

Towards Food Autonomy: Connectivity and Self-Help Groups in Hisar, India

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Towards Food Autonomy: Connectivity and Self-Help Groups in Hisar, India

Shweta Singh

Thesis

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CHAPTER 1

Introduction: territorial connectivity, self-help and autonomy

1.1. Introduction

This thesis looks at opportunities for enhancing connectivity between different resources in local food networks through collective actions oriented to autonomous food developments. In particular, it looks at how peasants organize natural and social resources in the production, processing and consumption of a mung-bean food network in the Hisar district of Haryana state, north India, and whether and through which collective actions the peasants are able to reinforce autonomous and sovereign food systems. In other words, this research investigates ways in which various collective action strategies enable peasants to redirect the socio-spatial (territorial) organization of mung-bean farming and usage towards an autonomous and sovereign food system.

This research has been carried out within the context of a multidisciplinary research programme entitled “Tailoring food sciences to Endogenous patterns of Local food supply for Future Nutrition” (TELFUN). The central theme of the programme is that of enhancing food sovereignty through strengthening local food networks. This contribution to the TELFUN multidisciplinary research programme focuses on two interrelated analytical domains:

1. A *territorial domain*, focusing on i) connectivity in the socio-spatial organization of mung-bean production, processing and

consumption, and ii) the access to their quality-trait preferences for this on the part of peasants, processors and consumers.

2. A *collective action domain*, focussed on accessing multiple collective action strategies by self-help groups (SHGs), with i) SHGs in food-based micro-enterprise (ME) development, ii) the organization of new connectivities among natural and local social resources, and iii) the exploration of collective action to enable their management of food production (processing, packaging) for local markets and enhancement of their capabilities in reconnecting local production and consumption.

Within these domains, two key concepts are used. Firstly I use the concept of *connectivity*, referring to the socio-spatial (territorial) organization of mung-bean production, processing and consumption as a location-specific food network. Here, I emphasize that the concept of territoriality has often been used in relation to global pressures on local food systems, while in this research it is focussed rather on understanding the power of collective actions to set up autonomous and sovereign food systems. Indeed, this thesis explores opportunities for a *re-territorialization* of the mung-bean food system studied.

The second concept I refer to is that of *self-help*, emphasizing that this contains a multitude of strategies in which, for example, the specific self-help initiatives of small farmers related to mung-bean production may reinforce or contrast with the collective actions of rural communities in mung-bean processing and consumption. This thesis shows that the autonomy of the mung-bean food system may be enhanced by developing more insight into the *potentialities of collective actions* for enhancing food sovereignty.

These two key concepts of territoriality and self-help are used in four main ways. First, I use the idea of connectivity to analyse the interrelations between mung-bean production, processing and consumption in relation to the desired quality-trait preferences of local rural people. Second, I use the idea of self-help to assess SHGs as a collective action strategy in food ME development in India; that is, I look at how SHGs have emerged and developed possibilities to establish local resource- (food-) based micro-

enterprise (ME) development by rural communities. Third, I apply the idea of self-help in analysing collective action (by SHGs) to create new connectivities to natural and local resources. Finally, I use the concepts of connectivity and self-help to understand whether and how autonomy is generated through socio-spatial (territorial) reorganization with collective actions in the mung-bean food network studied.

In this introductory chapter, I start by positioning the research in the discourse of food networks, focussing on the socio-spatial organization (mung-bean food network) on which it focuses. The chapter then goes on to present the theoretical and conceptual framework, the research problem, research questions and the methodology of data collection. It concludes with an outline of the structure of the thesis and highlighting of the core contents of the different chapters.

1.2 The food network debate

In the literature of agro-food studies, three main perspectives can be distinguished in the examination of food networks (Tregear 2011), which will be critically considered here through a location-specific study of the mung-bean food network in the Vavilov centre¹ of mung-bean in the Hisar

¹ Vavilov centre is a geographical area where a group of organisms, either domesticated or wild, first developed its distinctive properties. A Vavilov centre is a region of the world first indicated by Dr. Nikolai Ivanovich Vavilov to be an original centre for the domestication of plants. He stated that plants were not domesticated somewhere in the world at random but there are regions where the domestication started. The centre of origin is also considered the centre of diversity. World centres of origin of cultivated plants are South Mexican and Central American, South American, Mediterranean, Middle East, Ethiopia, Central Asiatic Centre, Indian Centre and Chinese Centre. http://en.wikipedia.org/wiki/Center_of_origin

district of the Haryana² State in India. First, there is the *political economy perspective*, which usually explains the development trajectories and outcomes of local initiatives in terms of the global political and economic realities shaping those initiatives and conceptualizes food network initiatives as movements in constant struggle against the forces of global capitalism. This perspective is based on a specific Marxian approach to understanding the social world, taking the position that large scale political and economic structures, in particular the forces of neo-liberal politics and global capitalism, are the primary determinants for the micro-level patterns of human behaviour and choices.

Such a perspective, which has still a dominant position in both scientific and public debates and has often been used as the theoretical basis from which (alternative) food networks have been studied, nevertheless has great difficulty in explaining agro-food based MEs and group initiatives, which do not follow the conventional logic of global capitalism but which do appear through collective actions. Therefore, I aim to go beyond this approach. The basic assumption of this Marxian approach regarding food-network development is to refer to the contextual forces that situate and shape the inequalities and injustices that emerge in such networks, while in this thesis, I rather emphasize the *location-specific connectivity*, in particular socio-spatial organization (of food production, processing and consumption) and *local people's food-quality preferences*, together with *collective actions (strategies)*, or group initiatives, as shaping the food network – the aim being to (re)connect agriculture to its local environment,

² The mung-bean was domesticated in India; areas with early finds include the eastern zone of the Harappan civilization in Punjab and Haryana, where finds date back about 4500 years, and South India, in the modern state of Karnataka, where finds date back more than 4000 years (Fuller 2007).

The mung-bean network as a whole can be regarded historically in terms of the centuries' long development of traditional food processes creating food autonomy in the production and consumption practices of the local community. This is discussed comprehensively in Chapter 2.

local production to local consumption and food production and consumption to well-being and health, which together results in food autonomy for local communities.

A second approach that this thesis problematizes is the understanding of food networks as limited to and focussed on understanding the mode of network governance. This *governance perspective* conceptualizes food networks as clusters of actors operating at the scale of regions or states. The installation of the network is explained as the result of interaction and negotiation processes among various actor groups, and the power over and control of the network are explained against the background of pertinent regulatory and institutional arrangements. *This governance perspective is based on supply chain management theory*, where explanations of food-system development focus on the vertical integration of actors, from input-supply through primary production, processing and distribution to consumers. It is emphasized that these chains are organized around a centre-of-command, where actors centrally coordinate the flow of information and products. Such a chain analysis focuses on production, knowledge (e.g. standards, certifications) and industrial markets. It may deliver insight into the purchasing power of speciality food markets, but *it is not appropriate for analysing initiatives for installing a territorial connectivity of horizontally integrated and interconnected food networks in developing countries*, such as the one on which this thesis focuses.

A third understanding of food network is based on a *rural sociology development perspective*. In the approach elaborated in this thesis, a food network is considered as a social construction or embodiment of the members of local (rural) communities, as an expression of the beliefs, values and motivations of those members pursuing activities that they hope will lead to socio-economic gains. This rural sociology development perspective combines a detailed micro-level analysis with sensitivity to the social, cultural and symbolic dimensions of food. Conceptualizing food networks as *social constructions*, it also narrates the lived experiences of food-network participants and offers perhaps the most direct explanations of why and how local people's behaviour in food networks differs from the behaviour in mainstream food chains.

The rural sociology development perspective emphasizes agricultural (food) production as a social process, through which not only are the end products constructed, but also, during the various processes (production, processing and consumption), the actors involved construct, reconstruct and develop a specific, finely tuned and well-balanced resource combination – that is, they *construct a territory, which is a social-spatial organization (of food production) connected it in a specific way to the natural and social environment*. The peasant's role in the development of food networks becomes crucial in this approach (Ploeg & Dijk 1995, Potter et al. 2004), which regards food network as a domain of peasant struggle for autonomy (See Box 1.1).

The rural sociology development approach also perceives development as based on concrete efforts *from within* the natural and social environment (Ploeg & Dijk 1995); as an internal or self-driven process rather than based upon external forces of change. It emphasises other strategic actions – in the form of collective actions – as able to emerge from the self-help initiatives of peasants and create new forms of connectivity to natural and social resources in the local environment and during the process of extending autonomy. It follows, therefore, that the scientific and public debate should focus on strategic actions at the local level, which can create new forms of connectivity in a food network and facilitate autonomy in aspects of agriculture and food production. In line with this approach, this thesis focuses on investigating a SHG as a collective action strategy to reconnect local production and consumption in the mung-bean food network in Hisar and realize autonomous development.

In this vision of rural sociology development, territorial connectivity and collective actions are important factors in shaping local food networks. It is generally recognized, for example, that territorial connectivity and farmer participation in agriculture are being reduced in the process of agrarian modernization through the deployment of a wide range of external interventions and tools, including irrigation, fertilizers, improved pest management strategies, new crop varieties and improved post-harvesting methods. The introduction of these external inputs and methods leads to an erosion of the essential connectivity of agriculture with its environment and with its food provisioning activities offered in communities, as well as to a

growing dependence on market activities for survival (Shiva 1991). For example, the increased use of high-yielding variety seeds has led to an increased dependence on the use of external inputs such as chemical fertilizers and pesticides and mechanized labour, as well as the need to purchase seed stocks every year (Shiva 1991, Oldfield & Alcorn 1991, Gadgil et.al. 1994, Lane 1996, Guha & Martinex-Alier 1997).

Box 1.1 Reorienting agricultural development towards food autonomy in India

Agriculture is the largest sector of India's economy with 58% of the population dependent on it for their livelihood. Agriculture contributes 13.7% of country's GDP and plays an important role in socio-economic development. Poverty and unemployment are among the major problems of developing countries, to which India is no exception. In India, according to the Human Development Report (2007), 28.6 per cent of the population was living below the national poverty line, while the Employment and Unemployment Survey Report (2009-10) estimated the overall unemployment rate at 9.4 per cent. Poverty rates are over 50 per cent higher in rural areas than in urban (GIPC 2010, Alkire & Maria 2010). Smallholders with a land-holding of less than two hectares constitute almost 80 per cent of all the farmers in India – in fact, they account 23 per cent of the whole world's farmers (Charvet 2005, Nagayets 2005). Small farmers produce 41 percent of India's total grain production and over half of its fruits and vegetables. Their food-crop farming employs predominantly rain-fed (non-irrigated) practices using only human labour and animal traction. This provides much of the food consumed by poor communities in developing countries; for example, rain-fed agriculture accounts for more than 95% of farmed land in sub-Saharan Africa, 90% in Latin America, 75% in the Near East and North Africa, 65% in East Asia and 60% in South Asia. These farmers are resource-poor in terms of access to resources, credit, information and external inputs.

Peasants

The category of resource-poor farmers is narrow because it does not encompass the multiplicity of roles that this group plays in agriculture. That is, the farmers who do rain-fed farming are not necessarily resource-poor farmers – indeed they can be involved in other practices beyond farming, such as primary processing, storage and secondary processing. They commonly organize themselves as SHGs (Gurumoorthy 2000; Barbara & Mahanta 2001) and create new connections between social and local resources and enhance food autonomy. Therefore the wider term 'peasant' is generally favoured here, especially it refers to people who shape and reshape the processes of agricultural production into realities and mould and develop their resources, both natural and social, in distinctive ways.

The rural sociology development perspective also stresses that food production and consumption should not only be perceived as a (generic, necessary) process of capitalism (Arce & Marsden 1993) but also as a result of peasants' initiatives to connect and reconnect food production and consumption in local food networks during their struggle for autonomy. One significant characteristic of this approach is that *food-network development is perceived in a quite different way, namely, as a result of bottom-up activities of the collective actions of peasant SHGs*. This approach focuses on how location-specific (territorial) connectivity and collective actions (strategy) are shaping food networks and whether and how these collective actions (can) contribute to autonomous development. Here, *location-specific connectivity* is perceived as a *constituent part of the formation of food networks* and built upon peasants' (self-help) initiatives, individually and/or collectively. In short, the rural sociology development approach focuses on territorial connectivity and self-help in food networks, the core concepts of this thesis, as elaborated below.

1.2.1 Territorial connectivity in food networks

An important starting point for reflection on the concept of territoriality is Henri Lefebvre's (1974) *The Production of Space*. In this book, Lefebvre refers to the general proposition that socio-spatial organization under modern capitalism is intensely and fundamentally contested; it is at once a site and a stake of strategies and struggles. Lefebvre suggests, in particular, that socio-spatial relations are produced and transformed through perpetual, conflict-laden interaction between opposing *spatial strategies*. Against the state and capital attempt to 'pulverize' space into a manageable, calculable and abstract grid, diverse social forces attempt to create, defend or extend spaces of social reproduction, everyday life and grassroots control. In fact, according to Sack (1986), territoriality does not exist unless there is an attempt by certain individuals or groups to affect the interaction of others. This implies that territoriality should be regarded as the socio-spatial relations actualised in a place by individuals and/or groups to control multiple functions (such as meeting basic needs and conserving natural resources, like seeds and food).

The idea of territoriality as beyond geography, a three- or four-dimensional spatial phenomenon, alerts us to the fact that a food network is not a neutral or inert entity but enables things to occur and action to be grounded; a food network is itself actively produced (Ploeg 1992). Moreover, it is an active moment in social reality, something produced and/or created aiming to conserve and develop nature within the context of location specific interactions between the human/social, economic and natural environments (Magnaghi 2005).

According to Massey (1995, 2005) we must recognise space ‘as constituted through interactions, and that ‘there are always connections yet to be made, *juxtapositions* yet to flower into interaction (or not, for not all potential connections have to be established), relations which may or may not be accomplished’. Indeed, Ploeg (2008) emphasizes the possibility for the emergence of new (peasant) groups that co-exist with the ‘food empires’ while struggling to revive and strengthen their localized food networks (see also Long 2007, 2008, Wiskerke & Ploeg 2004, Weis 2007, Jongerden 2008).

Here, I am interested in the ways connections or reconnections between local food production and consumption are created and enhanced. This is a location-specific connectivity created by (groups of) peasants for the development of food autonomy. Territoriality, therefore, is considered here as the context in which food autonomy is stimulated or reinforced, and analysis of territorial (re)connections in food networks begins with *unravelling the socio-spatial organization* of the mung-bean production, processing and consumption practices and discovering people’s food quality and mung-bean trait preferences for enhancing and stimulating food autonomy.

Approached from a sociological perspective and considered as a social construct, territoriality is regarded here as an embodiment of the activities of members of local (rural) communities with their environments. It is a concept built around a community’s cultural and socio-economic needs to protect natural resources and establish specific external relations. In line with this, the territorial paradigm is built around location-specific connectivity, reflecting peasant motivations, location specific products, local

production-consumption patterns and local preferences. The territorial concept accentuates a close connection between people and place at the local level, a relationship mediated by (local) crops (food).

In this thesis, attention is paid to the production, processing and consumption of mung-bean and the way in which the local people's mung-bean quality preferences (re)construct territorial connectivity, where the territorial connectivity is related to practices reconnecting agriculture to its local environment and mung-bean production to local consumption, practices that access, defend and maintain assets – specifically, *soil, seed and food*. The assets are not only as a means for instrumental action, enabling of reproduction, but also a means for hermeneutical action – since such assets also confer meaning to people's lives and create culture – and for emancipatory action – as they constitute the basis for the autonomy that allows people to make decisions about food production and to act in such a way that food production is aligned with their interests – specifically, *household food provision, family income and the local environmental conditions* (the dry and hot climate in particular).

The empirical research conducted shows that the peasant, consumer and processor mung-bean food-quality preferences are not (only) exclusively related to economic priorities but also to the local environment, consumption patterns and health and processing needs of food products; it shows that these are important in order to connect agriculture to its local environment, local mung-bean food production to consumption, and agricultural produce to food culture; and it shows that this all enables them (the local people) to create new forms of connectivity in the mung-bean food network to enhance food autonomy.

Most producers, for example, prefer short-duration (early maturing) mung-bean varieties with disease-resistance qualities that enable them to develop their local, intercropping systems and improve the soil for cultivation. Other desired qualities include medium size and green beans, due to the suitability of these for early germination and short cooking time. The producers also prefer better mung-bean prices (a higher farm output price), but they have to sell their surplus produce in its unprocessed form (whole mung-beans) to private traders, who in turn sell to wholesalers directly or through agents

(traders). The market traders (wholesalers, dal millers and retailers) dominate the mung-bean processing, packaging and distribution activities and derive maximum profit margins, which not only create a gap between local mung-bean food production and consumption but also constrain the food autonomy of local people. The preference for better mung-bean prices is observed to have directed the producers in Hisar to create a new form of community-level connectivity in mung-bean processing and marketing, characterized as a SHG-based ME development. The consumers also seek access to locally produced and processed mung-bean at the community level. Overall, the peasant aim is to strengthen connectivity between local mung-bean production and consumption through a SHG based ME at community level.

1.2.2 Self-help

Central to the idea of self-help is the formation of groups, the concept of a 'community' and the development of egalitarian relationships promoting people's well-being. Self-help groups are defined as *groups or associations of individuals with common needs who undertake a systematic activity, participating directly in decision-making and sharing benefits* (Narayanasamy et al. 2003). As voluntary structures for mutual aid and the accomplishment of a specific purpose based on informal participation, SHGs are oriented towards mutual learning among members. The groups develop their own rules, regulations, meeting procedures and processes and it is expected that the leaders of these groups will function in a participatory and democratic manner. It is implicit in the idea of SHGs that people take action on the basis of shared interests and interpretations of their social environment as the context within which they aim to realize goals. As a movement, self-help aims to practice alternative development strategies by mobilising people, giving themselves a voice to build up people's organizations that will overcome barriers to participation and autonomy. Self-help is based on a humanist model of development – focused on men and women, and not just on the growth of materials (Friedmann 1992, Elders 2003). From this perspective, people are not perceived as passive

receptacles of society's directives, but are active creators of social behaviour.

The SHG concept is strongly interwoven with the territorial concept. Indeed, SHGs are based on bottom-up and participatory approaches grounded in the environments where people live, learn and work. SHGs represent participatory forms of social action aiming to realize autonomy through local people's involvement in identifying and tackling issues that affect their members and communities. SHGs are thus the expressions of rural people's needs and interests in their own participation and empowerment; they emphasize that people are not objects of development, but on the contrary are co-agents and subjects of development. This implies that people should have access to and control over resources.

SHGs provide an opportunity and a space to participate, a base for action and a point of connection and identification with others through which members may attain an enhanced sense of autonomy. They often provide decision-making opportunities, with negotiation, planning and management through which people define their goals and act upon them. People are not unattached, isolated entities reliant on their inner capacities and self-conceptions alone; they also rely on others for guidance and support or access to resources. Groups fill people's needs to identify with others, participate in action that provides priority to those others as a group, and, in so doing, experience a relative freedom. As such, the self-help phenomenon can be an important means for autonomous development, offering an approach that puts people first based on collective action (Meinzen-Dick et al. 2004). From the (combined) perspectives of territoriality and self-help, therefore, this research engages with debate around peasants' 'struggle for autonomy' (Friedmann 1992, Hettne 1995, Ploeg 2008).

