this information, interested parties are able to obtain it through various channels. First of all, by being an active KACE member, it is possible to find it on its website. A second option is through its SMS service, which sends specific information on request. Another form is to exchange information and establish business linkages through an FM radio show called *Soko Hekawi* (referred to as the "supermarket on the air"), broadcast to listeners in western Kenya. Although *Soko Hekawi* is transmitted only once a week for one hour, it provides a genuine service to the rural population, reaching an estimated total of 5 million listeners. During the show, approved offers by the MRCs are promoted, and interested traders can phone in to bid. By doing so, transparent market prices are publicly available, helping farmers in their business calculations. At the same time, the show attracts advertisements from other enterprises.

Capacity building

Private activities seem to be the right way to foster regional small scale agricultural business. As the interest will most likely remain high, ICTs will further spread into rural areas, facilitating the development of new agricultural market information systems. The main problem, however, seems not to lie in the development of technologies. According to Adrian Mukhebi, KACE's chairman, its main difficulty is that there are not enough local entrepreneurs with the knowledge and capacity to develop and deliver the services in the remote areas where most farmers live. As a result, scaling up is a slow process, even though capacity building receives far more attention than the development of infrastructure.

Providing information in a targeted manner to a large group of persons, leads to positive results. But at the same time it has become clear that such a task has not only to build on infrastructure and techniques, but capacities. Capacity is needed to handle ICTs as communication devices, and not just as top-down instruments. As the case of agricultural market information systems in different countries show, it is of crucial importance that farmers contribute to such a project with their knowledge. Without the input from farmers in the form of local market information, the whole system would not work. KACE perhaps anticipated this and, from the very beginning, established local representatives at the marketplaces. They carry out key functions without necessarily being online. Its outreach to rural people takes place on different communication channels.

The Busoga Rural Open Source and Development Initiative, or BROSDI, underpins the social dimensions of rural productivity. This Ugandan organisation is helping to raise rural communities' standards of living in a sustainable manner through information and knowledge exchange. It is a not-for-profit initiative with regional roots. In addition to sending out consultants on assignments, organising public events and producing radio programmes, it is providing an extensive online service, disseminating the same information via several channels. BROSDI uses many different internet-based formats such as blogs, wikis, podcasts and RSS feeds (as part of what is now know as Web 2.0 appliances) to spread information on topics such as agriculture, health and education. BROSDI reaches a large share of its rural clientele through SMS on mobile phones. But more traditional communication means are also used to disseminate information, such as radio, publications, music, dance and drama. An important stake in their work remains the personal interaction with rural clients.

BROSDI's agricultural extension branch, CELAC, undertakes an extensive workshop programme in the field. The results of these workshops, or "knowledge sharing forums", are numerous. One of the most important results is the identification of a village representative, who henceforth becomes the "Village Knowledge Broker". Such a person needs to be sociable and willing to share knowledge, must be living in the rural area, should be a farmer, and should preferably be a woman. There are, of course, many city dwellers (like traders or consumers) who matter quite a bit to rural development. For any future development, such a Village Knowledge Broker can ideally play a very positive role. BROSDI is banking on Uganda's phone network spreading similarly quickly into rural areas in the future as it did in urban settings in the recent past. This would stimulate local communication in general and local agricultural markets would gain greater trade opportunities.

In conclusion, these examples indicate that even if a communication infrastructure and useful agricultural market information are available, some mediation is still necessary to support rural people in adapting this information. That is, finding and using locally appropriate channels through which to communicate, and supporting personal capacity building processes. Ideally, everything grows together: the infrastructure, the available information and the capacity of people. With the help of some training, farmers are in a good position to start the market transition on their own. ■

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Fairtrade fruit: Successes, challenges and dilemmas

Dave Boselie

Introducing organic certification and fair trade standards has helped increase small scale farmers' access to the rapidly expanding supermarket segment in many European countries. Besides creating better conditions for production and trade, the fair trade movement has mobilised substantial technical and financial support to allow small producers to build up their capacities. One core principle of the fair trade standard –a minimum price guarantee– has helped producers' organisations comply with basic standards that respect social criteria like minimum wages and the rights of workers to organise themselves.

Originally, fair trade attracted only the attention of smallholder producer organisations that operated in a niche market. During the past few years, however, big fruit operators have become interested in serving the "mainstream" market – which includes multinational food retail companies. Criticism about this development aside, the fact that fair trade is now attracting such interest underlines the growing importance of ethical concerns to consumers. In numerical terms, the market may still be classified as niche, but the days of fair trade being limited to marginal producers and alternative trade organisations are long gone. The arrival of multinational companies to the fair trade arena threatens to push smallholders out of the international retail market once again. Lower prices will be the inevitable result when these companies offer large quantities of fair trade products, and inevitably economies of scale will favour larger producers. This raises the question as to what the unique selling point of smallholder producer organisations will be when the Fairtrade label on their product is no longer unique.

This article presents the challenges that come with growth, and the dilemmas regarding the expansion of the organic and fair trade export markets, based on the experiences of Europe's foremost Fairtrade fruit importer, distributor and marketing agent: AgroFair Ltd. AgroFair was established by a Dutch NGO in 1996, and was the first company in the world to apply FLO's Fairtrade standards to the fruit export industry. By its nature, it is a service-providing company that co-ordinates and facilitates the logistical flow and processing of products without actually owning a fleet of trucks or ripening facilities. The company represents the interests of producers from developing countries in the European market. It is based in Barendrecht, the Netherlands, and has subsidiaries in Italy, the U.K., France, the United States and Finland.

From "niche" to "mainstream"

The greatest victory of the fair trade and "green" movements is probably the acceptance of their products by supermarket chains throughout Europe and North America. These retail chains serve an increasing share of the total population, and this demand has helped the turnover of import and distribution companies like AgroFair grow by more than 30 percent per year for the last four years. From a producer's perspective, however, this rapid growth of demand for high quality products poses various challenges.

Escalation of food safety and quality standards

In recent years, we have witnessed an escalation of food quality standards and market requirements which continuously force producers to upgrade their technical facilities and management capacities. Food safety standards like GlobalGap and HACCP force producers to invest substantial amounts of resources in pre-harvest and post-harvest handling infrastructure; however, small scale producers have difficulties in complying with these requirements. For this reason, AgroFair created the AgroFair Assistance & Development Foundation (AFAD) in 2002, to complement its work and to deal specifically with these issues. AFAD's quality and certification experts coach the quality managers of producers' organisations, and link them to local and regional experts to help improve their quality management skills.

Rising economies of scale and competitiveness

Besides creating opportunities, the current success of the fair trade and organic markets also represents an enormous threat to the small and medium scale businesses involved. The "mainstreaming" of both product categories asks for economies of scale which cannot be achieved easily by the individual producers' organisations. It is no exaggeration to state that supermarkets are screaming for a rapid diversification of the product portfolio, but at the same time wish to lower the number of suppliers. Furthermore, import companies are expanding the geographic range of their product sources. This leads to a situation of greater competition between producers.

Photo: R. van den Bergh

Increasing demand for bananas in Europe can bring benefits, and also challenges, for fruit producers in El Guabo, Ecuador.

AgroFair has tried to deal with this issue in a number of ways. For example, it links import and distribution companies directly with producers, cutting out intermediaries who do not add value in the production and export process. At the same time, AgroFair has started to organise its global sourcing programme by building strategic alliances with regional hubs, export companies or service providers, all of whom are able to link up with a broad portfolio of products and producers from the same region. Examples of such regional strategic hubs are WAFF Ltd. (based in Ghana), Cauquen (based in Argentina) and FruitOne (based in South Africa).

Organisation and leadership development
It has become clear that for producers to be committed to fair trade and organic standards, AgroFair needs to invest in strengthening capacities of individual leaders and organisations in the production and trade process. To this end, AgroFair's business model is based on co-ownership and participatory governance structures. Fifty percent of the shares of the company are in the hands of the international producer co-operative CPAF ("Co-operative Producers AgroFair"), while the other fifty percent is in the hands of European NGOs and sustainable venture capitalists.

New non-tariff and technical barriers to trade
Long distance trade is currently hotly debated in terms of "food miles" and "carbon footprints". While academics and policy makers are still focusing on the best methodologies for measuring impact, many retailers have started including the origin of their products on their labels. Producers' organisations are worried that this type of labelling may turn out to be a new barrier to trade, hampering the introduction of products from developing countries. At the moment, AFAD is collaborating with the Agricultural Economics Research Institute, in The Hague, in order to get insights into the "carbon footprint" of a few fruit categories. Focusing on bananas and pineapples imported from Ecuador and Costa Rica, these studies consider the "carbon footprint" from a handling perspective.

