From Seed to Table: Developing urban agriculture value chains

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Some urban farmers seek to enhance their income by engaging more directly or more efficiently in processing and marketing. But many of these, often poor, urban farmers are not able to sufficiently invest in starting a business, often do not undertake a proper analysis of market demand and tend to choose industries that have low entry costs, such as poultry production and food preparation. This pattern generally leads to rapid market saturation, low levels of productivity and competition that drives down returns to the business owners (Campbell, 2009). Value chain analysis and value chain development help connecting urban and periurban producers with urban markets in a more sustainable way. In this Magazine you will find examples of different forms of value chains and value chain development in urban agriculture.

Farmers market in Uruguay
Photo: Hans Peter Reinders

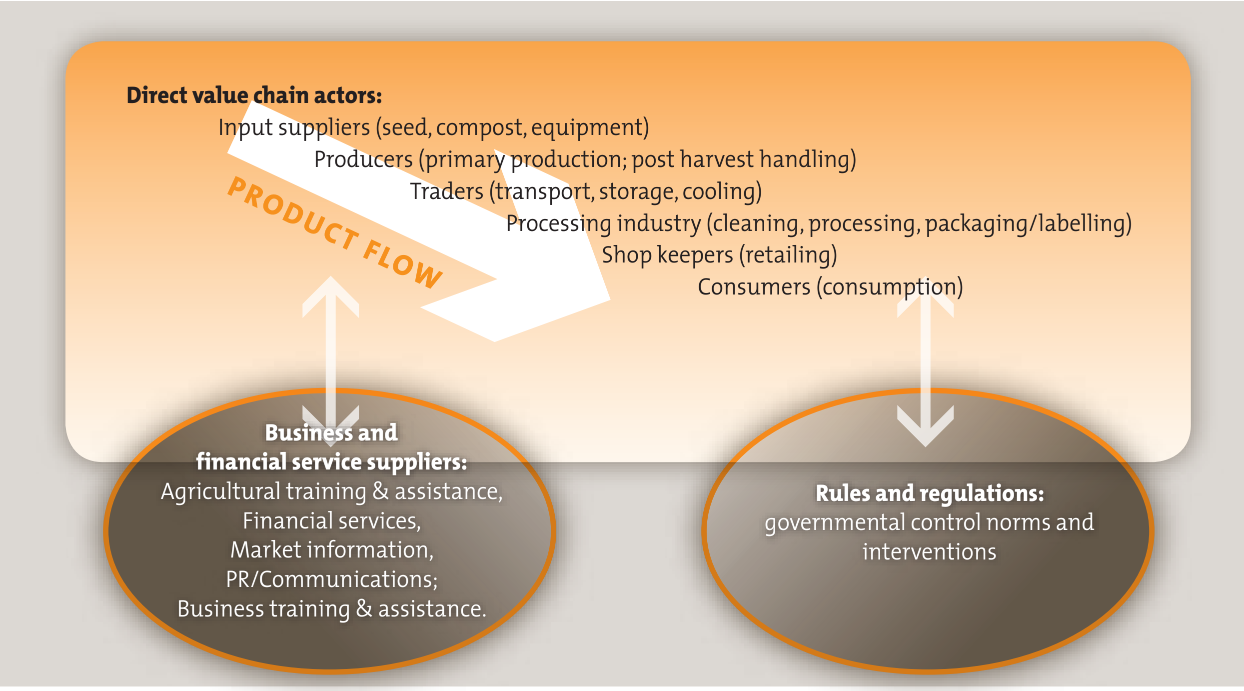
Value chains

Any farmer producing a small surplus that he or she sells to a local trader becomes part of a value chain (De Koning and De Steenhuijsen Piters, 2009). Except for the hobbyist allotment farmer, true subsistence farmers in this sense hardly exist. Even poor urban farmers will try to sell their surplus, or deliberately produce to sell, and thus are part of urban value chains.