1.2.3 The autonomy debate

Across the world, peasants, indigenous peoples, ecologists, producers and consumers are seeking to realize autonomous food systems, based on equity, social justice and ecological sustainability (Desmarais 2002, Windfuhr 2005, Desmarais 2007, Pimbert 2006, Borras 2008, McAfee 2008,

McMichael 2008, Roling 2008, Rosset, 2008, Borras & Franco 2009, Rosset 2011). There are many different local food systems throughout the world today, particularly in developing countries; and most of the world's food is grown, collected and harvested by the 2.5 billion-plus peasants, the world's small-scale farmers, pastoralists, forest-dwellers and artisan fisher-folk. These peasants organize themselves in local food networks through which they aim to reach autonomy in a range of areas, such as in production, processing and marketing (Scott 1985; Mitlin and Bebbington 2006; Gledhill 2007, Ploeg 2008).

Van der Ploeg referred to three main aspects of these peasants' struggles. First, peasants are struggling for autonomy in the context of a dependency, exploitation and marginalization created by 'empires' (Hardt & Negri 2000). Second, the peasants are playing a critical role in the development and promotion of sustainable production and consumption, especially in the current agrarian crisis; they establish strong interrelations with the environment and through the care that they invest in their lands, seeds and food become an integral part of sustainable food networks. Third, the 'empires' tend to marginalize and destroy the peasantry, so there is a continuous coexistence of peasant and empire arrangements through which peasants struggle to establish those arrangements in food production, processing and marketing that create autonomy for them through local food networks. In this context, autonomy refers to a struggle in the following six domains.

Ability to make decisions

Autonomy entails an ability to make decisions about food production that are not only guided by the market but also related to the sense of well-being, dignity and identity of local people. These decisions to redirect food production to other objectives come from the initiatives of local people to reorganize food production, processing and consumption and thus territorialize food networks.

Ability to choose

Autonomy involves the ability to make choices, here, about food production (Lang 1998). This requires local peoples' participation in decision-making

processes through which preferences are made at the level of food production, processing and consumption that involve people being able to control the appropriateness of their food production (i.e. invoking a sense of social, economic and cultural suitability).

Ability to use resources

Autonomy entails the ability to use resources, especially land, water and seed, from people's own development perspective. Peasants working on the land must be able to practice sustainable management of natural resources and conserve biodiversity. This implies that peasants exercise autonomy when they rely on their own judgement about how to act, motivated by authentic, self-determined goals. It also implies that peasants must have the ability to use local production for their own economic, nutritional and cultural needs.

Recognition

Autonomy is related to a recognition of peasant participation in agricultural and specifically food production. It requires an understanding of the ability of peasants to deliberate, decide and then act purposively in food production and other processes related to processing, storage and distribution and as custodians of seeds. It implies they must have control over the definition of their food production according to their own social, economic and cultural logics.

Access to resources

Autonomy should not be confused with independence (Deci & Ryan, 2000). Peasants striving for autonomy can still rely on others for guidance and support or access to resources. Autonomy is in no way coherent with a view of peasants as unattached and isolated. Autonomy does not imply that farmers are expected to work alone. They still can depend on others, but this is done by their choice. Indeed, they can be involved in groups; they may adopt values or behaviours that lend priority to that group and, in doing so, they can still be acting autonomously. Autonomy requires 'strategic actions' in conjunction with the internal sense of being autonomous and belonging.

Relations with markets

Autonomy is also characterized by specific relations established with the markets. These relations are part of a wider set of relations that connect the peasantry with the surrounding world and that allow them a level of flexibility. They are established through the collective actions of peasants through which peasants in groups can enjoy stronger negotiating powers with traders. They can also link to other stakeholders in food networks, both backwards and forward, as well as to processors, scientists, research institutes, government institutes, banks and others. They can move from being passive recipients of information, services and regulations to a situation in which they can utilize public and/or private institutions as resource providers and thus take full responsibility for their development.

Autonomous relations with markets should be related to the development of territoriality created by multiple forms of peasants' initiatives connecting food production and consumption in local food networks. It should also relate to the development of organizational novelties, which may create new connections to natural and social (including network) resources. This implies that the struggle of peasants is the *fight for new connections and or reconnections* in local food networks, which may be termed 'frontier areas for the struggle of peasants'. This is not only a struggle to *resist the disconnections* in agriculture from local parameters and the specific patterns in market intermediates leading to a decrease of local control and reinforcement of the marginalization of peasants and their agendas; it also concerns a *struggle for new connections and reconnections* through, as Roep and Wiskerke (2004) emphasize, the construction of organizational novelties that develop novel links to natural and local resources.

Through the construction of *organizational novelties*, peasants can strive for freedom from harsh conditions and for freedom to act in such a way that food production is aligned to their specific interests. This implies that assets should not be perceived as just materials to be used for socio-economic reproduction but also as *catalysts* that may offer opportunities for autonomy. Rural communities that are well organized, such as many SHGs, employing collective action in pursuit of shared interests may have better opportunities to create these organizational novelties and *catalytic materials*. This

requires, however, a recognition and understanding of SHGs as a strategic entity in local food networks.

Various authors (Altieri 1990, Ploeg 1992, Pretty 1995, Long 2001, Ploeg 2003, Ruivenkamp 2005, Kareiva et al. 2007, Long 2007, Altieri 2009, Wittman 2009) have emphasized the disruptive effects of the patterns of disconnections embedded in the industrialization of agriculture and food production. Wittman, for example, demonstrates the de-linking of agriculture (society) from nature as a result of agribusiness and corporate food production systems and the destructive effect of these on the socio-cultural and ecological values of peasant farming systems. However, with the re-emergence of peasant farming systems, she also refers to the potentiality of *reconnecting society and nature*.

Other authors have also emphasized the relevance of *re-linking local preferences of food production to autonomous development*. They dispute the food quality implications of industrialized agriculture embedded in global chains and propose local food networks that reconnect production and consumption through sustainable practices and realize increased autonomy in defining their food. Producers in developing countries suffer not only because of the agricultural arrangements that create dependencies among them but also from the lack of choices due to the excessive power wielded by corporate food systems.

Analysing biotechnological developments in global food chains, Ruivenkamp (1989, 2005) argues that current biotechnological developments are shaped by and in turn reinforce three historical processes of disconnection or separation of industrialized agriculture in global food chains: 1) the separation of agriculture from its ecological environment, 2) the separation of agriculture from food, and 3) the separation of agricultural products from their intrinsic nutritional quality. Also – and importantly in the context of this thesis – he refers to the possibilities of making choices and using strategic actions for a *re-coupling* of agriculture to its natural environment, restoring the relationship between food production and consumption by developing ‘*tailor-made biotechnologists* as catalysts for endogenous developments’ (Ruivenkamp, 2005).

Brunori, Galli and Rossi (2004) explore collective action at the local level through the example of wine routes in Tuscany. *Collective action* produces a local frame of a constructed environment, institutions and routines which give people access to resources that could not be accessed through acting individually. Two of the most relevant outcomes of collective action in this wine route were synergy and coherence. *Synergies* can be defined as linkages between two or more entities, whose joint efforts produce effects that are quantitatively and qualitatively greater than those produced by the efforts of the same entities acting individually. *Coherence* is a quality belonging to the elements that constitute the context of action.

Another concept important for a study on autonomous relations with markets was developed by Bakshi (1995), who developed a *three-tier SHG concept* to characterize the organizational structure of three strongly related units: the informal, *grass roots level women's groups* at Alappuzha (a small coastal town in the southern state of Kerala), the informal *neighbourhood groups* (NHGs) in the small hamlets (later federated into Area Development Societies [ADS]) at the ward level and the *Community Development Society* (CDS) at town level, all together working to empower the poor. The CDS focuses on a variety of health, education, housing, poverty and other issues as determined by a bottom-up, needs-based planning process based on the three-tier SHG system.

This organizational structure *linking various collective actions* represents an *organizational model* for informal groups in a rural area that may lead to an effective people's participation in managing market relations to enhance their autonomous position and well-being. However, this possibility for managing market relations is often limited by a shortage of capital and inadequate access to financial services. Various MEs for both agricultural and non-farming activities have been set up in India, challenging the longstanding problem of sustainable local financing. SHGs provide the financial (saving and credit) services acting as financial intermediaries in a cost-effective and sustainable manner that facilitate the access of the rural poor to local financial means and attenuates its risks.

Another important aspect of MEs is their effort to create accessibility to local markets, or, in other words, the ability of local people to challenge the

lack of access to the local market and to its marketing services. Aheeyar (2007) states that problems related to a lack of access to markets and obtaining a reasonable price for products badly constrain most producers. These constraints are related to the fact that competition in the marketing of the products is primarily controlled by the retailers, supermarkets and other marketing agencies while the knowledge/understanding of consumers' preferences, participation in product packaging and linkages with local markets or even direct marketing may bring access to markets and market decisions (such as better price) for a SHG.³

Ganpathi and Malar (2008) emphasize that reasonable and affordable product prices are an important factor influencing consumers to buy from SHGs, although purchasing decisions are also influenced by factors like service, quality, value for money and the homemade nature of the products. The empirical research also shows that customers/producers feel that the processing/packaging of locally produced products needs to be improved. Jose and Nair (2011) also note that SHG products are not sufficiently advertised. Indeed, SHG products tend not to be branded, properly processed or sealed – due to the lack of appropriate technology – and sales typically take place only in the immediate vicinity. The *marketing challenge*, therefore, is to respond to these issues in ways that are practical (efficient) but without undermining autonomy and related considerations of locality.

In view of this debate on the role of food networks for enhancing food autonomy for village communities, it is necessary to investigate the social

³ SHGs are also generally found to be very effective in organizing informal education and training (for example, entrepreneurial and technical training) programmes for the exchange and sharing of knowledge and skills of the rural folk, set up in collaboration with government programmes and micro-finance institutions; the SHG approach is characterized by the development of participatory organizations that contribute to the development of MEs, enhance their effectiveness in rural areas and foster autonomous development (Singh et al. 2011).

relations through which peasant initiatives create territorial connectivity. Focusing on a mung-bean food network in Hisar as case study, this thesis investigates 1) the collective action strategy of SHGs to establish and implement local resource- (food-)based MEs and 2) the SHG practices through which local people enhance their food autonomy, drawing from a theoretical position that refers to an elaboration of ‘alternative development’. The central idea of this approach is to emphasize endogenous (from within, internal) rather than external forces of change, or, a development from below (Bundlers 1990, Ploeg & Dijk 1995, Potter, Binns, Elliot et al. 2004). This approach not only provides a more open-ended way of looking at territoriality pertinent to food autonomy, but also emphasizes the capacities and actions of local communities to reconnect local production and consumption for reinforcing autonomous and sovereign food systems. Therefore, attention is paid in this thesis to the social-spatial organization of mung-bean production, processing and consumption in the Hisar district of Haryana state, local peoples’ food (mung-bean) quality preferences and the collective actions of peasants in creating territoriality to defend and develop food autonomy.

1.3 Theoretical positioning of the research

Investigating the collective actions of SHGs to re-territorialize the mung-bean food network in Hisar against the background of the scientific and public debate on autonomous and sovereign food systems, this research aims to contribute to a further elaboration of the rural development perspective in sociology at a theoretical level by investigating the concept of territoriality and at a practical one by studying the collective actions of a SHG struggling for a socio-spatial reorganization of social relations in the Hisar mung-bean food network.

Regarding the former, Van der Ploeg (2008) emphasized that ‘*territoriality*’ has often become represented and used purely in terms of solutions and thus support for the functioning of global food systems – including up-scaling of production of ‘functional foods’ (food with health additives, little fat and few calories) – in which peasants often figure as passive actors. The emphasis is placed on the powerful minority of capitalist farmers within an

agro-industrial organization and on the homogenization of food production and consumption. This ignores concerns with the ways in which the social-spatial organization of agriculture engages peasant communities; therefore, attention needs to be paid to a *new conceptualization of territoriality* in which *the active role of peasants is emphasized*. Indeed, he also stresses that there is need to move away from expert systems towards the abilities of peasants. It follows that *peasants might develop their resources, both natural and social, in distinctive ways that stimulate food autonomy*. This thesis focuses on *location-specific connectivities* in the social relations related to the mung-bean food network and how a social-spatial re-organization stimulates food-autonomous developments.

In order to investigate the opportunities for a *socio-spatial reorganization* of food-network development, I refer to Wiskerke's (forthcoming) conceptualization of food network as a *location-specific connectivity to food*, where he suggests an investigation of the 'territoriality' concept in a two-fold way: i) as the specific qualities and distinctive features of a region (here comprising the villages of Mangali and Dhiktana in the district of Hisar, Haryana), where the strategic actions of the local people create connections between food production and consumption; and ii) in terms of the various preferences, meanings and motivations related to food quality on the part of local people (i.e. in that region). In addition, this thesis emphasizes that attention needs also to be paid to other opportunities – for example, in S&T developments – that may be fruitful for enhancing the autonomy of food systems. Therefore, this thesis also takes territoriality to the practical, rural settlement level in reflecting on the introduction of a *mung-bean food processing-packaging instrument* in one village (Mangali),⁴ by investigating the role of that new tool in the quest of the villagers to increase food autonomy.

In respect of the practical/material level this thesis investigates the ways in which the establishment and implementation of a local resource- (food-)

⁴ The focus expanded on SHG initiatives in Mangali village with clear participation and management of/by peasants group and illustrating the ways in which a SHG can strengthen territorial connectivity of food, with an emphasis is on local processing and packaging.

based ME, supported by an SHG, create *novelties* within the peasant organization in order to increase access to and control over the resources required to achieve autonomy. Therefore, the ways the case study SHG develops activities to maintain and improve its position vis-a-vis resources and the market is investigated, focussing on the collective actions of the SHG in the village of Mangali in the district of Hisar generally to i) create distinctive social-spatial connections in the mung-bean food network, ii) facilitate specific preferences and viewpoints on development, and iii) adapt a food-packaging instrument in the quest to enhance food autonomy.

Conceptually, the case study also elaborates on Wiskerke and Ploeg's (2004) concept of *novelty*, perceived as a new way of doing and thinking by changing existing practices and/or by setting up a new practice with the potential to do better. Wiskerke and Ploeg stress the relevance of investigating novelties within a food network that are built upon the preferences and expectations of local people as well as investigating concretely, in a specific social setting, the realization of novelty. As is also pointed out by Renting and Ploeg (2001), it is necessary not only to consider the socio-spatial organization of a food network to give space to novelties, but also to look at the creation of local organizations, such as SHGs, to produce novelties and contribute to the process of autonomy by reconnecting food production and consumption.

There is a close relationship between territoriality and self-help studies that this research aims to elaborate further, expressed through the connection between the socio-spatial (re-) organization of the mung-bean food network with the collective actions of the SHG. This involves an investigation of the social relations through which mung-bean production and consumption are connected in the villages (Mangali and Dhiktana), comprising a study of the preferences and viewpoints about mung-bean of the producers, processors and consumers (village communities) and a study of MEs to establish and/or reinforce connections with local markets. The research on the socio-spatial organization (territoriality) of the mung-bean food network and the collective actions of the SHGs to create novelties in the food network to enhance food autonomy imply a study focussed on the following:

- Understanding the *location specific connectivity* in the social relations of production, processing and consumption in the mung-

bean food network and examining the producer, processor and consumer preferences related to mung-bean food quality to realize the role of these in strengthening territorial connectivity.

- Understanding the *relevance of SHGs* in the development of (food-based) MEs and identifying the success factors for SHG formation and opportunities for SHGs in development of food-based MEs and food autonomy.
- Understanding the *formation of SHGs* in local communities, the *SHG strategies* in creating *novelties* in the mung-bean food network, and reconnecting local mung-bean production to community consumption patterns.
- Investigating the *socio-spatial (territorial)* reorganizations of the mung-bean food network through the collective actions of a SHG against the background of idea of *enhancing its autonomy* in the network.

1.4 Problem statement and research questions

In the context of increasingly de-territorialized development of agriculture, the social science problem of this thesis from the perspective of food autonomous development is to *explore how mung-bean production, processing and consumption practices (and quality-trait preferences) are organized by peasants, the local community and SHG to create location-specific connectivity and enhance opportunities for food autonomous development.*

This research explores and unravels the ways in which mung-bean quality-trait preferences (of producers, processors and consumers) and the SHG create and/or enhance location-specific connectivity in the mung-bean food network in the Hisar district of Haryana enhancing the opportunities for food autonomous development. It addresses the rights of rural people (producers, processors and consumers) in Hisar to define their own food and agriculture, to make choices and decisions about food production, to access and manage the use of resources, and to create relations with markets. The core research question is:

What role do mung-bean quality-trait preferences and self-help group play in creating the territorial connectivity of the mung-bean food network in the Hisar district of Haryana State in India, and does that connectivity contribute to food autonomy?

This core research question is subdivided into the following four sub-questions, which are separately dealt with in Chapters 2 to 5. The four sub-questions are:

1. How are mung-bean production, processing and consumption practices socially (socio-spatially) organized in creating territorial connectivity between local food production and consumption for stimulating food-autonomous development?
2. How do rural producer, processor and consumer perceptions of mung-bean quality interact with their aim to maintain and develop a territorial mung-bean connectivity so as to reinforce food autonomy, and how does the market (wholesale and retail) affect this connectivity and food autonomy?
3. What are the SHG possibilities for the development of MEs as a part of a food network, how can such initiatives be introduced and what does and might this mean for food autonomy?
4. How are the SHG strategies organized, in what ways do they create forms of connectivity in the mung-bean food network, and how does this contribute to enhanced food autonomy?

To summarize, this research investigation related to the research questions in the following ways:

- The study of the social organization of mung-bean production, processing and consumption (Chapter 2) analyses the social relevance of mung-bean production, processing and consumption in relation to food autonomous developments.
- The study of the mung-bean qualities (Chapter 3) looks at the preferences of producers, processors and consumers for specific

mung-bean food qualities in order to develop insights into whether these preferences may reinforce efforts of the mung-bean food network to strengthen a mung-bean territorial connectivity in Hisar, the functioning of wholesale and retail markets is also investigated in relation to these preferences.

- Concerning the SHG possibilities for the development of MEs as a part of the food network, Chapter 4 investigates the SHGs engaged in building MEs and some SHG issues that influence the formation and consistency of a SHG, it also looks at the opportunities for participatory actions and participatory decision-making processes that may facilitate local capacities for developing food autonomy.
- Chapter 5 describes key collective activities of the peasants' SHG in Mangali village in Hisar, indicating ways in which the peasants are connecting with the surrounding world and establishing a mung-bean ME, also, it investigates innovations within the mung-bean food network.
- The thesis concludes (Chapter 6) with a presentation of the core conclusions of the social organization of mung-bean production, processing and consumption, mung-bean qualities and the SHG ME in the mung-bean food network from the perspective of food autonomy, ending with a formulation of some concrete recommendations for the enhancement of food autonomy more generally in India.

1.5 Methodology

This study applies a critical-constructivist research methodology, the main aim of which is to analyse the options for autonomous food developments organized by peasants and rural communities. Characteristic of a critical-constructivist research methodology is its explicit involvement in development carried out with and by local people. This implies a participatory research method for empirical investigation of the location-specific connectivities of mung-bean production, processing and consumption, and of the local preferences for specific mung-bean qualities

and products and the possibilities for SHGs to realize autonomous developments within and for the mung-bean food network.

1.5.1 The critical constructivist research approach

A core aspect of the critical-constructivist research methodology is its acknowledgement of the relevance of concrete practices and processes of change realized ‘from within’ (Ploeg 2008). Another important characteristic is that it is principally *reflective* in the sense that the investigator as a subject – intervening in the ongoing activities of the community – reflects on her/his own practice (Boog 2003). A third characteristic is that the aim of the research does not limit itself to reproduce that which already exists, but, on the contrary, focuses on showing that which may be realized (Ruivenkamp 2008). This is done by generating knowledge aimed at creating and extending opportunities for processes of social transformation. In this sense, the research looks at ways in which peasants and the rural community SHG give direction for social change and the enhancement of food autonomy as an alternative path of development. By investigating the territorial connectivity organized by the SHG for enhancing food-autonomous development, this research describes the *collective activities* of the peasants’ SHG, indicating the ways in which the peasants are connecting with the surrounding world and establishing a mung-bean ME. Also, it investigates *innovations* within the mung-bean food network that are built upon the preferences and expectations of peasants and their communities. The critical-constructivist approach applied thus evaluates SHG activities in order to indicate additional opportunities for food autonomy.