Equally important is the growing use of information and communication technologies (ICTs) as part of international trade. These include technologies which help track and trace products, or which can help sell specific products (through, for example, "virtual portals"). In general, these technologies require high skills and big financial investments. Supermarkets promote the use of ICT tools because they lead to higher efficiency and transparency, but many producers feel this adds to the list of requirements with which they must comply. The GET Support Foundation, an initiative also based in the Netherlands, recently launched an internet based portal to link up food producers with retailers in a more transparent way. Such initiatives give producer organisations a broader set of options to sell their products. As of this year, AFAD partners in Morocco, Ghana, South Africa and Argentina are participating in pilot projects to test new opportunities for market access through this portal.

Further dilemmas for Fairtrade

Aside from the challenges that come with growth, there are other dilemmas that will need to be considered as fair trade develops.

Minimum price guarantee
Providing agricultural producers and workers with a guaranteed minimum price has been the central pillar of the fair trade concept. However, day-to-day business practices show some shortcomings. Producers' organisations, for example, are never able to sell all of their products under Fairtrade conditions. The benefits of having a Fairtrade certification are thereby reduced, as trade organisations that import Fairtrade food products tend to perform very weakly in the conventional markets. For example, fresh fruit imports are generally sold on consignment basis, which means that the producer receives a price that depends on the day-to-day fluctuations in the market, and may result in an actual loss. Secondly, the minimum price strategy does not always reflect market dynamics: rapidly changing exchange rates and the (increasing) costs of agricultural inputs have made most minimum price-setting useless. Many argue that the system has become so bureaucratic that the Fairtrade price-setting committee cannot cope with revisions of minimum prices, let alone define prices for new products.

"National Initiative" barrier
Each country has a "National Initiative", which determines whether a company can have access to its markets. In many cases, this follows arbitrary policies. AgroFair, for example, is not allowed to sell its Fairtrade citrus products in Switzerland, even though these are sold in the European Union. Linked to this is the fact that the Fairtrade premium and fee structure seems to be more and more unbalanced in favour of the northern side of the value chain: AgroFair currently pays a higher fee for National Initiatives per kilogramme of Fairtrade pineapple than for the premium fee to producers.

Ideal "Fairtrade producer" profile
A final dilemma regards the definition of the ideal Fairtrade producer. Does the ideal refer to farm size or family income? Different examples show that instead of using compliance to the social code of conduct (degree of control and co-ownership) as basic criteria for a Fairtrade certificate, the main indicator for deciding whether or not a farm can be certified has been its small size. Setting a maximum farm size conflicts with the original objective of giving smallholder producers access to export markets: how can we allow them to grow if we set maximum farm sizes? It is likely that elements such as co-ownership and joint decision making will become more important criteria to distinguish oneself from the traditional fruit companies which are increasingly embracing Fairtrade.

From "mainstreaming" to "broadstreaming"

Rather than limiting itself to "mainstreaming", the coming phase of the fair trade market development will shift to "broadstreaming". Broadly speaking, this refers to an increasing diversification, adding new product categories, and increasing market shares. From a sourcing perspective, the African continent will further expand its role as the horticultural garden for Europe and Asia. This will have a profound impact in terms of greater employment opportunities, trade volumes and incomes, which will necessitate greater attention to producer development programmes. Strategic alliances are therefore needed to cope with the challenges and capture the opportunities before the big market players do.

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Tasting the results of a joint effort

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Bioversity International is running several projects aimed at creating marketing options for the crops grown in the Central Andes. These activities focus on strengthening the linkages between producers and the local and international markets, and also between farming communities and the tourism sector. The overall objective is to support the development of new tools for income generation for rural and urban areas of countries like Bolivia.

Stephen Taranto and Stefano Padulosi

Community-based tourism refers to small-scale tourism ventures developed and managed by a local community. These are set up to ensure that a greater part of the economic benefits of tourism remain in the local communities, instead of in the hands of outside travel agencies. Agro-tourism refers to tourism experiences that focus on agricultural production and the consumption of locally-produced agricultural products. Examples range from visiting wineries in Italy to spending time in a traditional farming community in the Andes, and learning about what crops are grown and how they are used.

These approaches represent a growing sector of the Bolivian economy: a quick survey reveals that more than 30 initiatives are trying them out today, providing an interesting service to visitors and benefiting local communities. In some cases, these activities are being pursued in the belief that they can play an important role in showcasing Andean agricultural production systems and their remarkable agro-biodiversity. Consisting of many species of crops and animals, this diversity is mostly maintained by small-scale farmers. Through participatory diversification strategies and linkages to the domestic and international food and tourism markets, these activities aim at exploiting native crops for income generation.

Agro-tourism around Lake Titicaca

The partnership established between Bioversity International, La Paz on Foot and other organisations (see Box) was formed to assess and describe local agro-biodiversity, its current conservation status, and to look for ways to enhance local families' income through community-based agro-tourism in a community on Lake Titicaca. Our work started in Santiago de Okola, a community on the south-eastern shore of the lake, at almost 4000 m above sea level. Santiago de Okola is a traditional lakeside village of about 60 families, with a high tourism potential. It is located just 1.5 hours by boat from the Island of the Sun, Lake Titicaca's most important tourist destination, and only 2.5 hours drive from the city of La Paz. The community maintains many traditional farming practices; farmers grow potatoes and other Andean crops such as oca (*Oxalis tuberosa*) and quinoa (*Chenopodium quinoa*). For these reasons, as well as for its impressive landscapes, the views of Lake Titicaca and its beautiful beaches, this predominantly Aymara-speaking community has long been recognised as a tourist destination for Bolivian nationals.

In June 2006, a group of community members with an entrepreneurial vision formed the "Tourism Association of Santiago de Okola". They approached La Paz on Foot, which had already been bringing tourists to the community. They wanted to exchange ideas and discuss ways by which they could improve the services their community was already providing, and increase their incomes. At roughly the same time, La Paz on Foot was approached by Fundación PROINPA and asked to participate in the IFAD-funded Neglected and Under-utilized Species programme. PROINPA asked La Paz on Foot to help identify an appropriate site for implementing a pilot project.

Santiago de Okola was selected, due to the attractiveness of the landscape, its proximity to existing tourist destinations and –most important– the interest and commitment shown by the local population. The research hypothesis behind the work was that it is possible to generate additional benefits (increased income, conservation of germplasm, cultural survival) from local agro-biodiversity via agro-tourism, especially when infrastructure and human capacities are improved. Since then, the project has carried out a series of activities. Among these, they have facilitated exchange visits with existing community-based tourism enterprises in Bolivia and Ecuador. These visits were very useful, as they helped the farmers learn about the "reality" of running a tourism initiative as opposed to the "dream" of such an undertaking. All participants were able to see how other communities have developed and are managing their tourism initiatives. They could also see the impact which tourism can have in terms of income, day-to-day activities and internal community relations.

Twelve families are participating actively in the project and have set up bedrooms with up to four beds. Approximately

Partnerships for development and agro-biodiversity conservation

Several organisations are involved in this initiative, all of them with different interests and experience. One of them is Fundación PROINPA, a research and agro-biodiversity conservation institution based in La Paz. As a result of more than 15 years' work, they have vast knowledge of the intricate social and technological dynamics that characterise the Andean region. Another is UCODEP (Unity and Cooperation for the Development of People), an NGO based in Rome that has worked on a number of sustainable development projects, including initiatives aimed at helping tourism benefit the local communities. A third partner is La Paz on Foot, a small agro-tourism and environmental education project that organises courses and tourist packages that focus on the natural and cultural history of the Central Andes. The name illustrates the "slow-paced" experiences the company provides: visiting communities "on foot" and engaging in genuine interactions with local populations.

Additional input comes from "Alexander Coffee", an important restaurant chain in Bolivia's capital city. This chain has a long history of working with farming communities and has supported the development of two successful organic coffee-producing co-operatives. Bioversity International contributes by providing an overall framework within a multidisciplinary and multi-stakeholder view. One of Bioversity's main interests is supporting pilot projects that alleviate poverty and generate income for rural communities while conserving agro-biodiversity and the associated cultural practices necessary to maintain *in situ* genetic diversity.

Photo: Stephen Taranto

Tourists' stay in the community includes visiting farms, where they get a first taste of the local biodiversity.

90 tourists from Europe and the United States visited the community in 2008, with many more expected in 2009. They stayed with the families in a "home-stay" style arrangement, passing time and sharing meals with their host families. The regular tourist participates in a 3-hour tour of the community. This includes visits to home gardens, farm parcels, the community school and eating a traditional lunch using locally produced foods. PROINPA has directed the development of garden plots that showcase the rich agro-biodiversity present in the Lake Titicaca region.

Some challenges remain within the community...

While the community of Santiago de Okola is excited about its project, there are many challenges involved in its success. The learning curve for the participating families is steep. Their many obligations to farming and other household activities make it difficult to devote time to "growing" their new business. The still unpredictable and infrequent arrival of tourists makes it difficult to invest time and resources in improving the conditions of lodging and other services. In addition, the lure of urban areas means that periodic or permanent migration continues to be an option to many.