Value chains can be interpreted in a *narrow* or *broad* sense. In the narrow sense, a value chain includes the range of activities performed *within a business* to produce a certain output. This can be, for instance, a producer group or cooperative that is not only involved in production but also in processing and marketing of the produce. Each activity adds value to the final product. Some call this form of value chain development "vertical integration" or "functional upgrading" and refer to the broader concept of value chain development as horizontal integration (Laven, 2009).

The broader definition of value chains looks at the complex range of activities implemented by *various actors* (linking input suppliers, primary producers, traders, processing enterprises, wholesalers, retailers, etc.) to bring a raw material to the final consumer. This approach looks not only at the activities implemented by a single actor, but at the linkages between the direct actors in the value chain: the organisation, coordination and power relations between them (M4P, 2006). Coordinating the supply, production, processing, trading and other related functions of various actors in the value chain ensures an efficient product flow that meets the requirements of a specific market segment. It requires that actors in the value chain invest in longer-term business relations, focus on chain optimisation and adding value (a good example is the article on p. 35).

In agricultural value chains, agricultural goods and products flow up the value chain ("from seed to table") and money flows down the chain. Each of the direct actors performs one or more specific functions, thereby incurring some expenses and gaining some income, and thus "adding value" to the product. Chains may be short (e.g., the producer selling its produce on the farm or at a farmers' market directly to the consumer as illustrated in several articles, for instance on Myanmar on p. 28) or longer with produce passing through the hands of middle-men, the processing industry and retailers before it reaches the consumer (adding costs and increasing prices along the way). In urban areas the linkages between producers and consumers are often shorter than in rural areas (though it is not always the shortest chains that perform best as is illustrated in the article on Madagascar on p. 24). In addition to the direct actors, value chains may also involve various business and financial service providers and regulating institutions (e.g. extension and business services, credit suppliers, quality control, training and technical assistance).



Global versus local chains

Food has become an increasingly global business, as the distances it travels have grown substantially. "In the US alone from 1997 to 2004, the average distance covered by food consumed in households increased by about 22 per cent, from 6760 to 8240 kilometres" (Rae Chi et al., 2009). Such global value chain development has both social and environmental consequences. Increased transport and cooling contribute to greenhouse gas emissions, for example. On the other hand, produce transported from Africa to the UK supports a multitude of Africa's small-scale farmers, farm workers and packers. An estimated 1 to 1.5 million livelihoods in sub-Saharan Africa depend directly and indirectly on UK-based supply chains (Rae Chi et al, 2009). That this also carries risks became clear after the financial crisis, when thousands of Kenyan farm workers had to be (temporarily) laid off after drastic reductions in (flower) inputs.

In response to these concerns, several organisations specifically promote the development of *local value chains*, also dubbed local supply chains or *circuit courts*. Although still relatively complex to manage due to the variability in products and product quality and quantity, marketing of local products is increasingly taken up by collectives of urban producers, especially where producers are converting to more ecological and organic cultivation methods and apply a joint quality control system (e.g. organic certification, green label). Such organisations of urban producers often sell their products directly to consumers through their own outlets, farmers' markets and food basket schemes or special organic corners in supermarkets (see also the article on Rosario on p. 55).

There is an increasing market for local or regional products (highlighted by the slow food movement, Buy Local Eat Local campaigns, etc.), in part because consumers are increasingly willing to pay higher prices for locally produced and good-quality products. As oil prices increase and affect food prices that were previously dependent on cheap long-distance transportation, and as consumer consciousness of food miles and ecological footprints increases, such localised production may become even more important in the future.

Whether this development presents a true alternative for large segments of the population remains to be seen, as illustrated in the article on Paris-Tunis (on p. 31). This Magazine will present some experiences with different forms of marketing (e.g. farmers' markets, box schemes, sales to supermarkets, etc.); highlighting their opportunities and constraints. See the articles on the Netherlands, Cape Town, Rosario, Phoenix, Rome, Manchester and Accra.