This critical-constructivist approach is also applied in general terms related to the issue of development, leading to the debate on ‘endogenous’ development. This debate has stimulated an important critical stand against the dominant perception of relating development to the social organization of global food chains and initiated empirical investigations of the creation of new connections in local food networks. This approach thus implies a research method that enables the identification of new (other) possibilities

(actions) for local communities to create food autonomy and the detailing of ways in which local people can organize. Critical constructivist research methodology tends to operate on the basis of a constant rotation between theory and gathered empirical data in which the theoretical concepts steer the gathering of the empirical data that, in turn, present possibilities for change. For the further elaboration of this research methodology, it is crucial to gather precise empirical data, which often takes place through case study and participatory research methods.

1.5.2 Case Selection

The two analytical domains of investigating options for SHGs to enhance food autonomy and re-territorialize the mung-bean food network in Hisar are investigated in an integrated way spread over the following four subject areas:

1. The *location-specific connectivity of the network* (applying the research methods of a social-science literature study together with interviews, participant observations and discussions with farmers and consumers about mung-bean production, processing and consumption);
2. The ways in which *producers, processors and consumers perceive mung-bean quality* and aim to *realize territorial connectivity*, coupled with the (wholesale and retail) market, to understand its role in territorial connectivity (by questionnaires and interviews);
3. The possibilities of *SHGs for the development of food MEs (networks)* in India (through a social-science literature study, empirical study reviews and interviews);
4. The *functioning of the SHG in Mangali* (through interviews, participant observations and discussions).

This combination of subjects and data collection methods has led to significant insights into the actual role of SHGs in creating socio-spatial connectivity and related opportunities for improving linkages to enhance food autonomy. As such, this research illustrates the importance of the interrelation between *theoretical concepts* like territorial connectivity, SHGs

and autonomy with *empirical research* on a particular case, which enables a further theoretical and practical contribution to the issue of autonomous development.

This research has been driven, informed and co-shaped by the *multi-disciplinary context* of the TELFUN research programme and the *local, specific India context* in which the research has been conducted. The whole TELFUN India team (see below) has focused its research on enhancing food sovereignty by improving existing mung-bean varieties and developing mung-bean based products for better nutrition, together with local producers, processors and consumers. The mung-bean network was chosen as a reference crop for this interdisciplinary research programme because a lot of concern is being shown for the genetic erosion of mung-bean in India (Ali et al., 2004; Grover et al., 2004), while rather little attention is being paid to how peasants create relations between social and natural resources and initiate change for autonomy. Particularly within the Vavilov centre of mung-bean, within which the research is sited, it may be very important to find out how peasants can organize SHGs to stimulate food autonomy around this crop.

This study was carried out alongside and in relation to the other scientific disciplinary contributions of the TELFUN research group, in which a plant breeder, food technologist and nutritionist have investigated ways in which the territorial connectivity of mung-bean production and consumption can be enhanced through the tailoring of plant-breeding techniques, food conservation and fermentation methods and through an improvement of nutritional characteristics of the mung-bean. The multidisciplinary setting of TELFUN and the focus on the mung-bean network have thus served as the investigative context within which I, as a social scientist, have been able to consider whether and how territoriality and SHGs facilitate autonomy in a food network.

The *socio-spatial organization of the mung-bean network* has been examined in order to understand the location-specific connectivity of mung-bean production, processing and consumption and to formulate a contextual framework from which local possibilities are explored to develop an autonomous mung-bean food network. The communities studied – the

villages of Mangali and Dhiktana – through interviews, participatory observations and group discussions (see below) were selected based on their mung-bean production and consumption levels. The *investigation of mung-bean quality preferences* – in the same study area – was carried out in a multidisciplinary research team, purposively designed with the broad objective of exchanging ideas and fine-tuning research priorities among the various disciplines. Individual disciplinary questionnaires were designed and data/information shared among team-members in order to understand the mung-bean quality preferences of local people involved in mung-bean's territorial connectivity and then aimed toward new forms of connectivity, for example, by coupling the short-duration preference with SHG-based food ME development.

The investigation of the *possibilities of SHGs in developing a food-based ME* was necessitated by the need to understand the (local) potential of SHG interventions for realizing autonomous developments. The study looks at the processes and challenges involved in establishing and implementing the local-food-based MEs by the SHGs in the food network. The case study illustrates that SHGs develop a potential strategy for autonomous development fulfilling the demands of finance as well as training and skills development among rural people. It also identifies factors that affect a SHG in respect of ME development among rural people, aiming to formulate a framework for the initiation and development of SHGs for MEs.

The *mung-bean food network* SHG is investigated (through the interviews and participatory observations) in order to gauge the possibilities for a reconnection of mung-bean production and consumption. In particular, the study assesses ways in which an SHG organized by peasants might create *novelties* in a mung-bean food network and whether and how the novelties constitute and enhance food autonomy.

1.5.3 Data collection methods

A combination of various quantitative and qualitative data collection methods has been used in each of the four subject areas – the exploratory mung-bean network study, mung-bean quality preference assessment, the

assessment of SHG strategy and the study of SHG functioning in the network – in order to investigate territorial connectivity organized by SHGs for autonomous development.

Mapping

Mapping is a useful tool to learn about a community and its resource base. In this study, the primary concern was not to develop an accurate village map, but to learn the *villagers' perception of the community's natural and social resources*.

Interviews

In-depth interviews in qualitative research are useful for collecting information on *individual experiences and perspectives* when the goal is to gain insight into a subjective understanding (from the actor's point of view). One-to-one interviews can be formal or informal, involving the use of a structured questionnaire and/or semi-structured interview guides for individual interviews with appropriate representation of the target population under study.

Here, the farmers from the villages were interviewed to draw on their experiences, especially in mung-bean production. The interviews were conducted on the farms and in their houses, at their convenience. Interviews with village consumers (who thus also represented the community) were employed to draw on experiences especially in mung-bean consumption pattern and preferences. The consumer interviews also provided a unique opportunity to obtain information about their motivation and practices associated with mung-bean consumption. I interacted with key informants, including experienced farmers, community leader and *Aanganwadi* (community organization) workers, who are rich in local knowledge of mung-bean production and consumption practices. I also interacted with SHGs in the community that already had experience and knowledge of SHG strategies.

A Venn diagram technique (Fig. 1.1) was used to locate key informants for interviews and also to identify organizations in respect to local possibilities for enhancing food autonomy. In this diagram, drawn on the ground,

individuals and organizations mentioned by participants were represented by different size circles on the basis of their importance in the community (the larger the circle, the more important the organization). This was followed up with further interviewees.



Figure 1.1 Venn diagram for informants and organizations

Focus group discussions

The purpose of focus group discussions (FGDs) is to gain understanding and *generate knowledge* about a particular topic or research interest *among purposively or randomly selected subgroups* of a larger population (Krueger 1994, Borgatti 1999). FGDs may be effective in, for example, eliciting data on the cultural norms of a group and generating broad overviews of issues of concern to the (sub-) groups represented.

In this research, FGDs were used to explore the meanings of the territoriality study findings and generate perspectives on different opportunities available in the mung-bean network development process. They were also used to consider further the SHG study findings and develop insights into different opinions about autonomous development. The semi-structured questionnaire used to guide the FGDs comprised several open-ended questions allowing participants to refer to a wide range of options and encouraging them to express their views on specific issues. The information

collected through FGDs and from one-to-one interviews is detailed in the methodology sections of each empirical chapter (2-5).

Participant Observation

The data collection method of participant observation involves *watching behaviours, practices, processes and interactions of people* as well as *an involvement with them in their usual, everyday settings*. It involves a three-stage process: first, establishing rapport and gaining access to a particular study area or community; second, living, interacting and/or working among the people under study in order to grasp their views and ways of life or everyday practices; and third, reporting or giving material evidence of what has been observed, such as in the form of field notes, photographs and drawings (Bernard 1995, Dewalt & Dewalt 1999, Denzin & Lincoln 2000, Russel 2006, Yin 2009).

In this research, participant observation helped to interpret and better understand the case study context and phenomenon (Kawulich 2005). For example, the participant observation method was used here to more fully understand the assumptions about territorial connectivity and the SHG in this mung-bean food network development, which would not have been possible just by interviewing local people. Participant observation enabled me to learn about the SHG activities organized by peasants as actually practiced through observation and participation; participant observation was also used here for the process of learning and change through exposure and involvement in the training on mung-bean processing.

Data Analysis

The first phase of data analysis involved the use of the Statistical Package for Social Sciences (SPSS) and Advanced Excel, along with reflections on information and data collected from secondary sources. Primary data obtained from questionnaires were cleaned, descriptive information coded when possible and data entered into the SPSS for analysis. The SPSS outputs were exported to Microsoft excel for further analysis and a generation of outputs for reporting. For qualitative data from key

informants, interviews and group discussion, I read through the interview and group transcripts and developed codes for coding and data review. Reviewing data involved the establishment of themes, categories, patterns of interaction and emerging interpretations.

The second phase of research involved analysis of the SHG results obtained (the local possibilities reflected) from the first phase of analysis. Using the SHG as an analytical tool, a retrospective and local view of the food network (autonomous) development was investigated through analysis of information and data collected to reveal SHG assumptions in the mung-bean food network from the food autonomy perspective.

1.5.4 Study Limitations

This research was restricted by various limitations, thus:

1. During the research programme, it became evident that a multidisciplinary research programme required more resources and time. There was a lack of resources to conduct an extensive study of mung-bean activities in other regions of India. In the gathering of data, I had to be content with gathering information from a limited area, in conjunction with the interviews of many local people working at the Haryana region of India. As the focus was on local autonomy, of course, this was not a major problem, although it has implication for the identification of generalizable strategies.
2. This research concentrated only on the actions and responses of a peasants' SHG. This may not reflect the changing situation and relationships between peasants and village-level traders. However, it could be an important factor influencing the functioning of SHG MEs.
3. The absence of a food network debate in India at the time of this research implied a dependence on the international literature and debates on food networks. Thus, this study has aimed to apply and test that literature in a location-specific context in India, which can be further extended to stimulate local food autonomous developments.

Adding to this third limitation, the general background of this research was the international debate on food sovereignty. This research has nurtured that debate through a location-specific study of the mung-bean food network in the Vavilov centre of mung-bean in which it is aimed to present the actual and potential role of peasants to reorient agricultural development in India towards food autonomy at the community level, notwithstanding the many difficulties involved in this.

1.6 Structure of the thesis

This introductory chapter has outlined the conceptual framework of this research focussing on SHG development oriented to enhance food autonomy at community level and the social-spatial organization of a mung-bean food network (its territoriality) as case study. This chapter has presented an overview of scientific discourses on food networks and related territoriality to SHGs in the food autonomy debate, leading to a core research question and four sub-questions, along with the related research methodology employed.

Chapter 2 presents the *location-specific connectivity of mung-bean at production level*, the way in which mung-bean production, processing and consumption is *socially organized* and how *location-specific connectivity* is related to food autonomy in the Hisar mung-bean food network. The chapter also identifies some pathways for enhancing food autonomy within the local network.

Chapter 3 presents the assessment of *mung-bean quality preferences* at the local level. This chapter identifies the diversity of mung-bean quality preferences among producers, processors and consumers. The empirical results presented in Chapters 2 and 3 frame the contextual background to the mung-bean network development analysed in Chapter 4.

Chapter 4 discusses the SHG strategy of collective action in food ME development in India and identify those success factors for SHG formation that may be replicated effectively in respect of the development of rural food-based MEs. It describes SHG MEs in relation to the autonomy,

indicating opportunities for SHGs in development of food-based MEs and food autonomy.

Chapter 5 presents the empirical findings concerning the SHG strategies to strengthen the connectivity between local mung-bean production and consumption. Issues addressed include the role of peasant self-help in creating novelties in the mung-bean food network and for local market access. This chapter also indicates possibilities for enhancing food autonomy through extended participation of local communities in various decision-making processes.

Chapter 6 presents the conclusions of this research on territoriality development and SHG development in the mung-bean food network by peasants and rural communities. It summarizes the answers to the research questions and reflects on the SHGs for an investigation of location-specific connectivity and functioning in creating food autonomy. In view of the specific location in which this research has been carried out, the thesis adds some recommendations for the enhancement of food autonomy more generally in India.

CHAPTER 2

The social organization of mung-bean production, processing and consumption for food autonomy in Mangali and Dhiktana

2.1 Introduction

The significance of food networks has generally been discussed in the social sciences as an alternative approach to the conventional conception of industrialization of agricultural development and global food chains (Fine 2004, Rodriguez 2007, Manzini 2008). As Ruivenkamp (2005) has argued, global food chains stimulate a disconnection of agriculture from its local environment, production and consumption. This has resulted in a situation in which, instead of encouraging the participation and capacities of peasants and rural communities in linking local food production and consumption through connecting natural and social resources, the modern thrust of agriculture is to create systemic dependencies on mono-cropping with high-yield varieties, chemical-input packages and exogenous market drives. In contrast, the concept of food autonomy draws attention to the organization of local food networks, in which an alternative, innovative trajectory is proposed that starts from the strengths of the local natural and social resources for agricultural development and advocates for the initiatives of peasant communities in managing these.

In this study, I focus on food networks as community-based social structures or engagements concerned with food production, processing and distribution that are built around sets of relations among organizations and/or

individuals collaborating to achieve some common goals at local, national and/or international levels (Henry et al. 2004, Powell 1994). Food networks have the potential to provide a more flexible and non-hierarchical means of exchange and interaction, empowering local people (especially peasants and poor rural communities) and generally promoting ecologically as well as socially sustainable practices. This allows them to be more innovative, responsive and dynamic in connecting local natural and social resources and providing opportunities for a more equitable and autonomous agrarian development.

This chapter aims to present the significance of a mung-bean network – in the Hisar district of Haryana state in northern India – for autonomous development and the potentialities of location-specific developments within this network to enhance food autonomy. It thus provides a background to issues related to the mung-bean network, such as the local quality-trait preferences and SHG developments presented in the following chapters (3, 4 and 5).

The concept of *territorial connectivity* is used to analyse the social relevance of mung-bean production, processing and consumption in relation to food-autonomous developments. The mung-bean is chosen as the reference crop for this study because of its socio-economic and socio-cultural significance in local production, processing and consumption patterns (Shanmugasundaram et al. 2003, 2004). Peasants grow mung-bean as they have for centuries, millennia even, due to its ability to withstand high temperatures and low rainfall; other considerations include its nitrogen fixation capacity for soil improvement, suitability as an income source and, of course, its nutritive value.

Mung-bean farming, cooking and selling is characterized by a location-specific connectivity based on longstanding but continually developing socio-economic practices and cultural traditions engaged in and organized by peasants as individuals, families, neighbours and wider groupings and communities. Autonomy emerges from, characterizes and is aimed at in these connections of agriculture to its local environment through activities and practices enabled by the local productive resources that result in, for example, the *ability to make decisions* about food production.

The primary issues addressed in this chapter are expressed through the first research sub-question, thus:

How are mung-bean production, processing and consumption practices socially (socio-spatially) *organized* in creating territorial connectivity between local food production and consumption for stimulating food-autonomous development?

First, I give the research methodology (Section 2.2), and then I outline the social significance of mung-bean (2.3), generally, regionally (at national and state levels), and locally (at district and village levels), the latter informed by the on-site, empirical research. Next, I present the results of my empirical analysis (2.4) into the wider socio-cultural context within which mung-bean production, processing and consumption is structured and practiced in the locality. Finally, I focus on food autonomy (2.5) in relation to the social organization of mung-bean, indicating opportunities for enhancing this related to the connection of local, natural resources for agricultural development and local food-based products.

2.2 Research methodology

In order to address the research question formulated above, an exploratory study of the mung-bean network was conducted in selected communities in the western district of Hisar in the northern state of Haryana (Figure 2.1). Bordered by Uttar Pradesh in the east, Punjab in the west, Himachal Pradesh in the north and Rajasthan in the south, Hisar is considered the primary centre of mung-bean diversity in the Indian subcontinent (de Candolle 1884; Vavilov 1926).

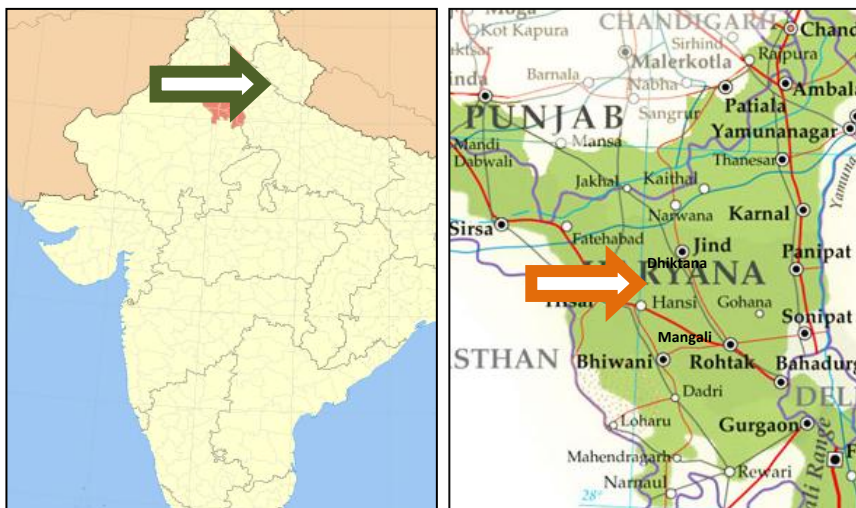


Figure 2.1 Maps of India and Haryana indicating study area (Hisar)

Agriculture is the mainstay of more than 75% of the Haryana population and contributes to almost 20% of the state's GDP. The major crops are pearl millet (*bajra*), oilseed (sesame), mung-bean, sorghum (*jowar*), maize, guar gum, rice, sugarcane and cotton. There are two growing seasons in Haryana: *kharif*, from June to October (the monsoon season), and *rabi*, from October to January. The mung-bean crop occupies an area of about 10,000 ha in Haryana, and mung-bean is its most widely eaten pulse there (Economic Survey-Haryana 2008-2009). Considerations for selecting the study area thus include its high level of local biodiversity and mung-bean production.

Farmers and communities were selected through snow-ball sampling in the Hisar district mung-bean producing village communities of Mangali (including the small settlements of Surtiya, Aaklan, Jhara and Mohabbat, as well as Brahmnan) and Dhiktana, which together comprised the primary research site for the case study presented in this thesis. These communities are at a distance of 15 km from Hisar, predominant mung-bean production centres with processing and consumption practices. The populations of Mangali and Dhiktana are around 11,000 and 7,500, respectively, as per the Government of India population census of 2011. Snowball sampling – asking study participants to make referrals to other potential participants,

who in turn make referrals to other participants, and so on (Davis et al. 2012) – was used to identify the sample participants. Then, interviews, focus group discussions (FGDs) and participant observation were used to understand how production, processing and consumption of mung-bean are socially organized for autonomous development.