Nevertheless, the interest shown by the participating families is strong, and project technicians are working closely with all community members to make the project sustainable. For example, they are inviting more families to participate. Families are also investing personal resources in small improvements, such as cleaning up garbage around the village, painting bedrooms and purchasing china and cutlery for tourists' use.

We have many plans for the coming months. We will be setting up a community agricultural museum, and organising workshops that will look at the preparation of novel and more attractive meals made with local crops. We will be drafting the community company's internal statutes and regulations, and developing a website (www.santiagodeokola.com will soon be available). With support from UCODEP, representatives from the Runa Tupari agro-tourism initiative from Cotacachi, Ecuador, will visit Santiago de Okola. At the same time, efforts are being made to re-introduce several native crop varieties on to farms, such as *cañawa* (*Chenopodium pallidicaule*) and new varieties of potato and quinoa. The hope is that this will diversify diets and help farmers to conserve regional agricultural traditions.

... and also beyond it

An important additional partner in conserving the agricultural heritage of communities like Santiago de Okola is the Alexander Coffee restaurant chain. Their coffee shops are very popular with tourists and middle to upper class Bolivians. In 2008, with support from UCODEP, PROINPA and La Paz on Foot, Alexander Coffee led a series of campaigns to increase awareness of the nutritional, cultural and economic value of three Andean grains (quinoa, *cañawa* and amaranth). These grains have a very high nutritional value, but their production can hardly compete with that of wheat, maize or other associated products. Too often, people do not choose to eat them due to the fact that they are stigmatised as foods of the poor, a stereotype which is difficult to eliminate. Various activities took place during the three-month-long campaign. Four novel dishes using these grains were prepared (amaranth muffins and a quinoa salad, for example), and leaflets were placed on restaurant tables and counters with information about the history, culture and nutritional values of each crop.

Results among Bolivian consumers have been encouraging, showing a potentially permanent increase in the consumption of these grains. International tourists who visited Alexander Coffee might find it difficult to consume a diversity of Andean grains in their home countries, due to lack of availability. The idea, however, was to at least make them more aware of the agricultural richness of the Andean region, an aspect usually neglected by tourism companies operating in the region.

The experience showed that through NGO-private collaborations it is possible to reach a large audience with information which is important for increasing awareness about, and consumption of, native crops. It has also confirmed that the promotion of local agro-biodiversity can be successful providing that we use innovative, practical, culturally sensitive and attractive approaches. We find it important to aim at younger generations, for whom local crops and local food should be seen as an opportunity to re-discover their own roots and traditions in a pleasurable way.

The partnerships developed during this project ultimately depend on the willingness of local farmers and communities to continue using neglected and under-utilised species and varieties of native crops. In Santiago de Okola, the innovative approaches that focus on diversifying farmer economies seem to be working, albeit on a very small scale. Project co-ordinators are actively seeking additional support to be able to continue and, hopefully, replicate the positive results seen so far. The interest and commitment of farmers is critical to this process. But as they experience success, we are sure that this interest and commitment will continue to grow as well as their gardens do. ■

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PES= profits equally shared

From farmers to hydroelectric power stations, the number of downstream water users is large and diverse. But the quantity and quality of the water they receive depends on what is done upstream. Upland communities can now get compensation for their role, following business agreements from which everybody benefits.

Text and photo: Julio Tresierra

Better farming practices that bring multiple benefits.

It is widely estimated that, during the last 30 years, the world has lost between 30 and 50 percent of its biodiversity – as a result of urbanisation, industrialisation, or our overall interest in improving living conditions. It is frequently argued that biodiversity cannot compete with the economic value of alternative land uses, such as agriculture or mining, which generate incomes. However, it is also recognised that natural ecosystems produce a wide range of environmental goods and services with an economic value, such as food and non-timber forest products, and others whose value is not always economically recognised, such as carbon sequestration or the regulation of water quality and quantity. Payments for Environmental Services (PES) seek to address this problem. PES schemes are finance mechanisms designed to transfer rewards from those who benefit from environmental services to those who ensure that these benefits continue to be provided. The beneficiaries can include the private sector, such as industries or farmers, or public sector institutions, such as drinking water utilities. For those communities that manage land and other resources,

PES is increasingly seen as a potential source of income to improve their livelihoods.
Since 2006, WWF and CARE have been working on an innovative finance programme called "Equitable payments for watershed services", running pilot projects in Tanzania, Indonesia, Guatemala and Peru. Equitable PES schemes differ from regular PES mechanisms in that they aim to bring substantial benefits to the poor. These can include infrastructure at a community level, such as schools, hospitals and roads, or income generating activities. But the benefits can be much broader, including community empowerment, reduced vulnerability to climate change and more stable social, cultural and environmental conditions. Second, equitable PES schemes aim to make payments to the poor in a just and equitable way. This implies putting the priorities and needs of the poor centre-stage, incorporating local values, knowledge and practices into natural resource management regimes, and ensuring that women and marginalised groups play a central role in the PES schemes. This explicit focus on reducing poverty in rural upland communities involves inviting these and other groups to take a seat at the negotiating table, to discuss with stakeholders downstream the best way to manage a watershed for mutual benefit. A change from subsistence practices towards more sustainable land use could improve the livelihoods of poor upland farmers while, at the same time, protecting the environment and providing a reliable and continuous supply of quality water to users downstream.

A business proposition In the negotiation process, the service providers and users (or the "sellers" and "buyers") establish long-term business agreements. These are based upon baseline studies on hydrology and community livelihoods, as well as legal, institutional and economic analyses. These studies help put a price on the costs and benefits involved. They also help identify potential buyers, such as food or drink processors, hydroelectric companies, associations of water users, or governmental water utilities. Small-scale farmers in upland communities take a seat at the negotiating table, together with downstream commercial, industrial and domestic users. They talk as equal partners and negotiate a Memorandum of Understanding. The negotiation process is to "restore" or improve a watershed system. Signing this Memorandum marks the end of the first phase of the project. The second phase involves implementing the agreed land use changes in selected "hot spots", and the monitoring and evaluation of the impact of these changes. A third phase will start when buyers and sellers of watershed services establish legally binding agreements. By this time, it is expected that there will be sufficient local capacity in place to

Checking erosion in Teculutan

Flowing to Guatemala's southern Atlantic coast, the Motagua and Polochic rivers are part of the larger Mesoamerican Reef Ecosystem river basin. Both run down from the tropical cloud forests within the Sierra de las Minas Biosphere Reserve, one of the most biodiverse regions within Mesoamerica. The reserve is one of the largest unbroken extents of cloud forest, covering around 1,300 km², of which some 65 percent is primary forest. The project focuses on the Teculutan watershed, one of the 63 sub-basins of the Montagua-Polochic complex which covers an area of approximately 200 km².

There are many and diverse water users in this watershed, including coffee processing units, bottling and paper industries, large and small-scale farmers, and also private households, most located in the town of Teculutan. The forest and freshwater habitats in this region have been affected by changing farming practices (steep hills, cattle ranching, and slash and burn) and there is also severe pollution, resulting from the use of chemical pesticides and fertilisers and from domestic and industrial effluents. Deforestation in a hilly area, where rainfall reaches up to 2,000 mm/year, has had an enormous impact on the soil. It is estimated that more than 20 tonnes of soil are lost per year as a result of erosion. Sedimentation, pollution and turbidity mean that there is less water available for human consumption or for industrial and commercial uses. Erosion is also threatening biodiversity in the wider Mesoamerican Reef system. The local municipality recognised that there was a clear problem of water quality as a result of erosion and sedimentation. In addition, changes in land use were leading river flows to change drastically, and increasing the extremes of high runoff levels in winter and low summer flows. As a result, many downstream communities had little water, of poor quality, for much of the year.

The first step in the project was to identify the communities that were contributing most to the problem: El Astillero, Las Anonas, Las Minas, El Arco, San Antonio and El Oreganal. With a total population of 3,000 people, they mostly cultivate maize and beans in the upper parts of the watershed (covering a total of 224 hectares). All the community members belong to the Association

for Community Development (ADICOMTEC) and all were included in the business agreement as "sellers". Being responsible for providing safe water to 18 communities (with approximately 13,000 inhabitants), the Municipality of Teculután was included as the "buyer" in the watershed business model.

The city had two options for solving the water problems it was facing. One was to invest in water treatment plants and distribution systems, and to buy water to supply communities in times of shortage or excessive sedimentation. This was a short-term and unsustainable solution. The second option was to set up a compensation programme for watershed services, to encourage farming and other practices that were compatible with the integrated and sustainable management of the watershed – something that could bring about a medium and long term solution. Arguments were made that changes in the current agro-cultural practices could improve the ground vegetation cover and reduce erosion, and that this would reduce the sedimentary load in the surface water. The municipality opted for this alternative.