Local urban and periurban agriculture chains often add value not only to products, but also to services. The box (by Fleury on p. 34) on agro-tourism in the Umbrian valley in Italy presents one example of this potential.

Value chain development

The aim of value chain development is to optimise the entire flow of a product, from production to the final consumer, by identifying bottlenecks in the chain, improving relations between various actors in the chain (input suppliers, producers, traders, processors, etc.), reaching economies of scale and enabling producers to meet certain market standards. It is seen as an effective tool to stimulate economic growth and help raise the incomes of small producers and the "economically disadvantaged".

One could say that functional upgrading (i.e. producers gaining more from the value chain by taking on additional functions like processing their output) is the most effective way to improve the livelihoods of the poor. By taking over the roles of other actors in the value chain, such as the processing industry and middlemen, producers can retain a larger part of the final product price. Adding value to urban agriculture products through food processing and marketing is an innovative way to generate income and create new jobs. For every US$100 that a consumer pays for a processed agricultural product, $23 goes to the vendor, $27 to the person trading the goods, and $35 to the processor. The producer earns only $15. By linking food production, processing and marketing, producers can earn a higher return for their products (Rae Chi et al, 2009).

Vertical integration does not, however, automatically lead to higher incomes. Adding activities also means adding costs and risks. More importantly, it requires a new set of assets and skills, such as (a) technological innovation (for example using appropriate technologies for grading and processing); (b) access to financing (for investing in processing and marketing facilities; for working capital); (c) more advanced human resources and managerial capacities; and (d) organisational structures (to adhere to delivery procedures and obligations). Even if economic benefits for the producers were a certainty, the producers (or producer groups) would still have to meet these additional requirements, which is not necessarily possible. Others (Laven, 2009) argue that the net effect of value chain development initiatives is often negligible, because they simply take benefits away from one group of the poor – processors and traders – and give them to another group – the producers. Similarly, horizontal coordination (poor groups working together to achieve economies of scale in input markets, bulk up outputs and increase their market power) may work in some places and not in others.

Interventions in the value chain should in this context focus on facilitating enterprise development, including both micro-entrepreneurs and small farmers, to improve productivity and access to (new) markets, add value and enhance alliances with other actors in the value chain (MF, HPC and Triodos Facet, 2010).

The relation between urban agriculture and poverty reduction

Based on personal comments by Yves Cabannes, Gordon Prain and Pay Drechsel.

In their analysis of the economic impact of urban agriculture, the authors of the article on p. 21 reduce the complex problem of poverty reduction to improving incomes for the poor. This is a narrow view of the (potential) contribution of urban agriculture to sustainable urban development and to improving the livelihoods of the urban poor. The authors conclude that there is still insufficient data to determine the impact of urban agriculture, but that there is high potential for increasing the incomes of urban farmers through mechanisms 2 and 3. They propose that value chain analysis is needed to further understand and enhance this impact.

Although we agree that there is a need for value chain analysis, which is illustrated in this issue of the UA Magazine (e.g. by the RUAF FStT programme described in the article on p. 11, we would like to make a few critical remarks here about the ODI article. Firstly, the limited impact ascribed to urban agriculture under mechanism 1 (expenditure substitution) underestimates, in our understanding, the importance of self-provisioning. One example is the contribution urban agriculture can make in improving the health of the urban poor by providing access to higher quality agricultural products (the nutritional benefits were illustrated in a recent study by RUAF with IDRC and UN Habitat in Rosario, Bogota, Accra, Kitwe and Colombo. This is an essential point because better health is a key component in breaking the poverty spiral.

Regarding mechanism 2 (income from marketing), more attention could have been given to the diversity of chains and the additional income generated in these chains.

Also, one should look at higher aggregate benefits at the city level. (This is quite difficult, and hardly quantitative, but one could look at the different subsidies now provided for maintenance and policy, among other expenses, for open space management, employment creation, etc.; see for example Van Veenhuizen and Danso, 2007). This also includes labour creation (mechanism 3) for a wide variety of other actors at input and output levels (compost producers, seed suppliers, porters, transporters and retailers in kiosks, which are often small scale and often belong to the poor).