A total of 100 rural producers, 100 processors and 100 consumers were interviewed, using semi-structured and structured questionnaires. They are basically all peasants, who grow, cook and eat the mung-bean so they are processors and consumers. All interviews were one-to-one and conducted at the communities. Six FGDs were conducted with producers, processors and consumers – again, in the communities – to generate qualitative information on the mung-bean network. The FGDs were made with ten participants in each band lasted between 50 and 80 minutes. The participant observation method was also used and a village mapping conducted. The map was made by villagers on the ground using chalk (Figure 2.2), the aim being to learn about their perceptions of the community and its natural and social resources. The mapping also revealed the social institutions functioning in the village and served as a first opportunity to learn about how these operated in daily life.



Figure 2.2 Village mapping

Table 2.1 shows four (different types of) social institutions found to be present at the research site, the various groups of people who use or participate in them and how/why. This thus provides an overview of the social institutions and arrangements rooted in the local community. The local government (*Gram Panchayat*), school, courtyard shelter (*Aanganwadi*) and SHGs identified constitute part of the social environment in which the food network functions.

Table 2.1 Social institutions and arrangements in communities

| Social institutions | Participants/users | Purpose and action |
|--|---|---|
| <i>Gram Panchayat</i> (local self-government) | Community members; elders, farmers, women | Maintain and provide village facilities (sanitation, street lights, roads, information) |
| School | Children | Education and mid-day meal |
| <i>Aanganwadi</i> (courtyard shelter) | Women, children, workers | Basic health care; nutrition education, supplementation and pre-school activities |
| SHGs | Households, farmers | Income generating activities, informal interactions, sharing ideas |

The *Gram Panchayat* is constituted through the participation of a heterogeneous set of community members that maintains and provides facilities such as sanitation, street lights, roads and information for the communities. As well as education, the school provides the children with a midday meal. Composed of rural women, workers and children, the *Aanganwadi* is mainly concerned with basic healthcare, nutrition education and supplementation and pre-school activities. Self-help groups are

organized for sharing information, ideas and income generation through the participation of households and farmers.

This organizational activity implies that rural people are concerned work for the maintenance and improvement of the local, natural, social and economic environment of their communities. And it means that the villagers contribute through their own community-based institutions. They are motivated to *participate* in the social environment through a range of institutionally organized activities linked not only to economic benefits but also to strengthening their communal abilities and capacities. In this sense, social institutions are also participants in local (food) network development, creating the autonomy of the community. This theme is further elaborated in Chapters 4 and 5, in the context of opportunities to develop the local mung-bean network.

2.3 Social-economic significance of mung-bean

Mung-bean/green gram (*Vigna radiate* [L.] Wilczek) is one of India's most important food crops. A leguminous plant cultivated for its leaves, green pods and grain for humans as well as for livestock feed, mung-bean is rich in protein (20 to 24%) and fairly high in iron (4-6 mg per 100g dry seed). It requires relatively little water and infrequent irrigation through the growing season and is both drought and heat tolerant. Crucially in the context of peasant farming (autonomy), mung-bean has a unique role in fixing atmospheric nitrogen, through the process of biological nitrogen fixation (BNF), thus leaving nitrogen in the soil after harvest, which is beneficial to the next crop (Sharma et al. 2003). Mung-bean leaves a residual 33-37 kg N/ha after meeting its own requirements, which typically provides a quarter of the succeeding crop's needs (Sekhon et al. 2007).

The ability of mung-bean to fix atmospheric nitrogen into the soil in association with certain soil organisms gives the crop a vital role in the local farming systems, especially for sustainable agriculture on marginal soils, which are widespread in northern India. Mung-bean cultivation has thus become an important component of *traditional intercropping practices* in

the complex subsistence farming systems of the rain-fed area of Haryana state. Peasants there usually rotate or intercrop mung-bean with sorghum, maize, millets and other crops to improve soil fertility. Mung-bean intercropping also promotes biodiversity, providing a habitat for a variety of insects and soil organisms that would not be present in a single-crop environment. It also provides better nutrient recycling and better weed control (Sangakkara 1994) and helps to limit outbreaks of crop pests (Altieri 1994). These aspects were indicated as positive benefits of the crop by around three-quarters of the peasants interviewed.

After the land preparation, sowing and cultivation of mung-bean, peasants are involved in its harvesting and processing. They participate in the cleaning, drying, milling and storage of mung-bean; they are producers, processors, consumers, keepers of culinary traditions and seed custodians. For the majority of the population of Hisar district, the processing (milling and de-husking) of mung-bean for food is largely small-scale, basically, at the traditional, family-based and small-scale level for subsistence. The socio-economic base of the local mung-bean network in Hisar, therefore, is *deeply embedded* in the local culture and working practices of peasants and their communities.

Finally, alongside the specific characteristics that make the traditional cultivation of the mung-bean attractive together with the important role of peasants in its processing, there is also another important cultural aspect of the mung-bean network: its consumption. Mung-bean for subsistence is very popular in community food-consumption practices because of its high digestibility, non-excitation of flatulence and perceived health value. The characteristics of mung-bean consumption also, therefore, play a major role in the socio-cultural positioning of this food.

Figure 2.3 illustrates the interwovenness of the mung-bean crop with various, specific aspects of its cultivation. First, at the top row, the figure indicates the relation between biodiversity and the bean's ability to enhance soil fertility through its ability to fix atmospheric nitrogen and thereby reduce the requirements for additional fertilizers and manure. Then, at the

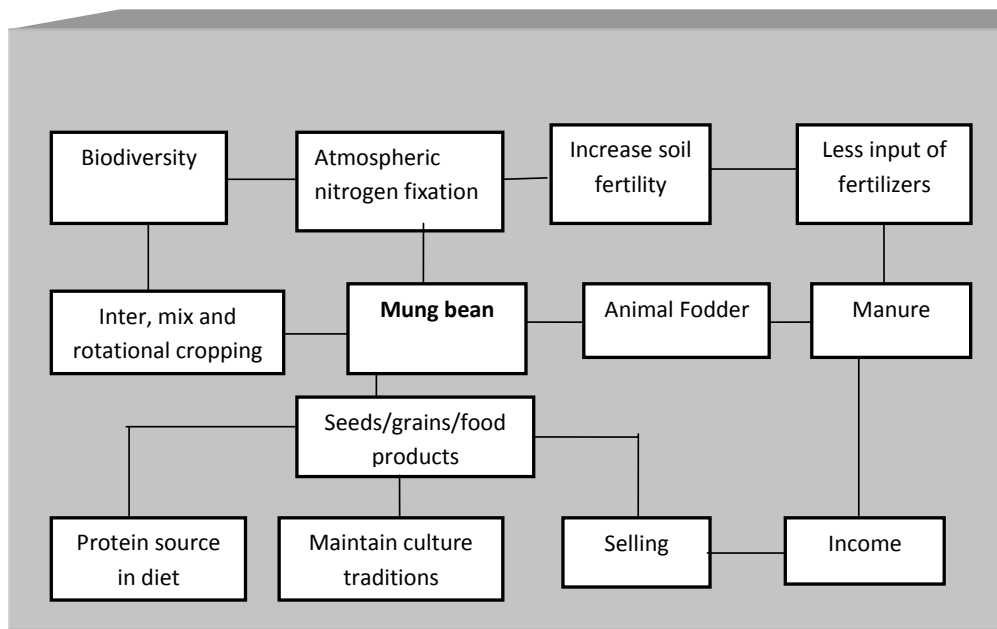


Figure 2.3 Benefits of mung-bean farming

second row, it refers to the efforts of peasants to promote biodiversity through specific production (cropping) practices and the usage of the crop for livestock feed further reduces external input (fertilizer) needs. Moving through the products, we see at the bottom row how mung-bean culture is embedded in community life, not only as a food but also through the maintenance of traditional practices – which include the saving of seeds, culinary practices and consumption patterns – while going beyond subsistence farming and entering the market, mung-bean cultivation is shown to deliver household income through sales.

Concerning the social significance of mung-bean at the research site, the peasants ranked mung-bean high in terms of both household food provision and income generation, with 50% (Table 2.2) and 40% (Table 2.3.) of interviewees, respectively, ranking mung-bean as the most important crop in

these categories. Mung-bean thus emerges as the second most important crop in terms of household food provision – after pearl millet, which is used for *chapatti*, and ahead of sorghum, maize and wheat (Table 2.2) – and as the third most important crop in terms of household income – after guar gum and wheat, and ahead of maize and pearl millet (Table 2.3).

Table 2.2 Relative importance of crops in terms of household food provision (n=100)*

| Ranking | Crop | Responses (%) |
|---------|-------------------------------|---------------|
| 1 | Pearl millet (<i>bajra</i>) | 93 |
| 2 | Mung-bean | 50 |
| 3 | Sorghum (<i>jowar</i>) | 42 |
| 4 | Maize | 35 |
| 5 | Wheat | 26 |

* Response to the question, ‘Which is your most important crop for food?’

Table 2.3 Relative importance of crops in terms of income (n=100)*

| Ranking | Crop | Responses (%) |
|---------|-------------------------------|---------------|
| 1 | Guar gum | 47 |
| 2 | Wheat | 45 |
| 3 | Mung-bean | 40 |
| 4 | Maize | 35 |
| 5 | Pearl millet (<i>bajra</i>) | 29 |

* Response to the question, ‘Which is your most important crop for income?’

Compared with the other relevant crops in the region, the importance of mung-bean is identified as based particularly on its *dual function*, as a crop that offers both household *food provision* as well as *income generation*. While wheat and maize also figure on both lists (Tables 2.2 and 2.3), their relative importance for income is similar to mung-bean but use for food provisioning much lower; and while pearl millet is much more important as a food, it is considerably less so for income, the area that might be expanded with further entry by the smallholders into market relations.

Furthermore, during group discussions especially, the peasants referred to the perceived *health value* of mung-bean, especially during *pregnancy, lactation and old age*. Indeed, it is known that mung-bean is a major source of vegetable protein (providing 25-31% of protein needs), supplies 1486-1570 KJ/100g of energy and contains 4-6 mg/100g of iron and 4-5 mg/100g of zinc, as well as 1-5% of the human crude fibre requirement (Shanmugasundaram 2004, Vijayalakshmi et al. 2001). With its high nutritional value, mung-bean offers the potential to reduce the consequences of malnutrition in young children, such as slowed growth and delayed development (Shanmugasundaram et al. 2004).⁵

2.4 Empirical research results: mung-bean production, processing and consumption

2.4.1 Mung-bean production

Smallholder peasants – farmers and farming families with a land-holding of less than two hectares – constitute the majority (almost 80%) of all mung-bean producers in Hisar. Peasant mung-bean crop-farming tends to use human and labour and animal traction. The Hisar average mung-bean cultivation of approximately 0.8 hectares was nevertheless cited as the main source of household income by approximately 96% of respondents from the

⁵ It was, indeed, these characteristics, among other factors, that were instrumental in the selection of this crop for the interdisciplinary Telfun research programme.

mung-bean network (i.e. almost all local farmers growing mung-bean said it was their primary cash crop).

Mung-bean farmers in Haryana generally have to deal with two fundamental ecosystem challenges: drought and the unreliability of rainfall. For about four months, there is virtually no rain, and during the rest of the year, rainfall is irregular. These are directly related to the reasons mentioned by peasants for farming mung-bean, with almost three-quarters stating ecological suitability to be their main motivation, making this the most popular reason for mung-bean cultivation, as shown in Table 2.4.

Table 2.4 Peasants' reasons for mung-bean production (n=100)*

| Reasons to grow mung-bean | Responses* (%) |
|--|----------------|
| Suitable for dry land (heat tolerance, less rainfall) | 74 |
| Suitable for intercropping | 70 |
| Less input of fertilizers | 58 |
| Suitable for soil-fertility | 48 |
| Short duration crop (crop rotation) | 47 |

* Response to the question, 'Why do you cultivate mung-bean?'

Illustrating the local expression of the benefits of mung-bean farming (Figure 2.3), the other extremely popular reason for cultivating mung-bean was its usefulness for intercropping (with sorghum, maize or millet). Through intercropping, mung-bean thus becomes a *bonus crop*, and peasants were, indeed, observed to follow the practice of intercropping and

regardless of the size of their holding; they have preference of three-to-four (diverse) crops in a year so that they receive relatively better returns from their overall cultivation. Around half of the farmers also cultivate mung-bean as a fertilizer and a suitable crop for the soil. In relation to the former, for example, the view was expressed that ‘We do not use fertilizers in mung-bean production, and, after harvesting of mung-bean, the soil gets naturally nourished for the next crop production’. Mung-bean is thus shown to be also a *low input crop* for these resource-poor farmers.



Figure 2.4 Mung-bean in the field

Mung-bean is sown with the onset of the monsoon rains from mid-June to the second week of July and harvested in the last week of September and first week of October, for which reason almost half of the farmers interviewed indicate that it is grown as a ‘short duration crop’ (maturing in 70-75 days). The experience of the peasants of the timely performance of agricultural operations – like ploughing, sowing and weeding – is of the utmost importance for agricultural production, since they have the skills and know-how to organize their agriculture in accordance with local climatic conditions. Changes in the ecosystems are carefully monitored and managed by them all; for instance, although mung-bean is usually sown in early July, peasants may delay sowing by one, two or sometimes even three to four weeks if there are no substantial showers in early August. Peasants are always on the look-out for environmental indications that may determine particular courses of actions.

Peasants' skills and practices are not only related to their ability to modulate the mung-bean cultivation in accordance with local climatic variable conditions but also to the characters of a given land. The peasants have experience of managing the problem of water scarcity and preserving and enhancing the fertility of the soil, and their practice of mung-bean intercropping is related to their ability to sustain natural resources and conserve biodiversity.

This all implies that the peasants' decisions about mung-bean production are not exclusively guided by market forces but are related also to the connection of their mung-bean cultivation with the characteristics of the local environment. And it means that peasants rely on their own judgement about how to act, guided by an authentic, self-motivation. They are able to *make decisions* about food production through selecting the range and nature of activities in mung-bean production, in which the local production of mung-bean is not only linked with the local environment but also with local livelihood strategies. In this sense, the peasants are also the creators or guardians of local crop diversity, enriching the mung-bean food culture of the locality. This is particularly realized by their choices about the seed sources.

Preferred seed sources

The dual functional purpose of cultivation (household consumption and income generation) is indicated by peasants' choices about their seed sources. Of the peasants interviewed, less than a quarter said that they cultivated mung-bean solely for income generation or for household consumption, leaving over a half who cultivated mung-bean for both, household consumption *and* income generation.

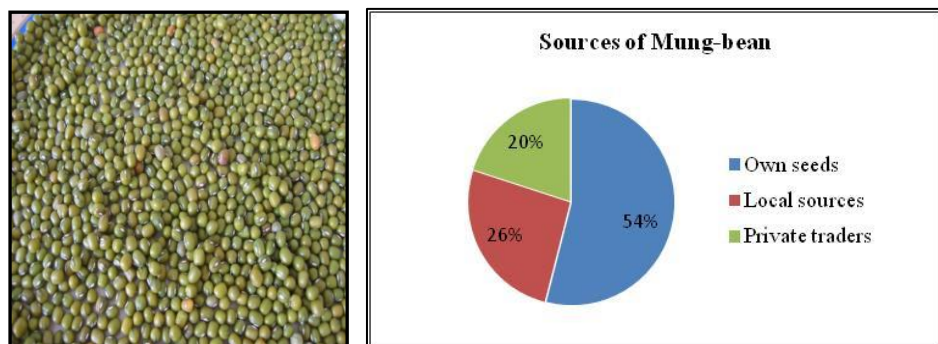


Figure 2.5 Mung-bean seed sources

Generally, regarding the selection of seed sources, the three most popular criteria were found to be related to capital (money, seed), crop diversity (intercropping practice) and local environmental conditions, while other seed-source preferences referred to yield (50%, 10%, 20% and 20% respectively). In other words, the farmers preferred seed that produced plants that themselves produced plentiful seeds (i.e. which could be re-used – effectively becoming a form of capital to be re-invested – thus staying off the future need for further financial input). Farmers also preferred seed that produced varieties that were considered to be good for intercropping and suited to the local ecology and also that produced large quantities of bean.

Related to the first of these, a slight majority of the interviewed peasants use seed sourced from their own farms, with around a quarter purchasing from local sources (friends and/or other farmers) and the remaining fifth from private seed sources (traders, agents, seed shops) (Figure 2.5). The single most common reason mentioned in the interviews for using private seed sources was that these would yield larger quantities of bean. Mostly used for sale, the private purchase of seeds was generally made by farmers engaged in the market; that is, they chose to purchase seed as an investment, in order to cultivate higher-yielding varieties so as to then gain a profit by selling the greater produce. However, peasants purchasing seeds from private traders were very aware of their drawbacks. One of the main issues of concern was the need for financial input; not only do the farmers have to buy the seeds (as a capital investment), they then need to buy fertilizers for the high-yielding varieties, which imposes a keenly felt financial burden. The huge

preference for own and locally sourced seed among the peasants was expressed in the interviews as being for the following three reasons.

Firstly, the peasants expressed their preference for local seed sources because it *avoided the expense of buying seeds*, which is important due to the shortage of hard cash. The peasants are poor: ‘Even buying a 1.5 kg of seeds is very difficult’, they say. Hence, using their own seed is vital for peasants in order to keep their land productive. Seeds represent an asset that they have control over, unlike money: ‘Money doesn’t last, but seeds stay with us’. The farmers prefer to produce their own seeds and preserve strains, for later use as well as for posterity. They also find it especially important to ‘stand on their own feet’ by being self-sufficient in seeds, since this saves them from having to ask for money for seeds (from lenders or big farmers).

Secondly, the farmers explained that by exchanging seeds with local seed sources (friends, relatives) they not only avoid costs but also maintain a *diversity of crops*, and at community level as well as on their own farms. Exchanging seeds locally enables peasants to carry out seed selection in their own communities (an easy-to-access implication) and keep away from a dependency on the market. Producing their own seed – individually and communally, through exchange – is valued by peasants as a traditional practice assuming independence that provides (seed) capital and thus enables them to work their land in the future. In the absence of community-owned gene banks (i.e. gene-bank resources to which they have access), these peasants have taken it upon themselves to conserve crop diversity (practiced through seed exchange and enabled by intercropping) – and again, not just to ensure for their possible future livelihood needs but also as a cultural legacy of and for the community.

Thirdly, the interviewed peasants referred to the *range of characteristics* that the seed sources need to fulfil as a reason not to buy seed. They explained how they have to consider not only yield (at which the privately sold seed is primarily aimed), but also the *environmental conditions* and *food culture*. The practices of mixed farming – with mung-bean as well as other crop types – tend to stimulate the use of local seed sources with local environmental and social conditions in mind, leading to the cultivation of varieties that are less susceptible to environmental pressures and production

of beans that meet the local preferences. In this respect, local seed sources are also preferred because they are long proven in the local environmental conditions and thus offer a *guaranteed production* (without the need for further costs in the form of fertilizers or replacement, which represent points of vulnerability insofar as peasants are not certain to be able to meet these).

In the Hisar district, therefore, local mung-bean seed systems co-exist with the formal, private (commercial) seed system; peasants opt for the latter for high yields but prefer the former for reasons associated with financial inputs, independence, crop diversity, environmental pressures and food culture. The use of local seed sources is linked with their ability to build up their seed capital through seed selection, both in their fields and, through exchange, at the (inter-)community level, and thereby avoid dependency on the market (represented by private seed sellers and money-lenders).

Such an exchange of seeds promotes social networks based on reciprocity and cooperation. As shown by Bina Agarwal (1999: 96), (women) farmers in India heavily rely on social relationships with kin and with villages outside the kin network, as these 'provide economic and social support that is important to all rural households', including 'reciprocal labour-sharing arrangements during peak agricultural seasons; loans taken in cash or kind during severe crises such as droughts; and the borrowing of small amounts of foodstuffs, fuel, fodder, and so on, even in normal times'.