As part of the project, ADICOMTEC has set up a tree nursery and is planting out trees over an area of 400 hectares. The nursery has over 75,000 native species plants from the region. The planting programme involves local villagers who have received training in forest management and reforestation. Men and women are participating in the reforestation, even though conditions are harsh (mainly because of the rocky soils and the lack of water sources). Another specific component of the project focuses on agricultural practices and is promoting the production of high-profit crops such as okra, watermelon and oriental vegetables. The municipality has provided 35 hectares of land for these crops, of which 20 are now used for growing okra. Women play an important role in the cultivation of okra and benefit economically from this. Another agricultural experiment is being carried out with different high-yielding maize varieties, applying various cultivation techniques. A small experiment was carried out on two hectares of land, comparing the productivity of these varieties to those commonly sown, and showing that the new ones produced up to seven times more. In total, profits on the 35 hectares were more than US$ 70,000 in 2009. In addition, the promotion of better land use practices has also led to the creation and training of fire control brigades. Although the project is not yet finished, farmers have seen their incomes increase, and the municipality has more and better water.

manage the mechanism, allowing external agents, such as donors, to leave.

An enabling environment

The results of the first phase of the WWF-CARE programme have shown some of the key conditions for equitable PES. There must be:

- a clear willingness (and capacity) to pay and for people to sell ecosystem services;
- well-defined property rights;
- a good understanding of environmental characteristics and linkages;
- the possibility of keeping transaction costs low by concentrating on groups;
- mechanisms for regular and contingent payments;
- appropriate legal frameworks; and
- willingness to talk to each other, engage in dialogue and participate.

The biggest challenge in establishing a Payment for Watershed Services project is that of generating initial interest from a buyer. The emphasis in many PES schemes has often been on seeking the engagement of service providers. But in such cases it is often difficult to convince buyers that the opportunities are ecologically or economically justified. To involve potential buyers, the WWF-CARE project has developed compelling business cases which quantify the problems associated with land use in the upper watershed and provide rigorous financial cost-benefit analyses. The strength of these financial arguments led buyers at all sites to contribute to the development of the project long before, and without any certainties about, the delivery of watershed services started. Another challenge has been ensuring social justice and equity, as poorer households tend to have little or no land and no influence on decision-making at community level. This issue requires continuous attention and identification of special compensatory or enabling measures. Partnering local communities, local and national NGOs, the private sector and governmental agencies offers a key to success.

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More information

Apart from Guatemala, the WWF-CARE project has also had positive results in the Jequetepeque river basin, in northern Peru, and in the Uluguru Mountains, in Tanzania (see www.wwf.nl). Similar approaches are being tried by other organisations. In Kenya, the World Soil Information Centre (ISRIC) and IFAD are collaborating in a green water credits programme, in which farmers in the Upper Tana catchment area are rewarded for sustainable land use by the hydro-electric company KenGen (www.greenwatercredits.info).

R3. Photo gallery

Objectives: These photos, from around the world, are intended to support the teachings, to stimulate discussions and help students to better understand the issues within the three Learning Blocks.

Total time involved: Presentation during class time (20-30 minutes)

Materials: Photo gallery as power-point presentation with a beamer, or printout (see pages 136-142 for larger photos)

Methodology:

- Present the photographs and ask a number of questions to stimulate students to make links with larger issues; for example, what do they observe in the photo, and what does it mean in relation to small-scale farming (encourage them to reflect on environmental, socio-cultural, economic and policy aspects)
- Use the photographs to discuss similar initiatives in your region.

Photo Nr	From	Story
	**El Guabo, Ecuador**	Introducing organic certification and Fair trade standards has helped increase small-scale farmers' access to the rapidly expanding supermarket sector in many European countries. Increasing demand for bananas in Europe can bring benefits, and also challenges, for fruit producers in El Guabo, Ecuador. For example, food safety and quality standards are much more stringent, forcing producers to upgrade their capacities which might be difficult for small-scale producers. Furthermore, it is getting more difficult to compete as supermarkets are screaming for a rapid diversification of their product portfolio, but at the same time wish to lower the number of suppliers.
	**Burkina Faso**	The women in this photo are extracting fat from shea nuts as one of the most important tasks in producing shea butter. This product is in increasing demand by the cosmetic industry. Léo Union was the first organisation to obtain organic and fair trade certification for the production and marketing of shea butter. Both certificates give the Léo Union a commercial advantage over its competitors, as it can now offer a wider range of products (conventional, organic and also fair trade shea butter), and they are widely recognised as the only organisation which holds both labels. One of the direct impacts which members have experienced is a higher income as a result of the higher selling prices.
	**Mexico**	A major challenge for local organic markets is the economic and bureaucratic barriers that make it difficult for small-scale producers to obtain organic certification. In response to this, an organic network in Mexico supported the development of participatory certification. This system means that bureaucracy is minimised, producers do not have to pay high fees, and producers and consumers get educated. There is a great deal of interest from Mexican producers and consumers to work together to create sustainable food systems. The photo shows one of the regularly organised workshops in which producers and consumers exchange ideas about, in this case dried herbs.
	**Kenya**	Smallholder markets in remote areas are neither competitive nor transparent and it is difficult for producers to generate extra profits or to handle the fluctuation of prices. Tradenet offers online data about 600 markets and 17 African countries. All information – including offers and inquiries – can be passed on by sms on mobile phones, as well as on Tradenet's website. Trade points as the one shown in the photo helps people without internet access to get the information by way of mobile phones.

	**The Netherlands**	Community Supported Agriculture (CSA) is a direct marketing approach that encourages local, environmentally sustainable food production. CSA is a partnership between a farm and consumers. CSA members (the consumers) make a commitment to the producer to support the farm throughout the growing season, by purchasing a share of the harvest – at the beginning of the season. In this way, the farmer is guaranteed a reliable market and a yearly income which the consumers get a wide range of fresh, organic products. This relationship requires an investment in regular communication, trust and a clear, fair division of tasks and responsibilities between the consumer members and the farmers.
	**Cochabamba district, Bolivia**	With a lot of work and good linkages and contacts with external agents, ECOVIR S.A., a farmer company in Bolivia is managing its own solar drying of organic fruits and local, national and international commercialisation of the products. These are bought from local farmer associations with organic certification. Fruit is brought in fresh and within 48 hours it is cleaned, peeled and cut into pieces. These are then placed on trays and into the dryer. After a few days, the fruit pieces are dried and put into airtight bags, to be packed and labelled for customers.
	**Cameroon**	In Cameroon, as in many other countries, the honey sector has remained a small-scale activity. Market access for honey products has been limited for many African farmers. To tackle the challenges a value-chain approach was developed, which means that value was added in different ways by actors in the supply chain. Quality control is one component that can improve the marketing of a product. On the photo, Aminatou Hamou uses a refractometer to measure moisture content in honey, ensuring its quality.
	**Mirandiba. Brazil**	Farmers arrive with sacks full of produce to be delivered to schools and hospitals through the Food Acquisition Programme. This programme was created in Brazil to address hunger and poverty by buying products directly from the family farmers at prices that would benefit them. The products are used to feed people in schools, nurseries, care homes, hospitals and other social service institutions. The programme also promotes agroecological farming methods through a payment increase of 30 percent for farmer associations that can prove they employ these methods.
	**Vietnam**	Mekong is a deltaic region which brings difficulties to overland travel: there are few roads, and bridges over the tributaries are usually just a few lengths of bamboo wide enough to allow one person to cross. At the same time, with fertile soils and a good climate, multiple croppings per year are possible, and people are able to grow quite a lot of food. One of the only effective ways to travel is by boat, and the people travel to central locations to trade their produce in floating markets - the only spaces that are usually large enough to accommodate everyone. People seek out boats containing goods they want and make their way over to them to trade - it's a constantly moving, changing scene. Floating markets are also common in other southeast Asian areas, such as in Thailand.
	**Western Kenya**	Small-scale farmers have found a way to make use of poor soils on their land. The sand and gravel soils are dug up and sold to townspeople who use them for construction. The soils are graded in terms of size of grains, and are found in a range of beautiful colours - though this factor may have little influence on the buyers.
	**Ecuador**	Toni Dairies in Ecuador has seen the demand for its products triple in the last three years. It now uses the "inclusive business" model to co-operate with small producers and in this way ensure the long-term availability of adequate quality milk. Under the supplier programme, the capacity of local suppliers is developed by improving their marketing technology, financial and internal management skills.
	**Bogor, Indonesia**	After grinding the cassava tuber, moist tapioca is traditionally dried on flat baskets that are spread out in the sun, such as is shown in the photo near Bogor in West Java. In response to the Western European demand for animal feed, small factories have sprung up everywhere, and cassava has replaced local food crops including the formerly ubiquitous rice.