There is indeed a lack of solid, empirical data on the economic impact of urban agriculture, as also demonstrated by this paper, but there is a wealth of information on the wider impact of urban agriculture, which does affect the poor and their living environment.

Furthermore, the article does address the contribution of "verticalisation" of production (as presented in earlier contributions to the UA Magazine, for instance on PROVE in Brazil in UA Magazine 16). Therefore, essential stages in the chain are not considered, such as production of inputs and agro-processing (or transformation of primary products), which add value to the crops or animals produced. More importantly it does not consider at all the issue of fair and social development and the mechanisms that are necessary for a fair distribution of the added value to the urban (poor) farmers, as discussed in a number of articles in this issue (Rosario, Brazil, Italy).

We will pursue this discussion in following issues of the UA Magazine. Your reaction is very welcome at *ruaf@etcnl.nl*.

Adding value through processing
Photo: Hans Peter Reinders

Chain governance
As illustrated above (and in the article on the Netherlands on p. 40), value chain development may offer producers a way to access new markets as well as to add value to their products. But value chains – and especially global value chains – often exclude the most vulnerable farmers, who may not be able to meet product standards or other requirements (licenses). Moreover, smallholders who are able to participate may benefit only marginally due to the unequal distribution of power, where prices for example are set by dominating processors, input suppliers or supermarkets (Laven, 2009).

Actors in the chain may thus be excluded from decision-making in the chain, or alternatively they may actively contribute to designing and steering the processes and forms of cooperation. *Chain governance* determines the conditions under which chain activities are carried out. It determines, for example, farmers' participation in managing various aspects of their product's value, such as the definition of grades and standards (possibly creating the chain's own brands), the targeting of consumers, the management of innovation and so on. As stated earlier, this participation, however, also entails greater risks, investments and responsibilities, which farmers should be willing and able to bear. Becoming organised into cooperatives is one way small producers can achieve a stronger voice and position, as is also outlined below.

Governance is also important with respect to the rules and regulations governing (part of) the chain or the services that are feeding into the chain. Value chains are also tied to environmental factors, as the establishment (or development) of value chains may create added pressure on natural resources (land and water) and influence soil degradation, biodiversity and pollution.

Finally, the social and economic impacts of participation in the value chain should be taken into account, particularly the potential impact of value chain development on poverty reduction. Improvement of value chains may increase the total volume and value of products that the poor can sell, resulting in higher absolute incomes. Another objective may be to sustain poor farmers' share in the sector or increase their margins per product, so that they gain not only more absolute income, but also relative income compared to other actors in the chain. The latter can be defined as pro-poor growth (M4P, 2006).

Inside Thiri Mingala Market, Yangon
Photo: George O'Shea

This is an important issue, but only scattered information on this impact of urban value chain development exists. The economic impact of urban agriculture is therefore a current topic of research. The article on p. 21 by ODI provides a framework for and analysis of the impact of urban agriculture on poverty reduction. The framework illustrates four mechanisms through which urban agriculture impacts the poor: expenditure substitution (by growing their own food, families may save on food expenditures and use the money for other purposes); income from marketing; income from labour (e.g. farm workers on larger-scale commercial farms) and reduced food prices due to the influx of local produce.

The process of value chain development

There are basically three approaches to value chain development, and these are illustrated with some examples below.

Add value through processing
One example of functional upgrading or vertical integration is the former Brazilian programme PROVE (Small Agricultural Production Verticalisation Programme). PROVE was a programme designed to promote small-scale agricultural production, processing and trade. Through this programme, about 500 small agro-industrial facilities were built in Brazil in the period 1995-1998, creating more than 700 jobs. During this same period, the monthly per capita family income of those involved in the programme rose from 25 to 100 dollars (Homem de Carvalho, 2006). PROVE involved many urban and periurban agricultural systems, including vegetable gardening, fruit growing and livestock keeping. Intervention focused on the *individual producer and his/her extended family*. The basic idea was to improve prices by creating added value through processing (see also article on Sudan on p. 50). The approach was thus product-driven, improving the value of what the farmers already produced.