Local seed sources are also significant for ecological reasons, allowing the mung-bean farming system to continue to develop and adapt to the local environment. In a localized seed system, the peasants are able to choose and use those natural resources (seeds) that are related to the conservation of their own food supply, which includes maintenance of the local ecological resources (such as the health of the soil) and preservation and development of local crop diversity (considering location specific demands and desires). Indeed, they are the custodians of genetic resources in the local mung-bean food network(s). Chapter 5 looks at how the formation of a peasant production SHG can support and further develop food autonomy.

2.4.2 Mung-bean processing

The empirical research of the mung-bean processing showed that this results in various types of products, including whole mung-bean, split mung-bean and split, de-hulled mung-bean. These are differently situated, however, in the sense that traditional processors are located in rural areas and industrial/highly commercial processors in urban areas. While modern (automated, mass production) techniques and technology are generally applied by private enterprises in city factories, where mung-bean is processed into different (split and split, de-hulled) forms as well as into various mung-bean products for urban and rural markets, the more traditional (labour intensive and small-scale) processing of mung-bean, involving activities such as cleaning, sorting, drying and milling, is mostly organized and/or done by the peasants. These different and co-existing mung-bean processing practices indicate that many groups (peasants, food sellers, industries) are involved in these various processing practices. Focusing on food sovereignty, this thesis investigates ways in which peasants can enhance their position in respect of these processing activities.

The peasants interviewed describe the processing by declaring that ‘Freshly threshed mung-bean grains contain foreign materials like straws, twigs, stones, dusts, immature grains and weed seeds [so] we clean them, and after that we dry the mung-bean in the sun’ (Ramashvari 30.) In describing their drying activities (Figure 2.6), they explain that drying produces the optimal moisture content for the milling and storage of the mung-bean: ‘Drying also serves as a preventive measure to protect mung-bean from insect infestation’ (Kalavati 28); ‘The mung-bean, after being exposed to sunlight for eight or ten hours, is not desirable as insect food (Kamla 32); ‘We use ash and sand to protect mung-bean from insect infestation’ (Murti 30).

Some peasants use leaves of the neem [*Azadirachta indica*] tree to protect mung-bean from *pest attack*: ‘These grains can remain healthy and free from pest for several years’, says Gayanmurti (39), ‘but we need to take care of mung-bean grains from *boore* [beetle], because it is susceptible to insects’. One of the major insects damaging, the legume pulse grain, the bruchid beetle [*Callosobruchus chinensis*] is responsible for an average of 32-64% loss during storage in different parts of India (Mishra et al. 2007).

Infestation may reach 100% within 3-4 months of storage. In the early stages of attack, the only symptoms are the presence of eggs cemented to the surface of the pulses. As development occurs entirely within the seed, the immature stages are not normally seen. The adults then emerge through windows in the grain, leaving round holes, which are the main evidence of damage. Damaged grain loses its weight as well as quality and is generally unacceptable for human consumption.



Figure 2.6 Village mung-bean processing (drying, milling with a disc sheller)

Mud bins, metal drums and gunny bags are used by rural communities for *mung-bean storage*. The mud bins are cylindrical in shape and made either of clay mixed with straw and animal dung or from mud and bricks. The metal drums are cylindrical vessels made from iron sheets, and the gunny bags are made of jute. Storage of mung-bean is important to the peasants. They store their crop for later use in general as well as in anticipation of food emergencies and scarcity. They value the storage of their own grain as a traditional practice providing independence and conserving food for future needs.

Mung-bean is also *processed* in the villages. It is split and it may be de-hulled, in which the husk and bran are removed by milling and the mung-bean then recovered. Traditional milling is done by the peasants with hand-operated disc shellers (*chakkies*) for household consumption. The disc sheller consists of two cylindrical stones – one stationary and the other rotated by a wooden handle (Figure 2.6). The whole grains of mung-bean are fed from the center, and the de-husked mung-bean is recovered at the

periphery of the cylinder. One person operating such a mill can process up to 5-10 kg/hour of bean and recover yields of around 45-55% of that, with a residue of powder and husk (55-45%). The residue may be 'waste' but it is not wasted, as the peasants explained: 'We use husk as animal feed and use powder in making mung-bean *paratha* [a flat bread] along with wheat flour' (Vimla 35, also Rammurti 36). Chapter 5 looks at how an improved method of milling can enhance food autonomy for the peasants.

The use and re-use of mung-bean for local usage and animal feed illustrate the capacities of peasants to manage the use of local food and develop various mung-bean-based consumption products. The mung-bean-based food products are also sold locally on the street (and in shops), connecting local production to local consumption. Concerning the processing of mung-bean in terms of prepared food products, interviews and observations in the community showed that the mung-bean is converted by *rural processors* into local food products, such as *khichadi* and *mung-bean dhal* (see below), which are commonly used in the mid-day meal scheme of schools (classes I-VIII) and in the rural community *Aanganwadi* centres (courtyard shelters for children below six years of age). The basic raw materials for processing *khichadi* and *mung-bean dhal* are purchased from the peasants in their localities, which indicate that these processing practices are connected to local production of the peasants. Chapter 5 considers potential opportunities for the peasants to set up processing MEs and up-scale their activities.

2.2.3 Mung-bean consumption

With a range of diverse food uses, mung-bean is widely consumed in India throughout the year in its three main forms (whole, split and split de-hulled bean) as well as milled (as a flour). This research revealed the local people to have four main reasons for consuming mung-bean: it is a light food (easy to digest), it is nutritious, has a good taste and it is easy to prepare. Just over three-quarters of the people interviewed said that they consume mung-bean because it is easy to digest. Around a half to two-thirds of the peasants liked mung-bean for its taste, nutritional value and ease of preparation (Table 2.5). They testified that 'we use mung-bean in pregnancy, illness and old age', and also 'during lactation period because the baby gets nourishment from mother's milk'. Clearly, the mung-bean also has health value for

villagers, and the factors listed combine for a food with complimentary, positive qualities.

Table 2.5 Reasons for mung-bean consumption (n=100)*

| Reasons for consuming mung-bean | Responses (%) |
|---------------------------------|---------------|
| Easy to digest / light food | 76 |
| Good taste | 60 |
| Nutritious food | 56 |
| Easy to prepare | 48 |

* Response to the question, ‘Which reasons for mung-bean consumption?’

In terms of consumption variety, Bains et al. (2003) mention over twenty traditional different mung-bean, dishes in both whole grain and milled forms and produced with mung-bean-based mixtures. In the network study, respondents were asked about their frequency of consumption of mung-bean based products. Table 2.6 shows that ten different mung-bean products are consumed, that each of these products is consumed at least once or twice a week by everyone questioned, and six are consumed regularly by most people.

In the Hisar district, most mung-bean foods are de-hulled and flour-based, although whole grains are also used. In order of popularity in communities, according to this research, the most important local foods made from mung-bean are *paratha* (prepared from wheat and split, de-hulled mung-bean dough), *dhal* (a thick spiced soup of whole, split or de-hulled beans), *khichadi* (prepared from rice and mung-beans), *papad* (a spiced snack prepared from mung-bean dough), *ladoo* (a sweet, prepared from split, de-hulled mung-bean paste), *wadis* (prepared from fermented mung-bean flour), *namkeen* (a spiced snack prepared with fried split, de-hulled mung-

beans), *pakora* (fried de-hulled mung-bean roundels), *bhalle* (de-hulled mung-bean roundels prepared by adding water to mung-bean flour, whipped, shaped into balls and deep fried) and *halwa* (a sweet pudding prepared from split, de-hulled mung-bean paste).

Table 2.6 Frequency of consumption of mung-bean based foods (weekly; n=100)*

| Food Item | Frequency of Consumption (per week) | | | |
|------------------|-------------------------------------|-------|------|--------------|
| | Thrice | Twice | Once | Occasionally |
| <i>Paratha</i> | 34 | 66 | - | - |
| <i>Mung dhal</i> | 16 | 80 | 4 | - |
| <i>Khichadi</i> | 2 | 74 | 22 | - |
| <i>Papad</i> | - | 56 | 33 | 11 |
| <i>Ladoo</i> | - | 44 | 40 | 16 |
| <i>Wadis</i> | - | 40 | 30 | 30 |
| <i>Namkeen</i> | - | 15 | 40 | 45 |
| <i>Pakora</i> | - | 6 | 24 | 70 |
| <i>Bhalle</i> | - | - | 15 | 85 |
| <i>Halwa</i> | - | - | 15 | 85 |

* Response to the questions, ‘Which mung-bean foods do you eat?’
and ‘How often do you eat them (each week)?’

Mung-bean dhal and *khichadi* are consumed regularly as home-prepared mung-bean meals by most rural people, while others in the list are consumed as part of a mixed dish or as an accompaniment, and mung *halwa* and *ladoo* are commonly served as desserts on festivals and occasions such as marriages, birth ceremonies and other ceremonies. The sacred offering of mung *ladoo* is associated with the prayer to the God *Ganesha*. Local processors report popular commercial mung-bean-based products, including *pakore*, *bhalle*, *namkeen*, *papad* and *wadis*.



Figure 2.7 Village processing and consumption of *Mung-bean dhal*

As shown above, the consumption of mung-bean exists in many different forms, while the variety in this consumption frequency patterns seem to imply the development of a flexible usage of mung-bean. This seems, in turn, to be largely explained by the communities' efforts to develop food products to fulfil social, cultural and nutritional needs. As a result, mung-bean products have a special role in connecting local production and consumption and saving traditional food culture – which, indeed, has been a driving force in the development of the local mung-bean network.

2.5 Food autonomy in the (Mangali and Dhiktana) mung-bean food network

The research has shown that mung-bean production, processing and consumption are organized at local level to suit local specific societal needs, causing mung-bean to have a high social relevance in the local food networks. In the local farming system, *mung-bean production* is important in the fixing of nitrogen in the soil and as a primary source of protein to sustain the rural households. In the local (Mangali and Dhiktana) food network, mung-bean is produced for both subsistence and commercial purposes, thereby playing an important role in both household food provision and income generation.

The *processing of mung-bean* connects local production to consumption by rural communities passing on processing skills from one generation to another. Some of the mung-bean processing household activities, such as the cleaning, drying, storage and milling practices especially organized by rural communities, enable those communities to maintain their own food and preserve their local cultural practices. In this way, these mung-bean processing (household) practices contribute to food autonomy at community level.

The research on the *consumption of mung-bean* has shown that farming communities largely depend for their home consumption on their capacity to process mung-bean as embedded in their food culture. Mung-bean is clearly not just something to eat, but is an integral part of the culture of the community. Peasants' motivations are associated with mung-bean consumption; specific food-product combinations involving dishes such as *mung dhal* and *khichadi* are illustrative of the efforts made by peasants to satisfy the community's nutritional needs related to their food culture.

Thus, the peasants come to act as the custodians of cultural cultivation, processing and consumption practices in which skills are passed on across the generations through learning by doing, organizing an informal apprenticeship system in which every child acquires the inherited knowledge and abilities as s/he assists her/his parents at work. In this mung-bean oriented social organization, peasants establish specific connections

between various resources and develop their social, nutritional and culture traditions that subsequently enhance their food autonomy.

The empirical research of the social organization of mung-bean production, processing and consumption (above, Section 2.2) clarified that there are various levels of connections based on different initiatives of peasants. At one end there are *local environmental connections* organized by peasants and focusing on biodiversity, soil productivity and the long-term sustainability of agriculture. Here, mung-bean is produced, strongly motivated by those mung-bean traits that indicate suitability for the dry land, high temperature and rain-fed conditions and thus enable the peasants to create a level of food autonomy. At the other end, there is a connectivity that focuses primarily on creating food provisioning, as well as on income generation. Here, production is linked to other traits of the mung-bean, such as short duration, intercropping and soil fertility, which also tend to support food autonomy.

Given the empirical analysis of mung-bean production, household processing and consumption, this research shows that food autonomy in the community is enhanced by the following activities for which community members actively strive and which may present opportunities for further development:

- 1) Production of mung-bean in the local farming system,
- 2) Saving and exchanging local seed sources and practices,
- 3) Developing local mung-bean production-consumption patterns,
- 4) Disseminating a wide utilization of mung-bean-based food products in the community.

The research has indicated that the above activities are strengthened by

- 1) The abilities of peasants to discern crop quality traits able to withstand harsh environmental conditions, provide soil fertility and conserve biodiversity (see Fabricius et al. 2007),
- 2) The practice of peasants as custodians of genetic resources and indigenous farming knowledge,
- 3) The maintenance by peasants of culinary practices and the cultural traditions of the locality.

It is through these abilities and practices that peasants aim for a food autonomy, which is crucially underpinned by mung-bean's high nitrogen fixation rate as an important natural resource to be developed in order to tackle poor soil fertility and environmental degradation problems. Indeed, the peasants employ a variety of strategic actions to deal with the difficult environmental conditions that constantly threaten their livelihoods. They practice cropping system adaptations, apply strategies such as changing intercrops, mix-crop patterns and planting times, and they have abilities to manage the local environment conditions related to soil fertility, biodiversity and high temperature withstand characteristics.

Regarding the role of peasants as custodians of genetic resources, the abilities and practices of peasants aimed at preserving and reproducing seed were found to be very important. Most peasants interviewed avoided purchasing from seed dealers and use seeds either from their own farms and/or from friends or else by exchanging and buying them from other farmers. The peasants prefer to use seeds from local sources for planting each year, which places them in a sovereign position. They seek to maintain their own seed stock season after season to ensure that they do not need to purchase and are able to continue to develop the mung-bean farming system. Parallel to these findings, two additional opportunities for stimulating food autonomy can be identified.

First, peasants showed the significance of mung-bean cultivation for its suitability in local environmental conditions (dry and high temperature) to improve soil fertility as well as avoid or reduce the need of fertilizers, and enable crop diversity practices (intercropping and crop rotation). Such considerations related to the local mung-bean production system need to be factored into *agriculture development efforts*. With seed as an important production resource, it is vital for the enhancement of food autonomy that the peasant communities be appropriately supported in seed production and conservation. This will also strengthen the food network '*from within*' (use its own local, natural and cultural resources). Chapter 3 investigates ways in which the local quality-traits of mung-bean can facilitate a further connectivity and use of local natural and cultural resources in these respects.

On the consumption side, the development of the mung-bean network is occurring around various mung-bean food products and the evident local popularity of *mung dhal* and also *khichadi*. The initial investigation reported here shows that these mung-bean foods represent an important social strength within the mung-bean network and indicate a potential for enhancing food autonomy. These are foods that are grown and then eaten by the local communities and thus strengthen – especially through their special qualities, such as unique taste or health value – the connection between local food production and consumption (Maghaghi 2005, Manzini 2005). Further improving the nutritional qualities of foods like *mung dhal* and *khichadi* can, therefore, contribute to the nutritional status of village communities, which in turn can enhance food sovereignty at a community level. Equally, exploiting the added advantage of the unique taste for local mung-bean-based foods can help to connect agricultural products to local consumption patterns (as attempted by the nutritionist in the TELFUN team).

2.6 Concluding remarks

In this chapter, I have presented an overview of the social significance and social-spatial organization of mung-bean generally, regionally and locally and reported on the mung-bean network study of the production, processing and consumption of this legume. This empirical analysis was then used to indicate opportunities for stimulating food autonomy with two possibilities in the local communities of the Hisar District, related to the *local mung-bean (food) production system* (for *agricultural development*) and to *mung-bean-based food products* (as *processed and consumed locally* for the *enhancement of community health*).

Mung-bean production in Hisar is based on a range of cultivation purposes that support sustainable farming and community life. These mung-bean qualities that factor into the decision to cultivate represent local preferences that need to be considered in agriculture development efforts in order to improve peasant access to and use of productive resources. The socio-spatial organization of mung-bean production, household processing and consumption practices connects agriculture to its local environment, the

regionally tied agriculture produce to local consumption patterns, and food production and consumption to *livelihood* and *health*, which are enabled by the abilities and practices of peasants and stimulate food autonomy. This is realized through the following activities that suggest associated potentials for support and autonomy oriented extension activities.

First, peasants take initiatives to *connect mung-bean to the local environment* through a variety of strategic actions, such as growing crops that are reliable and require less inputs; hence their preference for mung-bean with its tolerance to high temperatures and irregular rains and its ability to grow and mature rapidly, suitability for intercropping and nitrogen fixing value that improves soil fertility.

Second, mung-bean crops are important for household income. In addition to supplying nutritional needs, peasants also use this crop to gain money. Obviously, there may be tensions in the ways that this can be developed through further entry into the market in respect of the traditional practices associated with autonomy, but it also affords the villagers autonomy insofar as the profit gained facilitates their access to goods and services generally. This is an area that can be usefully supported by agencies not desiring to gain materially, thus limiting risk for the peasant communities.

Third, peasants participate in seed-saving. The final product of mung-bean cultivation is the seed, which is not sold or otherwise used (processed and consumed) but reinvested to maintain the life-cycle. Peasants informally conserve the natural resource (seeds), which they save for planting each year and also exchange to maintain variety diversity at community level. One of the areas that might be threatened by further entry into the market, this, it is suggested, needs to be encouraged to ensure conservation of agro-biodiversity and further strengthen the food network (improve peasants' access, to use and manage their own local natural and cultural resources).

Fourth, the empirical research shows that household processing practices also connects local production to consumption purposes through small-scale processing. Smallholders process the foods they produce in order to consume them, a labour input associated with the domestic sphere and women's work in particular. This is another area in which present activities can be further facilitated, for example by appropriate technical development.

Finally – or primarily, since we come to consumption and mung-bean as a food, which is, after all, the original and continuing purpose for its cultivation – mung-bean is mostly preferred by local people because it is perceived as having *health value*. This perception is supported by evidence of role that mung-bean plays in, for example, national dietary needs (especially as a vegetable protein source) and includes, for example, ease of digestion, as well as nutrition itself. Peasants consume mung-bean for its health-related benefits, and this offers possibilities for development, including outside interventions. Summarizing, peasant motivations are associated with mung-bean production, processing and consumption characteristics to satisfy the community's needs related to its farming system and food culture for sustaining life and the promotion of multi-layered, natural-social relationships. This implies that mung-bean qualities are perceived by local people (peasants, processors and consumers) as helping to create and enhance territorial connectivity. It also implies concrete ways in which local people aim to realise territorial connectivity for food autonomy. And it is thus that the mung-bean creates territorial connectivity and enhanced food autonomy.

CHAPTER 3

Mung-bean qualities in a food network for food autonomy

3.1 Introduction

Further to the socially oriented description of the mung-bean production, processing and consumption in the previous chapter, this chapter focuses on the significance of food (mung-bean) qualities to create connectivity between local mung-bean food production and consumption. Food qualities have generally been studied in relation to their production of knowledge (standards, grades, certifications) incorporated in the food products and industrial market development (Hardt & Negri 2004, Magnaghi 2005, Manzini 2005). As Ruivenkamp (2005) and Van der Ploeg (2008) have argued, various developments commoditizing agricultural products to maximize profit have operated to disconnect agriculture from its natural environment, local production and the consumption practices of local communities. Instead of contributing to territorial connectivity, food qualities are generally realized according to the demands of agro-industry.

In contrast to such exogenous developments, the concept of food autonomy draws attention to qualities of local food and food networks that can facilitate connectivity between local food production and consumption. It advocates for the abilities of peasants and local communities to control their own food production to meet their economic, environmental and socio-cultural needs as they identify them. In this study, food qualities are approached in relation to the maintenance, improvement and strengthening of food culture traditions, the local environment and characteristics of local food products in a food network (Wiskerke forthcoming) and, moreover, as

a potential force to not only maintain but also create new forms of connectivity in that network for the enhancement of food autonomy.