 13	**Georgia**	Since the collapse of the Soviet Union, small-scale enterprises have taken off in many forms in the countries of that region - including many farm-based ones. Small dairies such as that owned by the farmer from Georgia shown in the photo produce cheeses and butter and sell these along with their milk on local markets. For these farmers, donkey-drawn carts an important form of transportation of their wares to market.
 14	**Zambia/ Pakistan**	Grain storage is highly important for food security and people have used different methods to store grains for centuries. In recent years, several improved methods for local grain storage have been introduced in order to reduce grain losses. Two different types of improved storage are shown in the photos: From Zambia: Farmers have improved their local granaries by plastering them with a concrete layer in order to keep insects and moisture out of their maize and other grain storage. From Pakistan: Sheet iron storage bins are meant to keep the grain dry and to minimise insect infestations; a small opening allows removal of the grains without disturbance.

R3. Photo gallery

El Guabo, Ecuador
Photo: R. van den Bergh

PHOTO 1

Burkina Faso
Photo: CECI

PHOTO 2

Mexico
Photo: Erin Nelson/ Laura Gomez

PHOTO 3

Kenya
Photo: Tradenet

PHOTO 4

The Netherlands
Photo: Henk Kloen

PHOTO 5

Cochabamba district, Bolivia
Photo: M. Fernández

PHOTO 6

Cameroon
Photo: Verina Ingram

PHOTO 7

Mirandiba. Brazil
Photo: Sofia Naranjo

PHOTO 8

Vietnam
Photo: Amir Jina

PHOTO 9

Western Kenya
Flemming Nielsen

PHOTO 10

Ecuador
Photo: SNV

PHOTO 11

Bogor, Indonesia
Photo: Wim Giesen

PHOTO 12

Georgia
Photo: Wim Giesen

PHOTO 13

Zambia/Pakistan
Photo: Flemming Nielsen/Metameta

PHOTO 14

R4. Videos

Objectives: To offer visual examples from around the world to complement the teachings and to deepen students' understanding of sustainable marketing and finance practices in small-scale farming.
Total time involved: See video durations below – add time for classroom discussion.
Materials: The videos are available on CD-Rom or can be downloaded from the LEARNING pages on ILEIA's website; to present the videos, a computer and beamer are needed.
Methodology:
- Present the videos to illustrate points from the lessons and to stimulate discussions on them.
- Use the videos to discuss related issues and initiatives in your region.

R4.1 Cotton financing in Tajikistan

Duration: 13:45 minutes
Suggested use: Section 1.4 Agricultural Financing
What it is about: Cotton is an important cash crop for farmers in Tajikistan. After the collapse of the Soviet Union, however, cotton farmers were especially hard hit and could not access the cash they needed. Therefore a co-operative lending and marketing company owned by farmers was initiated (World Bank, 2008).

Suggested questions:
- Why is access to credit so essential for farmers?
- How can farmers prevent the risks of falling into debt?
- How is this company operated? What are the strengths and weaknesses? In what way is the project seen as a sustainable solution to finance problems?
- What kinds of solutions were brought up to increase sustainability of the farmers? Do you think this would work in your country?
- What agricultural financing systems do you know of, and what are the benefits and risks carried by them?

R4.2 Small producer agency in globalised markets

Duration: 16:52 minutes
Suggested use: Section 2.2 Increasing integration and globalisation of markets
What it is about: Small-scale producers are confronted with many dilemmas and challenges when marketing their products. This video from Latin America presents the dilemmas of the knowledge gaps that small-scale farmers have to fill in order to make informed decisions and to position themselves in more and more globalised markets. (IIED/Hivos, 2009).

Suggested questions:
- What dilemmas and challenges encountered by small-scale producers are presented in the video?
- In what ways can farmers change their market position?
- What role does the government have in this development?
- How can small-scale farmers manage regulations and what are the benefits of doing so?
- How do farmers in the video add value to their products? Why is this necessary?
- Are the issues raised in this film similar to those in your country?

R4.3 Trading safely

Duration: 30:10 minutes
Suggested use: Section 2.3 Changing demand and preferences for agricultural products
What it is about: The food safety and health standards in importing countries are very strict, creating challenges for product-exporting countries. Several pests and diseases have caused products to be banned and increased controls. This video tells stories from Benin, Belize, Thailand and Vietnam, on how some are rising to the challenge. (STDF, WTO, 2009)

Suggested questions:
- What are sanitary and "phytosanitary" measures and why are they made? How are they governed? (i.e. who sets standards?)
- What are examples of such measures?
- What do you think about farmers coming to depend on one or two major products for income? What alternatives can you think of?
- What are the threats to consumers, animals and plants that are presented in the video?
- Do you think the trade regulations are globally fair? Why, why not?

R4.4 Why markets don't work in Africa

Duration: 5:47 minutes
Suggested use: sub-Section 3.3.1 Providing basic market infrastructure
What it is about: African farmers are among the most unsupported in the world. Different African farmers and traders who are interviewed in this film describe their fundamental problems in both producing and selling their food and feed products (ILRI, 2009).

Suggested questions:
- What kinds of production and marketing problems are presented in this video? Do the different interviewees have problems in common?
- Are these problems specific to Africa only? How do you think these problems can be solved? Is it even possible?
- In the video, we are told that there is a need for "enabling conditions" - what does this mean?
- Why are the production costs so high? What does this mean for rural entrepreneurs?
- Can you relate the issues raised in this video to small-scale farmers in your country?
- Do you agree that farmers have to commercialise more to improve their livelihoods?

R4.5 The first mile

Duration: 8:14 minutes
Suggested use: sub-Section 3.3.2 Improved market information system
What it is about: Good communication is vital to small-scale farmers who need better access to markets and to reliable information about prices, product quality and market conditions. Can new information and communication technologies, such as mobile phones and the Internet, help? This video looks at the First Mile - a two-year pilot project underway in Tanzania. (IFAD, 2006).

Suggested questions:
- What do you think of the approach of linking farmers to information and knowledge by introducing communication technologies? What challenges will this overcome - and what new challenges will it create?
- In the video, the narrator talks about changing behavior – how do you think the narrator means this and how do you think it can be done?
- Why is partnership and working together so important? What information needs to be shared?
- Is this kind of development also taking place in rural areas of your country? What kinds of ICTs are used? How successful is this media?

R4.6 Just coffee

Duration: 21:07 minutes
Suggested use: sub-Section 3.4.3 Fair trade and ethical trading
What it is about: This video presents the coffee sector, focusing on both producers and consumers. Four of the major certification labels on the market are looked at: Utz Kapeh, Rainforest Alliance, Organic and Fair Trade. (Consumers International, 2006)

Suggested questions:

- How much of global coffee supply comes from small-scale farmers?
- What do you think of the four different kinds of certification? How do they differ and how are they similar?
- What would it mean if farmers could become certified for free?
- What do you think is the impact of the certification of coffee farmers on social, economic and environmental conditions in producer countries? Why can't all farmers be certified?
- What do you think is the incentive for consumers to buy fair trade coffee? Do you think the certification can be trusted?
- What would be a good marketing strategy to reach more consumers with fair trade and organic coffee?
- How can your country add value to your main export products?
- Why is there such a big difference between the final price paid by consumers and the price given to producers?

R5. Farmer visit and field exercises

Objectives: To get close to practical marketing and finance realities of small-scale farmers to better understand the lessons in the three learning blocks; to interview at least one, but preferably more farmers and other value chain actors directly; and to allow students to get practical experience in interviewing and synthesising information.

Time involved: Take time ahead of the interview to prepare questions and field exercises. The time needed for the visit will depend on how far the interviewees live from the school; the interview should last at least 1 hour. Per field exercise, calculate half a day.

Suggested use: Visits can take place once the lessons in Learning Block 1 have been completed. Waiting until completing Learning Block 2 will allow for more insights into the wider contextual issues that affect small-scale farmers in meeting their marketing and finance needs.

Materials: For the interview: pen and paper to take notes – and if available, tape recorder, camera and/or video camera.

Methodology:

- If possible, arrange interviews with different farmers and other actors involved in the production, processing, packaging, distribution and marketing of a major product in your region. Make sure to include both men and women. If there is not enough time to visit various actors with the whole group, divide participants into groups to conduct visits to different actors in the chain.
- Together with the chain map, prepare a list of topics that the students can discuss with the farmer and other actors before the visit.
- Following the visit(s) ask students to make presentations and evaluations for discussion.

Figure 28: Visits to farmers and other actors in the value chain bring practical realities alive.

R5.1 Interviews with farmers and other value-chain actors

Before going to the field:

- Decide together with the students on one product that is produced locally and ask the students to conduct background research on the product and the sector in your country and region. This can be done by reviewing internet and other secondary sources. Examples of information to find:

√ Importance of the product to the region or to the country's economy
√ Conditions necessary to grow the crop/ keep the animal (e.g. climate, soil, water, feed)
√ Average farm size of the producer
√ Typical chain activities and value addition needed for the product to be marketable
√ End market for the products –global, local, regional sales points; average prices

- Practise visualising together with the students the flow of the product from supplier or producer to consumer by making a "value-chain map" (refer to Figure 17 - shown again below). The first step is to list all the actors and their functions in the chain based on the information the students have at the moment. Second, draw a value-chain map. Questions to be asked:

√ Who are the actors in the value chain of product x?
√ What are the functions in the value chain of product x?