The programme specifically looked at (government) interventions that can help alleviate the constraints limiting vertical integration, such as:

- low degree of (or inappropriate) support services
- limited access to productive resources and insecure land tenure
- limited access to financing
- low degree of organisation of urban producers
- low productivity and profitability
- low degree of business planning, marketing skills and information.

Focus production on market niches

An example of this second approach is the RUAF-From Seed to Table programme, which focuses on strengthening *a group or groups of producers* (a) to add value to their products by improving production and engaging in (simple forms of) processing, packaging, branding and direct marketing, but also (b) to focus production on strict demands of *market niches*, such as the ecological/organic market, supermarkets or the tourist industry (see article on p. 11). The producers are supported to form an associative or cooperative business, in order to lower transaction costs, create economies of scale and develop greater lobbying and negotiating power. A key aspect of RUAF's approach is that not only technical and organisational optimisation and innovations are stressed, but also practical exchange and learning and improved relations with other chain actors and service providers. The starting point in the RUAF-FStT programme is to enhance urban producers' capacity to innovate urban farming systems from a market chain perspective and realise concrete improvements in **"one most promising product"**. Innovation and marketing are thus seen as key to economic success (see for example the case of strawberries on p. 40). To be successful producers have to learn how to better meet market and consumer demand (in terms of quality, variety, safety and delivery requirements).

A similar approach is taken by the Learning Alliance value chain development initiated by Agri-ProFocus (see p. 38).

Intervene in other parts of the value chain

Alternatively, the value chain can be viewed as part of the entire urban (or metropolitan) food system. All possible – but not necessarily connected – stakeholders in the chain are considered, both those who specialise in one part of the chain and those involved in several parts. This approach to value chain development entails first selecting one specific value chain and then looking at all aspects of that chain in order to decide where it needs to be strengthened. The benefits of this approach are that it allows the choice of intervention to emerge from the analysis and may lead to the conclusion that the greatest pro-poor impact would not be in the production segment at all but could be achieved by working with processors or traders or others (see avocado article on p. 35).

Value chain analysis in this approach is undertaken to map the actors participating in the production, distribution, marketing and sales of a particular product (or products) and can provide insight into the distribution of benefits and earnings among various value chain actors. It can shed light on how to improve organisation and coordination among value chain actors and indicate where to intervene to achieve a desired development outcome, be it benefiting a particular actor, maximising income and employment, improving governance or alleviating poverty.

Pick-your-own in Beijing Photo: Lu Mingwei / IGSNRR

Such value chain analysis aims to:
- map the chains of interlinked production and exchange activities in a (sub)sector (N.B. the first step in value chain analysis is to decide which sector or product to focus on. A thorough market analysis can show which production systems are most efficient – see the article on Madagascar);
- map geographic spread of linkages;
- identify key stakeholders at different levels and locations of the chain and in relation to opportunities/constraints;
- measure the value accruing to different levels, locations and stakeholders in the chain;
- identify governance structures affecting the distribution of value;
- identify interventions directly targeting different levels of the chain, their impacts and alternatives.

In this way the options for a whole range of other interventions are assessed – such as *vertical contracting* (i.e. producers entering into long-term contracts with buyers); *product upgrading* (improving the quality of their output); *process upgrading* (producing their output more efficiently) and/or *inter-chain upgrading* (applying the skills gained from one value chain to another to improve returns).

These three approaches thus differ with respect to the target groups they work with, which could be all actors in the chain, groups of producers (or individual farmers and households, as in the case of PROVE. However, in all cases, strengthening organisation of producers, facilitating policies and access to financing are key to the success of the approaches.