This chapter addresses the issues raised by the second research sub-question, thus:

How do rural producer, processor and consumer perceptions of mung-bean quality interact with their aim to maintain and develop a territorial mung-bean connectivity so as to reinforce food autonomy, and how does the market (wholesale and retail) affect this connectivity and food autonomy?

The broad objective of this chapter is thus to 1) unravel the socio-economic meanings of mung-bean food qualities for peasants in relation to territorial mung-bean connectivity and food autonomy, and 2) examine how this connectivity interacts with the functioning of the market, and 3) confront the preferences related to mung-bean production, processing and consumption qualities with the findings of the market study in order to develop insights into the opportunities for realizing mung-bean food autonomy in the context of the existing local network.

3.2. Research methodology

The study was conducted between 2007 and 2008 in Mangali and Dhiktana, village communities in the Hisar district of Haryana, by a multidisciplinary team of three researchers from plant breeding, food technology and social sciences. Haryana state has a high level of local crop biodiversity and the Hisar district is an important location of mung-bean production, processing and consumption. A total of 100 producers, 100 consumers and 100 processors were interviewed for this study. In relation to the producer, consumer and processor preference criteria, three structured questionnaires were designed and used for one-to-one interviews by the research team. The producer questionnaire covered the mung-bean production preferred characteristics and reasons, the consumer questionnaire covered the mung-bean consumption characteristics and reasons, and the processor questionnaire covered the processing traits, reasons and uses in the

processing. In addition to the one-to-one interviews, participatory varietal selection was conducted among twenty producers (ten from each communities) inviting them to the field area at the pulse research station (Department of Plant Breeding, Chaudhary Charan Singh Haryana Agricultural University, Hisar) for evaluation of advance varieties during the *kharif* (spring sowing) season, 2008 (Figure 3.1). For the assessment of local concerns related to the mung-bean market, investigation was made of two types of market in Hisar: the wholesale market, where mung-bean mainly from the major-mung-bean growing regions of Haryana is traded, and the retail market, where mung-bean is mainly sold to consumers (rural and urban).



Figure 3.1 Producers' participatory variety selection

In general, wholesalers hold large stocks for sale to retailers and are involved in the procurement, storage and milling of grain. Wholesalers may be grouped into medium or large entities, according to their working capital and storage capacities. Retailers are small entities that procure relatively small quantities of mung-bean for sale, from wholesalers. There is a

substantial movement of mung-bean from the Mangali, Dhiktana and other growing regions of Hisar to Mohan Mandi and New Grain Market, which are the central wholesale markets for food crops in Hisar destined for the retail market. The retail markets are mostly retail shops in Hisar city and the villages of Hisar. The information about these markets was collected from interviews conducted with a total of 60 traders (20 wholesalers and 40 retailers), who were systematically sampled. For this, firstly, the number of subjects (wholesalers or retailers) in a particular area was estimated. Secondly, every k^{th} subject (wholesaler or retailer) was interviewed until the required sample size was obtained, where the sampling interval (k) was obtained by dividing the total estimated trader number by the (predetermined) sample size. Ten wholesalers per market and between ten to fifteen retailers per consumption area were interviewed.

Pursuing the rural sociology and development approach set out in Chapter 1, I first analyse the mung-bean qualities preferred by peasants as producers of mung-bean in relation to its potential for the creation of a reinforced territorial connectivity of the mung-bean food network (3.3.1). I then apply a reflexive development approach (Beck 1992, Pieterse 1998, Vroom 2009) in the subsequent market study investigating the functioning of wholesale and retail markets in the Hisar district in order to understand how the functioning of the markets affects that territorial connectivity (3.3.2). I then return to preferences, those of consumers and processors, indicating ways in which these preferences reinforce territorial connectivity of mung-bean (3.3.3 and 3.3.4 respectively). Next, I bring together the preferences that indicate possible forms of connectivity in the mung-bean food network for the enhancement of autonomy (3.4), before concluding.

3.3 Local mung-bean preferences and market conditions

3.3.1 Peasant (production) preferences

As Table 3.1 shows, majority of the producers living in Mangali and Dhiktana who were surveyed expressed mung-bean yellow mosaic virus (MYMV, or leaf curl) disease (80%) and low crop yield (64%) as the major agronomic constraint for good quality mung-bean cultivation. Indeed, MYMV inflicts heavy yield losses (30 to 70 %) annually in India (Maiti et al. 2011). Unavailability of processing technology of the marketable surplus (70%), lack of participation (involvement) in market and marketing activities (75%) and low price (72%) also limiting factors in mung-bean production (see below, 3.3.2).

Table 3.1 Peasant constraints in quality mung-bean (n=100)

| Constraint | Response (%) |
|--|--------------|
| MYMV disease | 80 |
| Low crop yield | 64 |
| Unavailability of processing technology (lack of resources) | 75 |
| Lack of participation in market (lack of access to market) | 75 |
| Low price (farm gate price) | 72 |

The interviews with the producers revealed that they preferred varieties that are MYMV-disease resistant (80%), of medium height (70%) and not vigorous in growth (80%); everyone wanted pods to mature at the same time and most preferred a long pod-length (60%) (Table 3.2). They explained that *medium-height plants* are much more able to withstand in the high heat temperature than short plants (which have a tendency to die) and tall plants

(whose surface area is over exposed). In particular, medium-height plant varieties are preferred since these allow them to make use of available resources (dry land) in relation to environmental conditions (dry and hot), which has low cost implications (no input for irrigation).

The *pod-length* preference is related to the number of seeds or yield. For seed size, producers showed a preference for *medium-size seeds* (75%) over the large and small, explaining that large and small seeds⁶ take a long time for germination and many times they do not even germinate properly. The producers as processors and consumers also explained that medium size seeds (grains) are easy cook, and they showed a preference for green seeds (85%) as being suitable for local dishes (in taste and appearance).

These rural producer preferences show that their perception of quality mung-bean (food) relates to their motivation related to the *local intercropping system* (medium seed size for early germination, not vigorous growth), *household income* (through high yield and disease resistant varieties) and *household food consumption* (clear seed colour/size preferences based on cooking and local dishes). It is also related to their motivation in connecting local mung-bean production to *environment conditions* (warm dry conditions) and production to *local processing and consumption needs* (taste, appearance and easy to cook).

⁶ Small seeds due to hard seed coat do not germinate and require frequent irrigation, large seeds have tendency to break or crack.

Table 3.2 Peasant mung-bean quality trait preferences (n=100)

| Characteristics | Categories | Response (%)* |
|-------------------|--------------------|---------------|
| Disease resistant | Yes (MYMV) | 80 |
| | No (MYMV) | 20 |
| Plant height | Tall | 10 |
| | Medium | 70 |
| | Dwarf | 20 |
| Plant growth | Vigorous in growth | 20 |
| | Not vigorous | 80 |
| Pod maturity | Uniform | 100 |
| | Non- uniform | - |
| Pod length | Long | 60 |
| | Medium | 20 |
| | Dwarf | 20 |
| Seed size | Large | 10 |
| | Medium | 75 |
| | Small | 15 |
| Seed colour | Yellow | - |
| | Green | 85 |
| | Light green | 15 |

* Figures rounded to nearest 5 percentile

The four most preferred *agronomic traits* concerned non-vigorous plant growth, tolerance to disease, yield and maturity duration. Non-vigorous plant growth trait is an important agronomic trait related to producers' concerns to environmental conditions (dry and hot conditions). After tolerance to disease, the producers prefer medium-height plant varieties. Yield is also an important agronomic trait related to producers' concerns to realize a good production. With low crop-yield the major constraint for good mung-bean cultivation, the producers prefer to produce long-pod

varieties in order to satisfy household food consumption needs and to provide household income. On average, the varieties producers chose have a yield of about 1500 Kg/hectare (Kg/ha); however, this is realized during conditions of MYMV, which causes heavy yield losses. Thus, the producers involved in participatory varietal selection of advanced or near-to-finish varieties after 50% pod development choose varieties that are more or less resistant to that disease (Table 3.3). Disease resistance not only related to the avoidance of the inputs costs of agro-chemical application, but also allows the leaves to be used as animal feed.

Table 3.3 Varieties and their characteristics based on participatory varietal selection

| Variety | Preferred characteristics | Maturity duration (days) | Potential yield (Kg/ha)* | Comments | Rank |
|------------------------------|--|--------------------------|--------------------------|--|------|
| MH 125 (<i>Basanti</i>) | Shiny green seeds Medium sized MYMV resistant (3) | 65 | 1500 | Suitable for autumn and spring seasons | I |
| MH 318 | Shiny green seeds Medium sized Dwarf variety MYMV resistant (3) | 59 | 1420 (2300)** | Starts maturing after 55 days | II |
| MH 421 (<i>Bharpai</i>) | Shiny green seeds Medium sized Dwarf variety MYMV resistant (3) | 60 | 1500 (2300)** | Starts maturing after 55 days | III |
| MH 215 (<i>Sattya</i>) | Shiny green seeds MYMV resistant (4) | 67 | 1650 | Suitable for autumn season | IV |
| MH 96-1 (<i>Muskan</i>) | Shiny green seeds Small sized Tall variety MYMV resistant (4) | 77-80 | 1200 | - | V |

* Score of MYMV on 1-9 scale (1=*resistant* and 9=*susceptible*).

** The yield varies with changes in inputs and climate; above yield is average yield if a second flush of flowering is allowed, when the yield goes up to 2300 kg/ha.

The three most preferred varieties were all early maturing, enabling them to be grown twice a year. This enables farmers to reap the benefits of additional crop cultivation and supports diversity in the local crop production (through incorporation in the local crop-rotation system) and has low cost implications (no or less input for fertilizer due to the extra nitrogen fixing function of two mung-bean plantings). Clearly, such choices made by producers about their actual farming indicate their autonomy (access to make decisions about their production). These early-maturing varieties preferences tend to create ties between local mung-bean production and the natural environment for strengthening food autonomy.

3.3.2 The market

In order to understand the role the wholesale and retail mung-bean market plays in respect of autonomy, I have examined its functioning in Hisar city, focusing on the activities of key market players, interviewing wholesalers, millers and retailers. Peasant farmers sell mung-bean in an unprocessed (whole) form to village level traders; these traders transport it to commission agents or directly to primary wholesalers, small, medium or large entities, according to their working capital and storage capacities, who hold large stocks for selling to retailers or dhal millers (Figure 3.2).

Mung-bean is converted into split mung-bean dhal and split, de-hulled mung-bean dhal by splitting the whole seed and then decorticating (removing the hull) (Figure 3.3). Over 75% of the total pulses produced in the country are split into dhal (Ali, 2004). This processing (quality enhancement in processing) is performed by dhal millers, who buy it from primary wholesalers and sometimes by the primary wholesalers themselves. These dhal millers and primary wholesalers then deliver the dhal to secondary wholesalers, who, in turn, deliver relatively small quantities of mung-bean to retailers for sale to consumers. Indeed, most consumers purchase mung-bean from the retailers, who in some cases are also involved in the packaging of mung-bean, thus commanding a premium

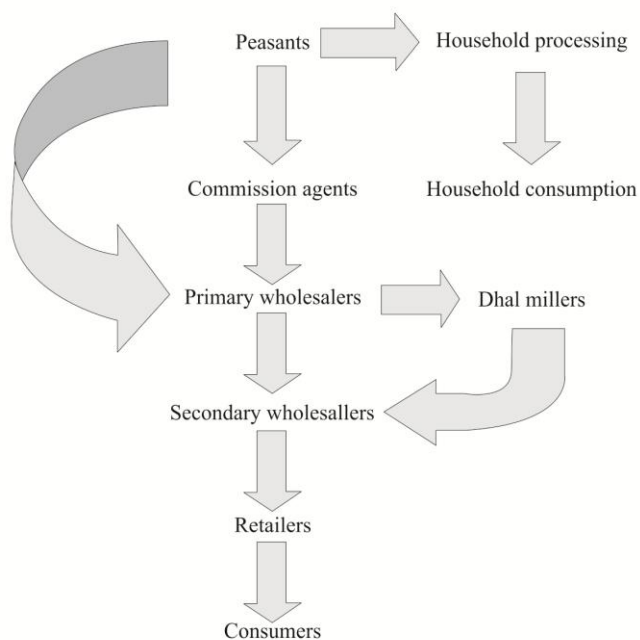


Figure 3.2 Mung-bean distribution (producers to consumers)



Figure 3.3 Split and split, de-hulled mung-bean

Data

Pre-packaged mung-beans in bags of 0.5-1 kilograms are typically available in urban (city) areas at retail outlets. Most rural consumers purchase mung-bean from village retailers, where they are sold as loose mung-bean directly from the gunnysacks supplied by wholesalers. This bean, therefore, tends to journey from the village to the city and then back to the village. Each trader (commission agent, wholesaler, miller and retailer) charges for transportation, handling, storage, processing and packaging. Commission agents were found to have a margin of 6% and primary wholesalers 2%, while dhal millers and secondary wholesalers had margins of 2% to 4%, depending upon the forms of mung-bean. Retail-level margins were about 10%, again, according to mung-bean form. These traders thus move mung-bean as a commodity from producers to consumers and exert some control over the process of quality enhancement, such as in processing and packaging and also distribution.

Used in preparation of mung-bean food products, sales of split and split, de-hulled (dhal) mung-bean forms were higher than those of the whole bean form, with prices that reflect the processing input. Looking at the mung-bean market prices in more detail, the price of whole beans was lower than that of split beans which was itself less than the price of split and de-hulled beans. The price per quintal⁷ of whole mung-bean originating from primary wholesalers was Rs.3400/Q, as compared to the farm gate price (price received by producers) of Rs.2600/Q⁸ The average prices per quintal of split mung-bean at the Hisar market studied originating from dhal millers, secondary wholesalers and retailers were Rs. 3600/Q, Rs. 4000/Q, and Rs. 5000/Q, respectively, as compared to the Rs. 2600/Q Farm-gate price. Similarly, the average price per quintal of split, de-hulled mung-bean was Rs. 3800/Q, Rs. 4200/Q, and Rs. 5200/Q, respectively, again, as compared to the Rs. 2600/Q received by farmers (Fig 3.4). Clearly, the commodity pricing operates to the disadvantage of farmers.

⁷ One quintal = 100kg,

⁸ Prices (Rs) at around 40 rupees to the USD at the time of writing.

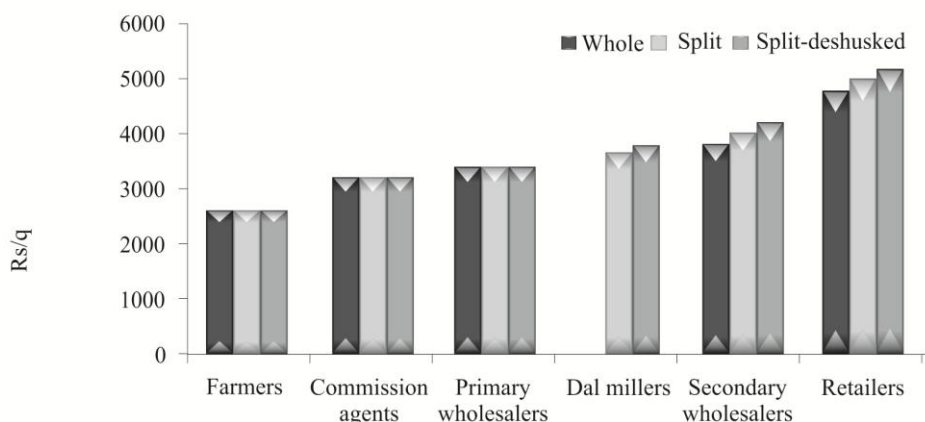


Figure 3.4 Average mung-bean market price to different sellers

The mung-bean market research results in Hisar indicates price differences for mung-bean products – whole, split and split, de-hulled – for producers to consumers of 46 to 50 percent.⁹ The higher prices paid by the consumers are not reaching the producers, who receive only half of the final price paid by the consumer for their produce, the other half being drawn by intermediates, the traders. And since the price difference exists not only between unprocessed form (whole mung-bean) and processed forms (split and split, de-hulled bean) but even increases for ‘whole mung-bean’, the traders acquire significant returns not only through quality enhancement (added value) but also through distribution alone.

⁹ These findings confirm Price et al. (2003), who revealed a similar relationship between pulse (mung bean) product (form) characteristics and price at the national level.

Interpretations

The market study results imply a limitation on the producers' participation in producing their mung-bean food (processing) and access to local market (distribution and consumers). It also shows a number of channels (intermediaries) between producers and consumers that are motivated by benefits and costs rather than by linking local production to consumption. In fact, these markets can be seen as part of the 'food empire' geared towards maximization of profit, which operates against peasant autonomy in mung-bean food production.

The functioning of the market is not only leading to a process of disconnections between the producers and their farming agenda by limiting their financial gains for mung-bean production but also creating a gap between producers and consumers. However, from the peasant preferences about mung-bean qualities revealed in this study (above), it is important to note that they aim at mung-bean processing at the village level to strengthen the connections between local production and consumption and thus for their work (mung-bean production) to be 'recognized'.

At the general level, this provides further evidence for how local food networks are never static, but constantly evolving through contestation and resistance, creating space for co-existence alongside the industrial (global/regional) food production systems (Keck & Sikkink 2002). It also implies that not only are inherent issues which can be tackled in breeding deemed important, since it is also important for producers to gain access to the processing of their marketable surplus mung-bean production and thus better access to distribution (the local market). Although the producers tend to enhance autonomy through their preferences for specific characteristics of mung-bean varieties in the local production system and for home consumption, they are certainly concerned about the low mung-bean price received by them from traders.

In the interviews, producers explained how market mechanisms regulate their living situation by imposing conditions requiring them to act in a specific way: 'We sell mung-bean [unprocessed, whole] just after harvesting to the private traders [village level] because we do not have the facility to do primary processing for our marketable surplus.' This shows that the

producers are motivated not only to meet economic needs but also by a desire to connect with the market and thus for their work (mung-bean production) to be rewarded. It suggests that mung-bean qualities aimed at by producers may not only to create new forms of connectivity in mung-bean production but also be instrumental in their approach to their marketable surplus mung-bean. This means that autonomy is also related to recognition of producers' participation in mung-bean food production and their capacities to process mung-bean and access to the local market.

Producers made remarks indicating that locally produced mung-bean may improve interactions between social (connections with consumers) and economic environments (their price share). The general impression among producers is that locally produced mung-bean can indeed be processed at village level through appropriate collective action, such as through SHGs and/or MEs; in so acting, the producers can obtain better prices and become able to act relatively freely in strengthening connectivity between local production and consumption. This shows peasant mung-bean preferences to indicate a self-directed way forward for development that aims toward autonomy in order to deal with the dependency and marginalization that has arisen in the market. It implies also that mung-bean production is not a cultural fossil of traditional production and consumption systems, but may emerge as a lever for enhancing food autonomy. The peasant and market study combined, therefore, suggest the potential of SHG/ME development; what then becomes necessary is an investigation into the interrelations between ME and SHGs for autonomous development, which is tackled in Chapter 4.

3.2.3 Consumer preferences

In view of above discussion on the possibilities for producers' preferences to be included in the functioning of markets, it is also important to analyse consumer preferences for specific mung-bean properties and any ways in which these may be in tension with or reinforce the producer preferences. The overwhelming majority (97%) of village consumers surveyed prefer *green* and *medium-size* mung-bean. They commented that these beans take less time to cook compared to light-green (dull) and small-size beans. *Absence of disease, stone and broken pieces* are also important quality

characteristics for consumers. *Storability* (i.e. without insect infestation) is another important quality trait. Over half (60%) of the consumers revealed that *losses occur during storage due to insect infestation*. Consumers did not give any clear overall response when asked if they preferred a particular variety; they were more concerned about the grain-quality characteristics than the variety. Table 3.4 presents comments generated from group discussions among consumers, which complement the information generated from one-to-one interviews.