- Thereafter ask students as well to consider the following questions:

√ What are the linkages with the different functions and actors?
√ What are the support services to the chain?
√ What are the governance patterns (regulations, quality standards, controls) associated with the value chain and its market channels?

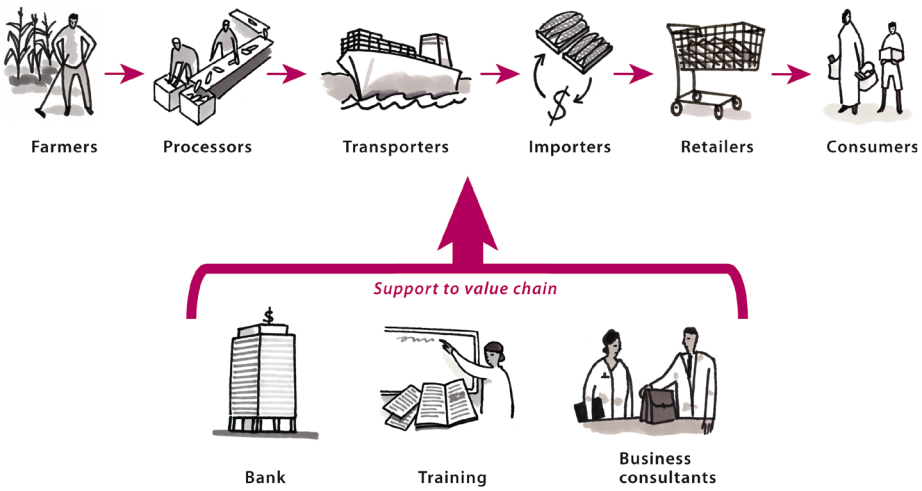

Figure 17: Global value from producer to consumer. The value chain has many actors with different roles and activities (see page 38, Module 6)

During the field visit:

- Ask the students to bring the value-chain map to the field visit. Preferably visit different actors in the chain; for example – the producer, processor and wholesaler.
- The idea is to have the map as a base for interviewing and to identify issues. Questions the students can discuss with the chain actors:

√ Is the value-chain map visualised correctly?
√ What are the connections/linkages/communication between the different actors?
√ What issues are important to them in terms of; support services, access to credit, information, marketing, etc?
√ Are there differences between men and women in the value chain in terms of activities, labour, decision-making, technology use, access to credit, resources and information? (Ask both men and women) If yes, why?

√ What are examples of informal labour and services?
√ Is there formal co-operation between groups of actors (for example farmers' co-operative)?
√ What are patterns of governance in the value chain - meaning the relationships with other actors, power, gender relations, control and economic subsidies, benefits?
√ What are local and international markets and possibilities?
√ What price do farmers get for the product and what do consumers pay?

Discussion after field visit:

- Evaluate the field visit by discussing together with the students how they experienced the visit and the value-chain mapping.
- Ask students to present their value chains and other findings.

√ How can the value chain be improved? What aspects are strong and weak?
√ Looking at the end market, how can the different chain actors influence the consumer, and the other way around?
√ What kind of regulations are there? How do these differ per product and end market? (i.e. global vs local)
√ Do farmers benefit from value chains?
√ What is the price difference for farmers and consumers? Is it fair?

R6. Further references for Module 6

This section provides a list of freely accessible resources that can help educators and students dig deeper into issues explored in this module. Resources include books and guides, as well as websites that offer further resources, photos and videos.

R6.1 Books and field guides

Entering the organic export market: A practical guide for farmers' organisations

By: Freek Jan Koekoek, Marg Leijdens and Gerbert Rieks. 2010. Agrodok 48. Agromisa, P.O. Box 41, 6700 AA Wageningen, the Netherlands.

Download from: http://agromisa.org

In spite of the world's economic crisis, global demand for organic products has continued to grow in the last years. More and more organic farmers are benefiting from selling their products in international markets and many more are expected to join them. This booklet first gives an overview of the organic market and the importance of the certification process. This is followed by a description of the steps involved in making a business strategy: a feasibility study, risk analysis, marketing, planning and evaluations.

Business unusual: Successes and challenges of fair trade

By: Anja Osterhaus (ed.). 2006. Fair trade Advocacy Office, Rue du Commerce 124, B-1000 Bruxelles, Belgium.

Download from: http://www.fairtrade-advocacy.org/images/stories/publications/Fairtrade-UK_1to84.pdf *and* http://www.fairtrade-advocacy.org/images/stories/publications/Fairtrade-UK_85-end.pdf

Fair trade is presented as a successful global movement, involving more and more farmers and producers, with sales growing spectacularly all over the world. This book explores the reasons behind success, and also the challenges emerging nowadays. The first chapters of the book cover the general issues regarding fair trade, looking at producers, consumers and private companies. The second part focuses on specific products, serving as examples: handicrafts, coffee, rice, cotton and textiles. By showing that fair trading is possible, the authors want to encourage all business actors to apply similar principles, while simultaneously aiming at changes in the policies regulating world trade.

Chain empowerment: Supporting African farmers to develop markets

By: KIT, Faida MaLi and IIRR. 2006. Royal Tropical Institute, Amsterdam, the Netherlands; Faida Market Link, PO Box 13869, Arusha, Tanzania; and International Institute of Rural Reconstruction, Nairobi, Kenya.

Download from: http://www.kit.nl/smartsite.shtml?id=SINGLEPUBLICATION&ItemID=1952

This book describes two basic strategies that groups of farmers can use to improve their incomes: vertical and horizontal integration. Vertical integration means taking on additional activities in the value chain: processing or grading produce, for example. Horizontal integration means becoming more involved in managing the value chain itself – by farmers' improving their access to and management of information, their knowledge of the market, their control over contracts, or their co-operation with other actors in the chain. This book contains 19 case studies showing how groups of farmers throughout Africa have adopted one or both of these strategies to improve their incomes.

Farmer-controlled economic initiatives: starting a cooperative

By: R. Koopmans. 2004. Agrodok 38. Agromisa, P.O.Box 41, 6700 AA Wageningen, the Netherlands.

Download from: http://www.agromisa.org

Many farmers' organisations in developing countries see it as their task to support business initiatives, such as the development of an agricultural co-operative or an agri-business, owned and used for the benefit of their members. These business initiatives are undertaken in order to create solutions for common problems, for example in the processing and marketing of agricultural products and in gaining access to credit. This manual in the Agrodok Series is meant to assist agricultural organisations to develop agricultural co-operatives.

The rural finance landscape

By: Ton de Klerk. 2008. Agrodok 49. Agromisa, P.O.Box 41, 6700 AA Wageningen, the Netherlands.

Download from: http://agromisa.org

This Agrodok describes current savings, lending, and insurance practices, identifies the service providers working in the informal, semi-formal and formal sector and discusses current approaches and methodologies. It targets those who want to know more about rural finance as well as development practitioners concerned with identifying the financial services most appropriate for their project or organisation.

Making the most of agricultural investment: A survey of business models that provide opportunities for smallholders

By: S. Vermeulen and L. Cotula. 2001. IIED/FAO/IFAD/SDC, London/Rome/Bern.

Download from: http://www.ifad.org/pub/land/agri_investment.pdf

This report focuses on models for structuring agricultural investments, based on pure trading relations. Business models are discussed under six broad headings: contract farming, management contracts, tenant farming and share-cropping, joint ventures, farmer-owned businesses and upstream/downstream business links. Some models involve large-scale farming but with closer involvement of local landholders. Others bring smallholder farmers into the value chain.

Local marketing of organic products in developing countries: Guidelines for practitioners

By: Felicitas Flörchinger, Annette Bern, Thomas Becker, Berthold Schrimpf and Johannes Kotschi (eds). 2007. AGRECOL, Rohnsweg 56, 37085 Göttingen, Germany.

Download from: http://www.agrecol.de/images/stories/Marketing_engl_lr_2008_06.pdf

This manual looks at the most important issues to be considered when trying to develop or improve the marketing of organic agricultural products. Written for farmer groups, NGOs involved in the promotion of local marketing, governmental organisations or processors and traders, it provides a hands-on guide for helping farm families develop and improve their marketing efforts, with a special focus on organic products (and not only those that are certified). Its different chapters look at the basics of marketing, such as planning, pricing or the promotion of specific products.

Marketing for small-scale producers

By: A. de Veld. 2004. Agrodok 26. Agromisa, P.O.Box 41, 6700 AA Wageningen, the Netherlands.