Strengthening producer organisations

Producer organisations can play an important role in (urban) agricultural supply chains as intermediates between individual farming households and other chain actors (buyers, processors and service suppliers, such as financial institutes and governments). They may have several functions, including collecting, processing and marketing agricultural products, collective buying or production of farm inputs, implementing quality control and providing members with technical and market information, advice and training (see the article on Vietnam on p. 51). The degree of organisation of urban farmers is often low and the functioning of existing farmer groups and organisations is often poor. This hampers their development efforts and limits their capacity to negotiate with local authorities and service providers. It also hampers the development of concerted efforts by urban farmers to engage in processing activities – adding value to their primary products – or to engage in direct marketing to consumers or acquiring an improved position in the marketing chain. Well-organised urban producer groups and associations may also play an important role in educating their members, product quality control and enhancing access to credit and other productive resources (including urban organic wastes and treated wastewater).

Belo Horizonte
Photo: IPES

Strengthening existing urban farmer groups (their cohesion, management and financial planning capacity, and their inter-linkages) will thus improve the chances of success for farmer-led development projects. For example, as a producer organisation has to benefit its members and at the same time generate a surplus to ensure its continued operation, it must be able to prepare a comprehensive business plan. Financial support may be needed at the start-up phase for market analysis and for hiring qualified commercial/financial personnel, in addition to support for organisational strengthening and increasing the organisation's and members' capacity to perform all these new functions (Ton et al., 2007).

Facilitating policies

Development of urban agriculture value chains can play an important role in local economic development and income generation by urban poor and middle-class households (see the article by ODI). Although generally little information exists on the income and employment generated by urban agriculture related enterprises, the data that does exist indicates that the employment generated can be substantial (see PROVE above). These enterprises are also important in the respect that input supply, production, service delivery, processing and marketing systems may be set up and managed by specific vulnerable groups (e.g. youth or women). Urban agriculture value chains can involve anything from small-scale and low-capital enterprises to capital-intensive, large-scale businesses. General support needs include improving quality control (processing and marketing), farmer organisation and cooperation, access to capital, credit and markets (information), and new distribution channels. Municipal programmes that promote the processing and marketing of local urban agriculture products should try to increase the participation of relevant urban institutions and farmers. At the same time, municipalities must modify legislation and improve the poor's access to capital and marketing venues (see article on Piracicaba on p. 53).

Municipalities or international organisations may be able to encourage existing credit institutions to establish special

Family cleaning and grading carrots, Magadi Photo: IWMI South East Asia

credit schemes for urban agriculture related enterprises, by creating for example a guarantee fund. A co-responsibility principle involving the government (contributing with subsidies or a guarantee fund), the entrepreneurs (mobilising their savings and paying back their credit) and the private sector (which contributes generally with credit lines) may constitute the basis for models of enhancing access to credit and capital for specifically poorer people. Municipalities and local support organisations may also facilitate enterprise development and marketing by small urban producers by:

- providing urban producers access to existing city markets, assisting them in the creation of farmers' markets or authorising food box schemes;
- supporting the establishment of quality or "green labels" for ecologically grown and safe urban food;
- providing start-up licenses and subsidies (or tax reductions), technical and management assistance to cooperative and individual small-scale agro-processing and packaging enterprises and enterprises supplying ecological farm inputs (compost, earthworms, open pollinated seeds and plant materials, bio-pesticides) to urban producers;
- providing timely market information to stakeholders;
- ensuring preferential local procurement, e.g. through regulations requiring that a specific percentage or volume of food offered at local schools (Belo Horizonte, Ile de France), institutional cafeterias, restaurants or supermarkets (Belo Horizonte) be sourced from local produce.

Finally, efforts to organise producers also need to be undertaken independently from government, so as to ensure the continuity of programmes (RUAF et al., 2008).