The table shows that useful inferences can be drawn from reflecting on comments by consumers. First, the colour and size preference could be linked to *cooking* and the *appearance* of local mung-bean dishes. The shiny, green, medium-size bean is brittle, so easy to cook. The farmers prefer medium-size mung-bean for early germination and green beans for local dishes (taste and appearance), and consumers also prefer these traits. In other words, in the village, the consumer preferences are closely related to the producer preferences; local food qualities describe the connectivity between local consumption practices/needs (taste, appearance and convenience/easy to cook) and local (mung-bean) production.

Table 3.4 Consumer mung-bean preferences

| Bean characteristics | Consumer preferences |
|----------------------|---|
| Colour | Dark green shinny mung-bean; <i>this colour is good for all uses.</i> |
| Size | Medium size mung-bean; <i>small grains are hard to cook and separate after cooking.</i> |
| Cleanliness | Clean, stone free and broken pieces free mung-bean. |
| Storability | Insect-infestation-free mung-bean; prefer to store for consumption. |
| Health value | To use mung-bean in illness, pregnancy and lactation period; <i>this food is good for health.</i> |
| Price | To ensure mung-bean suits family budget. |

Second, consumers prefer mung-bean qualities – grain size, grain colour, cleanliness and storability – that are related to their *food choices*. In particular, medium-grain size is preferred, which allows them to make use of available resources (local mung-bean production) in relation to consumption needs (easy to cook) and has low-cost implications (less fuel requirements, so saving resources). Clean mung-bean grains not only save resources (energy and time) but also provide taste to dishes. Consumers explained that the split mung-bean and split, de-hulled mung-bean forms offer high storability in comparison to whole mung-bean (which is more susceptible to insects' infestation). This shows that the issue of storability is also linked to mung-bean processing. This implies that the processing (splitting and hulling) also has importance in maintaining local consumption and conservation of local food.

A third inference to be drawn from the group discussions as collated in Table 3.3 is that consumers commented on perceived *health value* as a trait for mung-bean. Consumers explained that *they have to ensure that family needs are met*. They tend to use mung-bean (in all its forms) with family food-needs in mind. In this respect, these mung-beans are preferred because they not only offer more choice for local dishes (as suitable for local food preparation) and are easy to prepare (short cooking time) but also maintain health and are suitable during illness, pregnancy and lactation (Chapter 2).

A fourth inference to be drawn from the group discussions is that consumers commented on *price* as a trait for consumption. Consumers explained that *they have to ensure that food consumption also fits their family budget*. They showed uneasiness in mung-bean consumption due to the high market-price of mung-bean. They have to shift from mung-bean consumption to low-cost vegetables and cereals. This shows that price is also an important quality preference of consumer for consumption, which is linked to their household economy. Consumers are seeking to satisfy their food consumption needs through the use of affordable food products. It implies that mung-bean qualities are not only related to the functional issues but also to the economic affordability of food. In other words, consumers prefer qualities that enable consumers to get access to local food and satisfy their food consumption needs. It suggests that the local processing and local distribution of mung-bean (community level), which could offer better

access to local food, are important not only for the strengthening of local food production but also for the strengthening of local consumption patterns.

3.2.4 Processor preferences

Processors are vendors and street food sellers who cook and sell mung-bean food products in the villages. Mung-bean processors interpreted quality differently from producers and consumers. Like consumers, the processors also preferred shiny, green and medium-size mung-bean. Table 3.5 shows the interrelationships between processor preference (quality characteristics) and food processing (preparation) qualities as described by the processors.

Table 3.5 Quality characteristics of mung-bean preferred by processors (n=100)

| Quality characteristics | Responses (%) | Processing | Products/Dishes |
|-------------------------|---------------|--------------------------------|--|
| Size | 87 | <i>Consistency of products</i> | <i>Dhals, sprouts, namkeen</i> |
| Colour | 80 | <i>Colour of products</i> | <i>Dhals, bhalle, pakora, papad, ladoo</i> |
| Texture | 79 | <i>Consistency of products</i> | <i>Dhals, wadis, papad</i> |
| Surface shininess | 75 | <i>Appearance of products</i> | <i>Halwa, burfi, dhals</i> |

The size of the grains is an important trait for processing. A large majority (87%) of the processors (small-scale level) preferred medium sized grains for preparation of various mung-bean food products (*sprouts, dhal, ladoo*). They explained that the *water soaking capacity of medium sized grains is good and thus provides a larger quantity of food products*. Whole mung-bean *dhal* processed from medium sized grains was perceived *to be more consistent*. This shows that medium size grains both had financial implications (for processors and consumers) and maintain the characteristics (such as consistency) of local dishes.

Processors preferred dark green grains. They gave as the reason for this choice that the *colour of mung-bean grains affects the colour of prepared (cooked) mung-bean products*. For instance, in cases of whole and split mung-bean dhal, whole mung-bean *ladoo*, *pakora*, *bhalle* and *papad*, the green colour of the products depends on the colour of the mung-bean grains. It shows that green mung-bean grains not only offer sensory characteristics to mung-bean food products that contribute to enhance local consumption but also offer variety in local food consumption (such as green mung dhal with white rice or bread combinations).

Brittle grains (*texture*) is another trait preferred by processors for preparation of mung-bean products. *More brittle grains took less time to cook and were easily processed into various mung-bean products* as described by the processors. Brittle grains also impart *better consistency* to the products: *whole, split and split, de-hulled mung-bean dhal, wadi and papad*. Brittle mung-bean offers more variety in mung-bean food products, is easily processed and has low cost implications (as described above).

Surface shininess is also perceived as an important quality trait for the preparation of mung-bean. *Shiny grains impart a good appearance to the products*, as described by processors. For mung-bean sweets like *halwa* and *burfi* (a pudding and sweet, respectively, made of split, de-hulled mung-bean paste), for example, processors preferred shiny mung-bean grains. This shows that shiny mung-bean offers not only good appearance to mung-bean food products but also enable processors to maintain the food consumption practices of rural communities (as suitable for the mung-bean foods indicated) that are linked to communities' special occasions and festivals (see Chapter 2). The research results show that the processors' preferences about mung-bean qualities are linked not only to the processing characteristics of food products (consistency, appearance, colour) but also to the kind of food products (recipes), amount of food preparation and diversity (hence choice) in food consumption, as well as to the communities' consumption practices and enabling autonomy (*to control/maintain the appropriateness of mung-bean food*).

3.4 Mung-bean food qualities in strengthening of connectivity in food network for food autonomy

The empirical research of the meanings ascribed to mung-bean qualities by producers, consumers and processors clarified that there is diverse level of connectivity and/or potential to create new forms of connectivity in the mung-bean food network for reinforcing autonomy. At the production level, there are preferences for long pod size and disease resistant varieties (strongly linked to household food consumption and family income), medium height plants with medium size seeds (linked to local environmental – dry heat – conditions and low cost implications – no input for irrigation), and for green seeds (linked to appearance and taste of local dishes – local processing and consumption). Producers also prefer short-duration varieties that enable them to provide additional crop cultivation in a year and also to improve soil fertility. Early-maturing varieties were also preferred having the other advantage to be suitable in local inter-cropping systems. The empirical data thus indicate that producers' preferences about mung-bean qualities are not primarily focussed on making agriculture (mung-bean) development compatible with economic development, nor on safeguarding nature as a value in itself, but on conserving and developing agriculture within the context of location-specific interactions between socio-cultural, economic and natural environments for enhancing mung-bean food autonomy. The emphasis is not at all exclusively related to production development (high yield); rather, producers aim to strengthen connectivity between agriculture to its local (dry heat conditions) environment, or even strengthen local cropping patterns that improve soil fertility as well as with local processing-consumption practices (appearance and taste of local dishes). It is easy to perceive the practice of and desire for *access to make decisions about their own food production*.

By preferring the qualities of mung-bean (non-vigorous plant growth, medium-height plants, short-duration varieties, etc.) producers tend to maintain their crops and cropping systems according to their own criteria and conditions. This reflects a crucial understanding that to accept *food quality is to create the capacity of producers to make decisions about farming systems*. More broadly speaking, quality preference in mung-bean production enables producers to use their own observations and skills to

meet food consumption/processing needs and finding answers to the challenges of dry and hot environment condition.

Concerning the functioning of markets the empirical data indicated that because of the market players (commission agents, wholesalers, retailers) the mung-bean prices increase sharply at wholesale and retail level, and not only for processed mung-bean but even for unprocessed (whole) mung-bean. The producers, however, do not benefit from these higher prices and the gap between consumers and producers is growing. The functioning of the market is to meet the needs of mung-bean consumption in order to gain higher sales. This makes producers increasingly dependent and results in prices that do not mirror the constraints faced by them. Moreover, price is the single most important criterion in these markets.

Contrary to this functioning of the market, the empirical data indicated that the producers are concerned about the low farm output prices and strive for processing mung-bean at community level (ME development – see Chapter 5) so that they can obtain better prices and become able to act relatively freely in strengthening connectivity between local production and consumption. Because mung-bean is not only important for household income but this crop has a special place in peasant and household food provision and community food culture (see Chapter 2). This implies that the peasant concern about price of mung-bean is not exclusively linked to the livelihood but also to the food consumption practices. The empirical data show that producers' preferences about mung-bean qualities not only aim to connect agriculture to its local environment (see above) but also to create new social relations in the mung-bean food network to strengthen the territorial connectivity of mung-bean for reinforcing mung-bean food autonomy. The data indicate that the producers do not see food qualities in terms of formulating standards and regulations of production systems but do imply possible levers in strengthening the local food network for food autonomy.

Concerning consumer preferences., the study showed that consumers prefer medium-size, dark-green mung-bean, which allows them to make use of the locally available resource (local mung-bean production) and relates it to their consumption needs, such as ease of cooking, desired taste and

appearance of local dishes and low cost. Consumers prefer mung-beans not only to meet the physical needs (*health value*) at various times (pregnancy, lactation, old age illness), but also prefer it on social occasions and festivals. Clean mung-beans were also preferred, which save their resources (energy and time) and provide taste to dishes. The empirical data also showed that consumers prefer processed (split mung-bean and split, de-hulled mung-bean forms) that offer high storability in comparison to whole mung-bean (which is more susceptible to insect infestation). Price is also an important trait for consumption and a critical issue in maintaining mung-bean consumption practices. This implies that the consumers do not only consider qualities as only physical and health characteristics of food but they also imply *social and economic suitability (appropriateness) of food* (mung-bean).

Data also indicated that consumers are forced to shift their consumption toward low-cost cereals and vegetables because mung-bean market players motivated with maximization of profit and created mung-bean price rises enforced on consumers, including the villagers. Agro-industrial market ultimately reduce the local food products (availability, affordability and or local taste) through long food-supply chains (gaps between producers and consumers), and thus do not support to local consumption and the diversity of consumption systems. Data suggest the potential of a horizontality connected and more flexible locally produced/processed system through development from the bottom up, such as community-based ME development. This could provide better access to local food and cater for local consumption, while the distribution of locally produced/processed foods in communities can also bring income to the local economy and strengthen the local mung-bean food network.

Considering the producers' and consumers' preferences related to mung-bean qualities, it is possible to make the general statement that, despite their different reasoning, the shared preference related to mung-bean price implies a strengthening of the connection between the local production and local consumption patterns. This implies that mung-bean preferences should not only be considered in terms of economic priority of production and consumption systems but also in terms of social food consumption

connections (*health value*) and the food culture of communities in the local mung-bean food network for food autonomy.

At the processor level, the most preferred traits for preparation of mung-bean products – size, colour, shininess and brittleness of mung-bean grains – are linked to the processing characteristics of food products (consistency, appearance, colour) and also to the kind of food products (local dishes), amount of food preparation (sprouting) and diversity (offer choice) for food consumption, as well as to consumption practices.

The study showed that mung-bean qualities play a significant role in maintaining traditional culture (production, consumption and processing) and stimulating food autonomy. The mung-bean food qualities represent an important connectivity within the food network and indicate a potential for the development of new social relations. Locally, for example, facilitating/improving the mung-bean food processing techniques can increase the participation of peasant communities in their mung-bean food qualities development and allow them to sell preferred mung-bean directly to consumers, which can enhance food sovereignty of rural communities. Exploiting the advantage of local organizations (SHGs) for local food-network development (ME development) the relation between local mung-bean production and local consumption can be strengthened. From the rural sociology and development perspective, local food qualities have socio-economic, culture and environment dimensions: there are possibilities here to strengthen connections between local production and consumption in local communities, which will contribute to the realisation of food autonomy.

3.5 Concluding remarks

This chapter has presented the empirical data about the preferences of producers, processors and consumers for specific mung-bean food qualities in order to develop insights into whether these preferences may reinforce efforts of the mung-bean food network to strengthen a mung-bean territorial connectivity in Hisar. How these preferences are affected by the functioning

of wholesale and retail markets has also been investigated, as well as whether the observed preferences and functioning of the mung-bean markets create a social space that may facilitate the efforts of the mung-bean food network to strive for mung-bean food autonomy.

The study has shown that defining the local food (mung-bean) qualities from a perspective of production, processing and consumption is an important approach for strengthening/development of local food networks, which centres on *the right to define one's own food production and ability to make choices (appropriateness)* about food production processing and consumption. In fact, food needs to be perceived from a local viewpoint in order to develop food autonomy. The preferred qualities of local mung-bean food create connectivity in the local food network and indicate possible new forms of connectivity for reinforcing food autonomy.

In the cultivation of mung-bean, the three most important considerations are non-vigorous plant growth, tolerance to disease and yield. Producers' create thus connectivity between these local mung-bean production considerations and the natural environment through their variety preferences. Medium-size, dark-green mung-beans are mostly preferred because they are seen as easy to germinate, while from the consumption point of view, they are easy to cook and their appearance and taste are related to local dishes. From the processor perspective, they provide good consistency to local dishes.

Producers also prefer short-duration varieties with tolerance to disease, which leads to an enhanced local inter-cropping system and improved soil fertility. This shows that producers, processors and consumers prefer varieties and food qualities not as some standard or commodity grade but as means for maintaining local cropping system, livelihood, food consumption, culture and preserving the agro-ecological environment for reinforcing autonomy. Moreover, producer, processor and consumer preferences refer to significant aspects of food practices that in turn constitute an important resource for strengthening connectivity and also indicate a potential for the development of new social relations in food network.

Importantly, this implies that producers, processors and consumers are not only the objects of development (recipients of food and/or food varieties), but participate as subjects (inventors) in the development of food. By

focusing on the territoriality of food in production, processing and consumption, they make this food a resource for autonomous development, rather than merely a commodity for economic (market) development. This indicates that the viewpoint of the other, the often neglected rural producers, processors and consumers regarding their preferred food qualities, should become an essential consideration of development and extension efforts, which also, of course, carries implications for their food autonomy.

From the study findings of mung-bean markets, it was evident that, mung-bean is traded through and financial gains made by the market players (village traders, urban processing units, etc.). Producers, however, have concerns with mung-bean (farm-output) prices, which is most relevant for their own participation in the mung-bean processing and marketing/distribution. Indeed, it is observed that the market perspective on mung-bean quality enhancement is linked with maximization of their profits. However, the producers' viewpoint on mung-bean processing at the community level is linked to the creation of new social relations in the mung-bean food network to strengthen the territorial connectivity of mung-bean for reinforcing mung-bean food autonomy. The empirical research shows that the consumers also complain about the high price of mung-bean due to the market intermediates. The issue of price – which is related to the socio-economic suitability of food - can be addressed if locally produced mung-bean is available for consumption, which clearly can be expected to require communities' participation in local processing and distribution.

In the case of processing, preferences are linked to type of food preparation, food products and local consumption practices, which contributes to maintaining the mung-bean food culture and stimulating local consumption. For instance, processors have preferences for shiny, dark-green mung-bean for food-product appearance (sensory parameters of consumption). Finally, it is suggested that the local mung-bean food qualities related to suitability in the local cropping system, processing requirement (short cooking-time, better consistency and appearance) and consumption choice (easy to cook, healthy food) need to be considered to strengthen connectivity between local production and consumption to reinforce food autonomy at rural community level.

In conclusion, this study has illustrated that food quality does not necessarily require the production of standards or food grades to describe the inherent issues that can be tackled in breeding programmes (Almekinders, et al. 2007) but that food quality perspectives may also contribute to create new social relations in food networks for autonomous development. Local preference about food qualities can be a meaningful element in a non-industrial approach to food-network development, provided that consideration is given not only to agro-ecological functioning but also to the crucial role of the social relations of food production, processing and consumption. They (producers, processors and consumers) must be able to manage their products, display their skills, their needs and wishes and their willingness to do something towards reinforcing autonomy. There needs to be a self-directed way forward for development that gives them the real possibility of making contacts and building relationships toward autonomy in order to deal with the dependency and marginalization that has arisen in the market. Bringing the preferences described here into the field of SHG development may contribute to the strengthening of food networks. Moreover, it is necessary to enable the integration of local preference into a reorientation of research and scientific development agendas in order to strengthen food networks towards food autonomous developments. It is with this in mind that some of the possibilities of SHG and SHG-based (food) ME developments in India are discussed in the next chapter.

CHAPTER 4¹⁰

Self-help groups in micro-enterprise development

4.1 Introduction

This chapter considers self-help group (SHG) strategies in India in relation to micro-enterprise (ME) development and its contribution to the development of a food autonomous process. The idea of SHG is briefly overviewed theoretically, alongside a practical analysis of the emergence and expansion of SHGs. In this analysis, the processes and challenges involved in establishing and implementing food-based SHG MEs built upon local resources are critically reviewed. This involves an examination of the role of SHGs in ME development, with a focus on their strategies in intervening in autonomous development. Various experts on developmental issues have argued that farming and non-farming ME developments are essential for rural development, reducing poverty, inequality and hunger (Narayanasamy et al. 2003; Kay 2009). Rural communities that are well organized have better chances to develop such MEs, for example by means of self-organization and the generation of community-based income-generating activities (Gurumoorthy 2000; Barbara & Mahanta 2001).

SHGs have emerged as a popular structure for the facilitation of ME development by government, NGOs and educational institutes in rural areas in India. These initiatives are not simply the expressions of a neo-liberal politics that favours entrepreneurship and markets as a key for development, but are also the expressions of rural people's needs and interests in their

¹⁰ This chapter is based on Singh, Ruivenkamp and Jongerden (2011).

own participation and empowerment (Narayanasamy et al. 2003). As such, the SHG phenomenon can be an important means for autonomous development, offering an approach that puts people first, based on their collective action. *Collective action is the set of actions and initiatives that individuals undertake voluntarily in cooperation as a group in pursuance of their shared interests* (Meinzen-Dick et al., 2004). It is important to emphasize that a SHG strategy has people not as objects of development, but, on the contrary, as co-agents and subjects of development, whereby the people have access to and control over resources (Fernandez 1994).

This study investigates certain SHG issues, namely, whether aspects such as full participation of all the members in the group, homogeneity among members, common formulation of group goals and transparency in group operations and functioning influence the formation and consistency of a SHG. It also looks at whether the SHGs engaged in building MEs in India become successful when they are able to fulfil their needs for finance, training and skills development or whether still other factors influence a successful functioning. Opportunities for participatory actions and participatory decision-making processes are also investigated, as well as opportunities that may facilitate local capacities for constituting food autonomy. Indeed, the objective of this chapter study is to develop a thorough understanding of the local conditions and possibilities for SHGs to intervene and establish food autonomy.