Download from: http://www.agromisa.org

Many farming households set up income-generating activities to market their products. This booklet explains how markets work and how small-scale producers can best take advantage of it. The level of income earned from secondary activities is partly determined by the way the activity is managed. Planning and organisation of production is therefore discussed in the second part of the manual.

Producer organisations: A guide to developing collective rural enterprises

By: Chris Penrose-Buckley. 2007. Oxfam Skills and Practice Series, Oxfam GB. Oxfam House, John Smith Drive, Cowley, Oxford, OX4 2JY, U.K.

Download from: http://publications.oxfam.org.uk/oxfam/add_info_044.asp

Small-scale producers have to compete with large commercial producers, while state support services have been cut back, markets are volatile, and buyers demand high quality and safety standards. This guide looks at the most important strategy that small producers can adopt in order to access, compete, and influence markets: through collective action in the form of producer organisations (POs). POs include farmer co-operatives, associations or informal groups. All of them have the possibility of influencing policy decisions, competing in the market, and providing the services their members require.

Slow trade - sound farming: A multilateral framework for sustainable markets in agriculture

By: Wolfgang Sachs and Tilman Santarius. 2007. MISEREOR and Heinrich Böll Foundation, Mozartstr. 9, D-52064 Aachen, Germany.

Download from: http://www.ecofair-trade.org/pics/en/brosch_ecofairtrade_el.pdf

This report is one of the results of the EcoFair trade dialogue, a project carried out with the objective of enriching and influencing the debate on the reform of the current multilateral regime of international agricultural trade. It is

presented as the project's contribution to the global efforts in developing new and innovative solutions towards a more just and sustainable global society. The dialogue was conducted through regional consultations in Africa, Asia, Latin and North America, and Europe. Participants included representatives of farmers' organisations and NGOs, as well as ministries, representatives of many countries' parliaments, the scientific community and international organisations.

Storage of tropical agricultural products

By: Jelle Hayma. 2004. Agrodok 31. Agromisa, P.O.Box 41, 6700 AA Wageningen, the Netherlands.

Download from: http://www.agromisa.org

Farmers have long developed different methods for storing their products. Some of these traditional methods protect the product reasonably well and need at most slight improvements. On the other hand, it is possible that some traditional methods are unsatisfactory, and lead to high losses. This Agrodok deals with the problem of storage of agricultural produce in the tropics and sub-tropics. Various methods of storage are discussed, together with the conditions needed and the problems arising for extended storage of different groups of agricultural products.

Trading up: building cooperation between farmers and traders in Africa

By: KIT and IIRR. 2008. Royal Tropical Institute, PO Box 95001, 1090 HA, Amsterdam, The Netherlands; and International Institute of Rural Reconstruction, Africa Regional Centre, PO Box 66873, Nairobi, Kenya.

Download from: http://www.kit.nl/net/KIT_Publicaties_output/ShowFile2.aspx?e=1441

Trading Up highlights the role of traders in the value chain. Unknown to most producers, traders operate in a climate of great uncertainty, encountering enormous risk. Most private traders possess little working capital. They often rely on their own funds, advances from wholesalers, acceptance by farmers of deferred payments and, at times of peak financing requirements, high-interest money lenders. This books shows that traders are not villains, as are they often perceived to be. The case studies presented here recognise the specialised role of all actors in the value chain.

Managing risks and designing products for agricultural microfinance

By: Robert Peck Christen and Douglas Pearce. 2006. International Fund for Agricultural Development, Via del Serafico, 107, 00142 Rome, Italy.

Download from: http://www.ifad.org/ruralfinance/pub/risks.pdf

Agriculture is widely considered more risky than industry or trade. Thus, it is not surprising that agricultural lending projects have had poor repayment performance. Weather, pests, diseases and other calamities affect the yield of crops, substantially in extreme cases. Drawing on a few significant, successful experiences in various developing countries, this paper offers a model in terms of agricultural microfinance, for providing financial services to poor, rural farming households.

From seed to table: Developing urban agriculture value chains

By: Urban Agriculture Magazine no 24. September 2010. RUAF, P.O Box 64, 3830 AB Leusden, The Netherlands.

Download from: http://www.ruaf.org/node/2264

The Urban Agriculture Magazine functions as a platform for exchange and discussion of grounded information on urban agriculture: research results, project experiences, and critical analyses of conventional and innovative policies on urban agriculture. This issue on value-chain developments looks at connecting urban and periurban producers with urban markets in a more sustainable way.

R6.2 Relevant websites

ACP – EU trade website

www.acp-eu-trade.org

The website stands for non-partisan sourcing and knowledge sharing on trade between ACP countries (African Caribbean Pacific states) and the EU (European Union). The ACP group of states and the EU states have Economic Partnership Agreements (EPA) which are special trade agreements aimed mainly to ensure the development of ACP countries and their gradual integration into the global economy. This site hosts a library of related literature, databases of experts, trade negotiation insights, EPAs and a South-North network.

Agritrade

http://agritrade.cta.int

Agritrade is the web portal of CTA (Technical Centre for Agricultural and Rural Cooperation) on international agricultural trade issues in the context of ACP (African, Caribbean and Pacific countries) relations with the EU (European Union). Agritrade covers issues such as: economic partnership agreements; reform of the EU common agricultural policy and its implications on ACP countries; WTO agreement on agriculture; market access; and food safety. It also provides information on a large number of different commodities (sugar, rice, beef, banana, cotton, cereals) as well as news updates and news alerts on hot topics; discussion papers; a calendar of events; and electronic discussions.

ASA

www.asa.org.bd

ASA has since 1978 grown out to be one of the largest Microfinance Institution (MFI) in the world. The overarching objectives of ASA are to alleviate poverty and improve the quality of lives of the landless and asset-less rural poor by providing them with access to financial services.

BioTrade Initiative

www.biotrade.org

UNCTAD (the United Nations Conference on Trade and Development) launched the BioTrade Initiative in 1996 during the third Conference of the

Parties of the Convention on Biological Diversity (CBD). Its mission is to stimulate trade and investment in biological resources to further sustainable development in line with the three objectives of the CBD: the conservation of biological diversity; sustainable use of its components; and fair and equitable sharing of the benefits arising from the utilisation of genetic resources. Since 2003, the BioTrade Initiative has also hosted the BioTrade Facilitation Programme, which focuses on enhancing sustainable bio-resources management, product development, value-adding processing and marketing.

Centre for the Promotion of Imports from Developing Countries (CBI)

www.ccmproject.org/

The aim of the CBI is to enhance the competition power of exporting companies in developing countries, so that these have easier access to the European market. To acquire this goal, CBI delivers: information about developments in European markets; technical assistance in improving production and products; support in the implementation of European guidelines; and support to export marketing or management and assistance to companies who enter European markets.

Consultative Group to Assist the Poor (CGAP)

www.cgap.org

CGAP is an independent policy and research centre dedicated to advancing financial access for the world's poor. CGAP provides market intelligence, promotes standards, develops innovative solutions and offers advisory services to governments, microfinance providers, donors, and investors.

Extension Systems International

www.postharvest.org

This website contains a lot of practical tips on how to improve the basics of post-harvest technology, as well as packaging and cooling practices. Free advice and training materials are available on small-scale post-harvest technology, to extension workers, farm advisors, and private consultants around the world who are involved in activities related to post-harvest handling, packaging, cooling, shipping and storage of fresh fruits and vegetables.

Fair trade Advocacy Office

www.fairtrade-advocacy.org

The Fair trade Advocacy Office speaks out for fair trade and trade justice with the aim of improving trade conditions for small and marginalised producers and workers in developing countries. The office co-ordinates the advocacy activities of the four main fair trade networks: Fairtrade Labelling Organisations International (FLO), International Fair Trade Association (IFAT), Network of European Worldshops (NEWS!) and the European Fair trade Association (EFTA). The website provides links to various publications, and there is a monthly newsletter you can sign up to.

FAO – Agricultural Marketing

www.fao.org/ag/ags/subjects/en/agmarket/textbooks.html

This website has very useful information on agricultural marketing in different contexts. The themes include: how to link farmers to the market, urban food marketing, marketing extension and more. It is also possible to receive all the information on a CD-Rom for free and to download business textbooks.

Finance Alliance for Sustainable Trade

www.fastinternational.org/

The Finance Alliance has as mission to enable greater producer access to credit and related financial risk management tools through the promotion of sustainable trade finance. It does this by bringing together a diverse group of stakeholders to work collectively. The website includes articles, documents and also news items.

FLO International

www.fairtrade.net

Fairtrade Labelling Organisations International (FLO) is an umbrella organisation that unites 20 labelling initiatives in 21 countries, and producer networks representing Fairtrade Certified Producer Organisations in Latin America, Africa and Asia. FLO is part of a worldwide network of fair trade organisations actively involved in supporting producers, raising awareness and campaigning for change in the rules and practices of conventional international trade. It is the leading standard-setting and certification organisation for labelled fair trade products. FLO's website presents many stories from the field, showing the impacts made by fair trade.