Financing

Access to adequate and timely financial services for all actors in the value chain has proven to be a key element for success. Farmers need working capital to buy good seeds or other inputs or to invest in equipment. Traders need funds to pay farmers in cash at the moment of crop delivery to ensure that farmers do not sell their produce elsewhere. However, traders often lack the collateral to get loans. Processors also need money to buy inputs or expand their operations (KIT and IIRR, 2010). Such financing is not always available. For small-scale commercial urban agriculture producers, access to credit and other sources of financing (e.g. subsidies/grants) is crucial to further develop their agricultural production and/or processing and marketing activities. However, financial service providers are often not familiar with the sector, regard it as too risky (doubting the willingness and ability of the small entrepreneurs to repay their debts) or have requirements and procedures that are not accessible for poor urban farmer groups. If not supported through specific schemes (see above), many groups thus turn to self-managed schemes, such as AGRUPAR, (see p. 61) which implemented a self-managed microcredit scheme in the form of the Grassroots Investment Societies. This scheme is adapted to the needs and characteristics of the urban farmers and gives an additional push to their business activities.

In order to provide more information, knowledge and clear recommendations that will serve to broaden collective and individual financing opportunities for poor urban and periurban producers located in these cities, RUAF recently initiated local studies on credit and financing opportunities for urban and periurban agriculture in each of its 18 partner cities. Results of these studies are being discussed with local credit and financing institutions to lobby for and put into place (new) financial products servicing small-scale urban producers.

Examples of value chain financing include the offering of financial services to support the entire product flow (from the producer to the final consumer), building on existing relations in the chain. This form of financing can spread risk among the financial institutions and chain actors and provides alternatives to traditional collateral requirements.

For example, microfinance institutions can link with producer organisations to provide small input loans to producers, while banks simultaneously provide an investment loan to a processing company in the chain. Or a bank may lend money to a trader because the trader has a regular supply of products from a producer group and loyal customers that guarantee sales (KIT and IIRR, 2010). When customers are willing to sign sales contracts with their suppliers, even small farmers become credit worthy. One such example of value chain financing is being tested in Bulawayo (Zimbabwe), where a system of contract farming for production of mushrooms has been set up. A consortium of restaurants and supermarkets will fund production initially for two urban producer groups. The money will not go directly to the farmers but to a bank that will administer the loan on behalf of the consortium. The farmers will then sell 50 per cent of their mushrooms to the consortium and the surplus to other markets. The funding being provided is for the infrastructure and inputs. The bank will provide subsidised training for the farmers and will not charge the farmers for training in business management and bookkeeping (personal communication T. Mubvami, MDP/RUAF, June 2010).

Limits of value chain development

Value chain development in urban agriculture is an important new approach to urban agriculture development. It is certainly in the interests of farmers and city governments to enhance the economic benefits and impact of urban agriculture. It should be noted, however, that only part of the urban agriculture producers want or are in a position to invest more in their agricultural activities and to participate more intensively in the market, in addition to their self-provisioning of food. These producers need assistance in designing and implementing value chain development projects focussing on innovating the production, processing and marketing of certain selected products. For such projects to be successful, the farming households or producers should meet the following criteria.

A micro finance and development NGO in Madina, Accra
Photo: Irene S. Egyir

- **Market orientation**: The farmers or groups must already be selling surplus products and have a strong interest in further developing their market production and/or engaging in processing and direct marketing activities.
- **More homogeneous target group**: It is more difficult to work with a very heterogeneous target group, so the producers to be supported should preferably have a similar farming system (e.g. all vegetable producers or all dairy farmers) and work under similar conditions (for example have a more or less similar degree of market orientation).
- **Closeness/clusters**: Support will be more difficult if the participants are spread out thinly over a vast area. Preferably they should be located in one area or in a limited number of clusters not too far apart from each other.
- **Organised**: The producers should have already participated in some form of cooperation/organisation, although this might be very informal.

Value chain development is not suitable for the development of all types of urban farming systems. Subsistence-oriented home or community gardens, for example, will call for other approaches and support measures.

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