Food and Trade - Natural Resources Institute

http://www.nri.org/themes/t_food.htm

For decades, weaknesses in post-production food management, enterprise development and marketing have been a major constraint to agricultural growth and trade, and their potential to reduce poverty in developing countries. Since the early 1990s, the Natural Resources Institute has had a role in helping to develop food marketing and trading systems in collaboration with international and southern partners. The information on the website is based on diverse research projects by the institute related to food and trade issues.

Global post-harvest Forum (PhAction)

www.foodnet.cgiar.org/PhAction

PhAction is an alliance of twelve organisations around the world. The alliance focuses on capturing the benefits of investment in post-harvest research. It seeks to act as a platform for more effective and better-co-ordinated interventions in the post-harvest sector with the aim to develop sustainable, efficient post-harvest systems that improve the livelihood of rural communities.

Information Network on Post-harvest Operations (INPhO)

www.fao.org/inpho

INPhO is an international reference centre and an instrument for facilitating exchanges of information on post-harvest, developed by FAO in partnership with GTZ and CIRAD. It includes a database on traditional storage in Africa, the INPhO equipment database, a databank on post-harvest operations, decision support tools for entrepreneurs, country and product profiles and a list of research and training institutions, as well as interactive communication services and linkages to other databases and libraries.

International Fund for Agricultural Development (IFAD)

www.ifad.org

IFAD is a specialised agency of the United Nations established to finance agricultural development projects primarily for food production in the developing countries. Working with rural poor people, governments, donors, non-governmental organisations and many other partners, IFAD focuses on country-specific solutions, which can involve increasing rural poor peoples' access to financial services, markets, technology, land and other natural resources.

International Federation of Organic Agriculture Movements (IFOAM)

www.ifoam.org

IFOAM strives for the worldwide adoption of ecologically, socially and economically sound systems that are based on the principles of organic agriculture. It provides authoritative information about organic agriculture, exchanges knowledge via conferences, trade-fairs, and publications; represents the organic movement at international policy-making fora; and helps build a common agenda for all stakeholders in the organic sector, including producers, farm workers, consumers, the food industry, trade and society at large. IFOAM has developed basic standards for organic production and processing, as well as accreditation criteria for bodies certifying organic production. Members organise themselves according to geographic regions or sector interests.

ISEAL

http://www.isealalliance.org/

The ISEAL Alliance sets global standards for fair trade labelling organizations. They support companies, non-profits and governments in their referencing and use of voluntary standards. In 2000, FSC, IFOAM, Fairtrade and MSC agreed to create ISEAL to facilitate collaboration and creating a global reference for good social and environmental standard-setting processes. The site includes an Emerging Standards Resource Kit for anyone wanting to understand the credible standards system.

Market Approaches to Development

www.poverty.ch

Supported by the Swiss agency for Development and Cooperation, this website offers visitors a collection of market approaches and case studies on how to deliver aid more effectively. The site includes: supply chain studies, value chain studies, sustainable industries, as well as studies about markets, business and poverty.

Microfinance Gateway

www.microfinancegateway.org

The Microfinance Gateway includes a searchable library of electronic documents, specialised resource centres, organisation and consultant profiles, specialised discussion groups, the latest news, events, and job opportunities in microfinance.

Microfinance Information eXchange (MIX)

www.themix.org

MIX is provides business information dedicated to strengthening the microfinance sector. It looks to fill the lack of reliable, comparable and publicly available information on: the financial strength and performance of microfinance institutions as well as their social impact. MIX provides detailed financial, social performance as well as business information from market facilitators and leading donor organisations and investors in microfinance.

Oikocredit

www.oikocredit.org

Oikocredit is one of the largest sources of private funding to the microfinance sector, providing credit to trade co-operatives, fair trade organisations and small-to-medium enterprises (SMEs) in the developing world. Since 1975, Oikocredit has served hundreds of thousands of families in nearly 70 different countries.

Organic Link - International Trade Centre

www.intracen.org/organics

The International Trade Centre (ITC) is the joint technical co-operation agency of the United Nations Conference on Trade and Development (UNCTAD) and the World Trade Organisation (WTO). Organic Link is a web portal serving the organic business communities. This website helps exporters and importers of organic products find each other through an easy-to-access database of business contacts. It also contains useful information about organic products and markets, with detailed data from selected countries.

Participatory Guarantee Systems – IFOAM

www.ifoam.org/about_ifoam/standards/pgs.html

As the number of farmers and consumers wanting to produce or buy organic products increases, there has been a corresponding growth in the number of Participatory Guarantee Systems (PGS) coming up around the world. These systems offer a cheaper alternative to farmers who cannot afford organic certification. They not only guarantee the credibility of organic production, but are crucially linked to local and alternative marketing approaches. At the PGS

site, you can get the Global PGS monthly newsletter for free and access the online PGS database.

Roundtable for a Sustainable Cocoa Economy (RSCE)

www.roundtablecocoa.org

The RSCE is an initiative for dialogue and sustainability amongst all stakeholders in the cocoa economy. Its mission is to promote sustainable production with all stakeholders along the supply chain: cocoa farmers and co-operatives, traders, exporters, processors, chocolate manufacturers, wholesalers, governmental and non-governmental organisations, financial institutions as well as donor agencies.

Round Table on Responsible Soy Association (RTRS)

www.responsiblesoy.org

The RTRS association consists of a group of producers, NGOs and companies that began a multi-stakeholder dialogue intended to promote the use of a responsible standard of production, processing and trade in soyabeans. Members of the Round Table on Responsible Soy Association are convinced that only through a transparent and open effort the current model excesses will be minimised, with sustainable benefits for local populations, producers and the soy value chain.

Roundtable on Sustainable Palm Oil (RSPO)

www.rspo.org

RSPO is an association created by organisations carrying out their activities in and around the entire supply chain for palm oil. RSPO aims to promote the growth and use of sustainable palm oil through co-operation within the supply chain and open dialogue with its stakeholders.

Rural Finance Learning Centre

www.ruralfinance.org

This website is dedicated to providing access to the best materials for capacity building in rural finance. Set up by the World Bank, FAO, IFAD and GTZ, it is kept up-to-date by rural finance specialists at FAO. The content of the site is freely available to all, but if you register you can receive a monthly update on new resources. The site includes a reference library, training and study materials, online videos, and distance-learning opportunities. All are clearly labelled and the site is easy to navigate, even for those with low bandwidth.

SEED Initiative

www.seedinit.org

The SEED Initiative aims to support entrepreneurs and partnerships for sustainable development. The SEED Awards is an annual global scheme providing recognition to promising enterprises. Award winners then receive various support packages through the other three activities. Support includes access to technical assistance or developing business plans. The website itself has lots of information, such as papers summarising critical factors for success in new ventures, and tips for developing successful partnerships.

Solidaridad

www.solidaridad.nl

Solidaridad believes that sustainable economic development is the best solution to structural poverty in developing countries. Solidaridad is working with companies, consumers and producers in developing countries to develop people-friendly and environment-friendly production chains. Field of activities summaries as follows: chain development, producer support, certification and traceability, financing mix, marketing and communication.

TechnoServe

www.technoserve.org

TechnoServe programmes focus on developing entrepreneurs, building businesses and industries, and improving the business environment. With the by-line "Business solutions to poverty," all their work revolves around helping people identify and capitalise on good business opportunities. Believing in a "hand-up" rather than a "hand-out", they work in Africa, India and South and Central America. The organisation work in the agriculture sector as well as the tourism and alternative energy sectors. The website describes TechnoServe's work, with case studies, but also information about many practices, including improving the business environment and developing entrepreneurs.

UTZ Certified

http://www.utzcertified.org/

UTZ Certified is one of the leading coffee certification programs worldwide. Currently, they are expanding their certifications to include palm oil, cocoa and tea. The website includes information on the programs, as well as access to resources and several UTZ movies.

Women's World Banking (WWB)

www.swwb.org

WWB's mission is to expand the economic assets, participation, and power of poor women as entrepreneurs and economic agents by opening their access to finance, knowledge and markets. WWB provides support, advice, training and information to a global network of more than 50 microfinance institutions and banks that offer credit and other financial services to 21 million low-income people — primarily women — in 30 countries worldwide.

World Fair trade Organisation

www.wfto.com

World Fair Trade Organisation's (WFTO) mission is to enable producers to improve their livelihoods and communities through fair trade. It has three main areas of work: market development, fair trade monitoring (building trust in fair trade), and advocacy. WFTO is made up of three main groups: its members, the Board of Directors, and the WFTO Secretariat. Members in Africa, Asia, Europe and Latin America have also joined together in WFTO's regional chapters: Cooperation for Fair trade in Africa (COFTA), Asia Fair trade Forum Inc. (AFTF), WFTO Europe and WFTO-LA in Latin America.