The need to undertake this critical investigation becomes crucial here given the rural producers', consumers' and processors' preferences for those mung-bean qualities that may facilitate the creation of new forms of connectivity in a local food network by organizing the producer and/or consumers into a SHG that aims to develop a food-based ME for a sovereign food system. To develop insight into the functioning of SHGs, a critical review is needed on how, in the past (and present), SHGs in India have been organized, which factors contribute to success or failure in the functioning of SHGs and which factors contribute to SHG-supported ME development in order to identify possibilities for SHGs to constitute local food autonomy through the functioning of local food (mung-bean) based MEs.

The broad research question for this chapter (third thesis sub-question), therefore, is:

What are the SHG possibilities for the development of MEs as a part of a food network, how can such initiatives be introduced and what does and might this mean for food autonomy?

First, I give the research methodology (4.2), and then I present a literature review with a short description of the emergence (4.3.1) and expansion of SHGs (4.3.2), along with a brief historical overview of Indian experiences with the formation of SHGs (4.3.3) in order to identify success and failure factors in the setting up of SHGs. This review aims to identify those success factors for SHG formation that may be replicated effectively in respect of the development of rural, food-based MEs; indeed, this study aims to formulate a framework for the initiation and development of SHGs for mung-bean based MEs. The next section of this chapter describes key factors in a SHG that contribute to development (4.4). Then, I focus on autonomy in relation to MEs and SHGs (4.5), indicating possibilities for connecting local food preferences, local processing and the packaging of local food products for access to the market and the development of autonomy. Finally, I reflect on SHG MEs, indicating opportunities for SHGs in the development of food-based MEs and food autonomy (4.6).

4.2 Research methodology

In order to address these questions, the methodological approach of critical-constructivist research is utilized. Here, this involved continuous but critical reflection on SHGs in ME development through the conceptual lens of self-help, investigating the factors in the founding of SHGs in relation to development of MEs in rural communities. It also included identification of possibilities for SHGs in development of rural food- (mung-bean)-based MEs by reflecting on SHG ME actions from the food autonomy perspective.

A combination of data collection methods was employed. Using self-help as an analytical tool, the establishment of SHGs in India was investigated through a literature review, statistical reports, annual reports, development reports, economic reports and manuals as well as SHG member interviews. A review of SHGs in ME development was conducted from the information

collected from the *Annual Reports of the National Agricultural Bank for Rural Development*, data websites and the National Informatics Centre of Hisar district (Haryana). Documentary evidence on development of MEs based on SHGs was also reviewed, using various research reports, scientific articles and conference papers. Statistical information was collected from the IMF *Human Development Report* and *World Economic Outlook* studies. Members' of SHGs in Mangali village were interviewed using semi-structured and structured questionnaires to identify the factors motivating them to organize. The study also pays attention to reflections on the SHG ME actions, particularly to indicate opportunities for SHGs in development of food-based MEs. This implies the emphasis is on development 'from within' (Ploeg 2008), on her/his practice (Boog 2003) and on what may be realized (Ruivenkamp 2008), as well as the potential to reconnect society and nature (Wittman 2009) through describing the SHG MEs development in relation to food autonomy.

4.3 Literature review

4.3.1 The emergence of SHGs in India

Liberalization, privatization and globalization of growth-maximizing strategies have virtually isolated the poor, who bear the pain of 'development' in the neoliberal focus on macro-economics. During the late twentieth century, the global average per capita income rose strongly, but with considerable variation among and within countries: indeed, it is clear that the income gap between rich and poor countries and between the rich and poor within each country has been widening for many decades (Sutcliffe 2004; Freeman 2009; IMF 2014). In India, according to the Human Development Report (2013), the share of income for the richest ten per cent of the population currently stands at 28.8 per cent, while the poorest ten percent receive just 3.7 per cent. In fact, a huge mass of the world's population is excluded from the global development process, a large of proportion of which (around a third, according to standard poverty figures) is to be found in India. The excluded, which disproportionately means the rural poor, struggle for survival. Their struggle may take different forms, such as peaceful protest movements or populist economic organizations – or

it might emerge as the organization of self-help movements (Scott 1985; Mitlin & Bebbington 2006; Gledhill 2007).

The *self-help movement represents an alternative development strategy*, one that involves a process of socio-economic empowerment and whose long-term objective is to constitute autonomy in society. Centred on people and their environments, it is based on a humanist model of development – focused on men and women, and not just on the growth of materials, which are merely means (Friedmann 1992; Elders 2003). In India, for example, the Integrated Rural Development Programme (IRDP)¹¹ has addressed the problem of rural poverty by building the capacities of rural people to plan, drive and sustain their own social and economic development.

Along with the economic efficiency of financial assistance going directly to the people, the chief virtues claimed for alternative development are those of ‘human rights’ and ‘human flourishing’ (Friedmann 1992; Reus-Smit 2001). Specific aims include building activity with intensive face-to-face interaction among stakeholders and developing appropriate technologies fine-tuned to local conditions (Ruivenkamp 1989, 2005), which help to promote environmentally friendly and sustainable developments. As a vehicle for alternative development, SHGs are based on trans-active planning, meaning they are oriented towards a mutual learning for agents/facilitators and local actors and based on informal participation, which is crucial for the survival and sustainability of the groups.

The term ‘development’ here refers not only to economic growth, but also to that of local society and its capacity for self-governance directed at the promotion of individual and collective well-being (Carmen 1996; Hines 2000; Becattini 2002; Dematteis 2003; Guevara 2007). Moreover, the development of local societies – with independent and differentiated development styles and non-hierarchical networks – is assumed to represent

¹¹ Established in 1978, the Indian IRDP was a credit based system co-funded by central and state governments, now merged with other programmes, such as *Swarnjayanti Gram Swarozgar Yojana* (SGSY), a ‘holistic self-employment scheme’. See <http://rural.nic.in/i1.htm>

an alternative strategy to economic globalization (Magnaghi 2005). Local sustainable development involves changes in the awareness, motivation and behaviour of the individuals in communities, both in the relations between individuals as well as those between groups within a society (Burkey 1993). These changes can come from within individuals and groups through self-help and not necessarily from outside.

The experiences of self-governance have led to attempts to build local-level organizations like cooperatives, credit societies, neighbourhood and community development associations, water-sharing associations and women's groups. Although, the neoliberal paradigm has also incorporated self-reliance as a strategy for the building of people's entrepreneurial spirits and their absorption into the capital market (Fernando 2006), SHGs are the offshoots of alternative developments. They are based on an approach grounded in the tenet that development is lived by the people – where they learn, love, work, play and die. SHGs refer to cooperative activities centred in the community, to groups or associations of individuals with common needs that undertake a systematic activity, participating directly in decision-making and sharing benefits on an equitable basis (Narayanasamy et al. 2003).

SHGs represent a participatory opportunity for social action and empowerment through local people's involvement in identifying and tackling issues that affect their members and communities. The major objectives of building a SHG are to provide members with an opportunity and the space to develop a vision/mission and maintain organizational and financial management systems. Other objectives include developing confidence and skills, which help in managing individuals' lives and promoting their interests in the private and public domains, and establishing the linkages required for effective and sustainable institutional function (NABARD 2006; Sabhlok 2006). In Mangali, for example, the SHG *Baba Ramnath* aims to facilitate mung-bean food processing and packaging within the community, which helps to enhance the peasants' capacities to manage the local mung-bean output, promoting their role in mung-bean post-production activities and establishing linkages with local markets for connectivity between local production and consumption in village communities (Chapter 5).

4.3.2 The expansion of SHGs

People's participation in self-help organizations is not new, but a strategy spread across many countries and executed in a variety of location-specific ways that is something of a novel development. In the areas of urban development and housing, self-help tends to take the form of neighbourhood groups, tenant groups and slum development committees, while in rural development, SHGs focus more on the establishment of credit groups, development committees and specific user groups. In East Africa (e.g. Kenya), for example, the tradition of local self-help development efforts (*harambee*), is characterized by local initiatives to control and collectively work to use local resources focused on rural development (Thomas 1985). In Southeast Asia (e.g. Vietnam), the (*tontine* or *hui*, also *hawala* and *fei chein*) tradition of SHGs focuses on financial activities through cash or kind (Abiad 1995), while SHGs of fishermen and irrigation groups (e.g. in Indonesia) are organized around credit unions and village-based banks (Gaonkar 2004).

Generalised as Rotating Savings and Credit Associations (ROSCA), the SHG function of locally provided, organised material support – or, informal banking – has been seen as a 'middle rung in development'. Historically, this has been contextualised by peasant social structure (Geertz 1962), but in recent times, it has been given a new lease of life with the concept of *microcredit*, the extension of small loans to support the entrepreneurial ambitions of the poor, those least able to gain access to (financial) capital. The specific SHG form of microcredit groups has been established in many countries of the global South now. The Grameen groups in Bangladesh are the most well-known example of this phenomenon, but microcredit groups have also been formed in across the region, such as in Thailand, Nepal and Sri Lanka, as well as in India, where SHGs have been helping to set up MEs for income generation.

The apparent success of such schemes – in general, about 95 per cent of microcredit recipients paid back their loans in the 1990s (Cohen 2001) – led to a perception of microcredit borrowers as pre-bankable, a potentially lucrative market for the banking sector to exploit (rather like students in the rich countries). Micro creditors also facilitated social targeting within the

general class of the poor, most notably of the rural poor and of women and women's groups. Against this, however, microcredit has also been criticised, among other reasons for tending to operate only around the border of poverty (especially helping people with pre-existing businesses) rather than in its deeper reaches, and for typically offering a one-dimensional support (financial credit) without other services (Islam 2007).

Thus, for example, a study of the gender aspect of micro financing in the south Indian context (Holvoet 2005) led to an argument for the need for financial and social group intermediation as part of the microcredit input, so as to support women's involvement in decision-making processes. Summarising, although the empirical evidence for the success of microcredit is less clear now than it was (Duvendack et al. 2011), and it certainly should not be regarded as any kind of panacea for global poverty, in the communal context of SHGs it may still be a powerful tool for (food) autonomy.

4.3.3 SHGs in India

The SHG microcredit approach in India was first developed in 1985, through the Self-help Affinity Groups facilitated by the Mysore Resettlement and Development Agency (MYRADA).¹² Since then, more than two million SHGs have been created across the country according to

¹² The NGO Myrada now manages rural development programmes directly, serving some 8.5 million people in three states of southern India, and provides on-going support, including deputations of staff to programmes in six other states as well as promoting the SAG strategy in Cambodia, Myanmar and Bangladesh. 'Building poor people's institutions' is its short mission statement, with the objective of helping the poor to help themselves. Emphasis is placed on environmental, sanitation and drinking water, housing and education, and preventative health care (including HIV/AIDs) issues. Institutionally, in addition to promoting SHGs, Myrada focuses on support for similar local level bodies (in line with its policy emphasis), district level network building and ME generation (through *Sanghamithra*, a microfinance institution that lends directly to SHGs). See www.Myrada.org

the National Bank for Agriculture and Rural Development, NABARD (2005-2006).¹³ In 1986-87, there were about 300 SHGs in Myrada's projects, many of which had emerged from the breakdown of large cooperatives because of poor management and lack of confidence in the leadership. In areas where the cooperatives had broken down, several members (usually in groups of 15-20 people) approached Myrada requesting it to revive the credit system. When reminded about the loans they had taken from the cooperatives, they offered to return them to Myrada but not to the cooperative, which, in their experience, was dominated by a few. Myrada staff realized that they would need training on organising meetings, and so efforts were made to train the members in a systematic way. An analysis of these activities (Fernandez 2006) showed the group members to be linked by a degree of affinity based on relations of trust and support; they tended also to be homogeneous in terms of income and occupation (e.g. agricultural labourers).

The first real effort to support SHGs in India came in the late 1990s when the central government of India introduced a holistic programme, *Swarnjayanti Gram Swarozgar Yojana* (SGSY) based on a group approach for rural development. The SGSY encouraged the rural poor to organize themselves into SHGs and independently take up viable economic activities as MEs with support from government subsidies and bank credit (Tripathy 2004). This SHG strategy has become an important component of the government strategy in India, included in every annual plan since 2000 and supported now under the *Aajeevika*-National Rural Livelihood Mission

¹³ NABARD states 'effective credit support' as one of its methods of 'promoting sustainable and equitable rural and agriculture development'. See <http://www.nabard.org/index.asp>

(NRLM).¹⁴ Follow-up for SHGs is provided by the Indian Banks Association, State-Level Bankers Committees, District Consultative Committees, Sponsor Banks, NABARD, facilitating NGOs and appointed research teams and research institutions. Indian SHG guides have been developed and are now available free of charge on the Internet, including, for example, a training manual aimed at SHG formation in the rural context (NABARD 2009), and a workshop instruction manual for SHGs oriented to ME, produced by the Haryana Community Forest Project, HCFP (2003).¹⁵

In the case of the Hisar district in the state of Haryana, 500 SHGs – engaged in bread-making, shoe-making, dairy, and tailoring and embroidery – have been registered under the *Aajeevika*-NRLM and promoted by the District Rural Development Authority (DRDA), while over 1200 SHGs are currently working under the Supplementary Nutrition Programme of Integrated Child Development Scheme (ICDS), responsible for the preparation of food items (National Informatics Centre, Hisar 2008). In the village of Mangali alone, ten SHGs were found to be working under the DRDA and ten under the ICDS.

Upon investigation, it was learnt that the people in these SHGs were hoping to generate additional income (and make savings) in order to enhance the economic condition of their families. They explained that the economic benefits, personal interest and psychological benefits (satisfaction due to increased status in the family or community) that they have received were

¹⁴ Aiming to ‘build, support and sustain livelihood of the poor, mainly through their capability and support them with capacities (information, knowledge, skill, tools, finance and collectivization)’, *Aajeevika*-NRLM works on three pillars – enhancing and expanding existing livelihoods options of the poor, building skills and nurturing self-employed and entrepreneurs. See <http://aajeevika.gov.in/>

¹⁵ Aiming to ‘conserve and rejuvenate natural resources, mainly through forestry development, with the active participation of communities, especially women’, the HCFP has produced various manuals emphasizing participation, gender perspectives, etc. See <http://hcfp.gov.in/>

the key factors in the sustainable management of MEs. However, they also stated that the non-availability of raw materials and poor access to markets for product sales were key issues that needed to be addressed if the ME development was to be sustained.

Intended to strengthen viable, small businesses, resulting in increased household income and savings and thus alleviating the crunch of economic poverty (World Vision India 2009), ME development (MED) aims at building self-esteem and self-reliance, encouraging autonomy and creating a community atmosphere (Geroy et al. 1997). It builds economic capital by creating jobs and generating income, ultimately working towards community development in impoverished areas (Clark & Huston 1993; Clark & Kays 1995, 1999; Edgcomb et al. 1996; Servon 1998).

This development of SHGs in India indicates that their formation of SHGs is not only related to the creation of assets, incomes and employment opportunities for rural people but also to the enhancement of opportunities for them to participate in and take control over economic, social and cultural aspects of their life. It has made a journey from 500 groups of rural people two decades ago to more than seven million groups a year ago (2014) covering over 95 million poor households and total banked savings amounting to Rs. 82.17 billion (NABARD, 2014). The SHGs emphasize regular savings by the members, first in order to lend among them as needs arise and later linking with banks to access credit. This demonstrates that rural people are able to empower themselves and most willing to help one another for a better tomorrow.

4.4 Key factors in the SHG contribution to development

The self-help movement aims to practice alternative development strategies by mobilising people, giving themselves a voice to be heard and building up people's organisations that will overcome barriers to participation and autonomy. Thus, people are not perceived as passive receptacles of society's directives but active creators of social behaviour. They have their own motives and beliefs, and their own interpretation of the meaning of a situation. These all need to be integrated for SHGs to thrive.

There are several factors that contribute to success or failure in the functioning of a SHG, and which may thereby facilitate or hamper the development of associated MEs. Singh and Jain (1995) identify considerations related to group formation, namely, the *full participation* of all members, *homogeneity* among members and *transparency* in all the operations and functioning of the group (which promotes trust, with mutual faith and confidence). Considering women's SHGs in Andhra Pradesh, Ranadive (2004) shows that people's participation at every level of decision-making within the programme transforms beneficiaries into participants, from which ultimately everyone benefits. Anand (2002) argues that homogeneity in membership (members belonging to the same income or social strata) also contributes to group success, while Suguna (2006) holds that people with a similar social background exhibit similar coping behaviours in times of stress and will thus be able to extend mutual support.

Other success factors include *clearly defined goals* (knowing what is expected), and an established structure or accepted process of *well-defined steps*, including schedules, breaks, feed-back periods, regular information up-dating (goals and other pertinent information) and a clearly understood *delegation of tasks* to be accomplished (clear and simple directives). A group goal is a future state of affairs desired by enough members of the group to motivate the group to work toward its achievement (Johnson & Johnson 2006). DeLucia-Waack et al. (2002) summarize what is needed to ensure the effectiveness of groups thus: 'Research shows that *group goals* must be clearly defined, *leaders* must have specific leadership training and skills, and they must take into consideration *member expectations* about the group, willingness to participate, and cultural expectations and values when designing a group and implementing specific intervention' (emphasis added). An understanding of the goals of the group and the reason for its existence elicits contributions based on the needs of the group, which means participation. And this participation is most effective when the members are fully aware that their contributions must be oriented towards the *advancement of the group* (CAP Santé Outaouais 2009).

Indeed, participation is *the* key element in the SHG approach. Referring to the involvement by local populations in the creation, content and conduct of a programme to change their own lives, it requires the recognition and usage

of local capacities and must avoid the imposition of priorities from the outside. Four separate studies of participatory programmes, by the World Bank (1996), the Canadian International Development Agency, CIDA (1997), the United States Agency for International Development, USAID (1999), and the Asian Development bank (2001) have found participatory development programmes to be more relevant and effective at addressing local needs than non-participatory alternatives. Moreover, the gains made during an intervention programme are more often sustained using participatory methods, and it is more likely that the engagement of local people in the intervention process will improve their economic status (Jennings 2000). Similarly, Gurumoorthy (2000) maintains that SHGs are a viable alternative in order to achieve the objectives of rural development and elicit community participation in all rural development programmes.

Shylendra (1998) evaluated the performance of eight women SHGs promoted in the village of Vidaj in the western state of Gujarat, India, by the Institute of Rural Management, Anand (IRMA).¹⁶ The main lessons drawn from this project were the necessity of (1) creating SHGs based on a full *needs assessment* for different sections of the society, (2) ensuring a clear *understanding of the concept of SHG* among team members involved in promoting SHGs, and (3) enhancing the *relevance of SHGs* by enabling members to meet their requirements effectively.

Bakshi (1995) looked at the organizational structure of informal, grass-root level women's groups at Alappuzha (a small coastal town in the southern state of Kerala), with informal neighbourhood groups (NHGs) in small hamlets later federated into Area Development Societies (ADS) at the ward level and linked to the Community Development Society (CDS) at town level for empowering the poor. CDS focuses on a variety of issues (health, education, housing, poverty, etc.) as determined by a bottom-up needs-based planning process based on a three-tier SHG system. This represents an

¹⁶ IRMA aims to 'promote sustainable, ecologically-friendly and the equitable socio-economic development of rural people through professional management', to which ends it provides management-training programmes, and also supports local cooperatives, and works with other agencies. See <https://www.irma.ac.in/index.php>

organizational model for informal groups in a rural area and effective people's participation in management. Among the important features of this model as specified by Bakshi are the development of appropriate indicators with which to *identify poor people* and their *basic, current needs, decision-making in the common interest, group planning and management of financial activities*, the *convergence of resources*, and skills development and empowerment through *participatory learning methods*. Also related to the issue of participation and organisational structure, Guevara et al. (2008) has considered the local perceptions of empowerment and development in a small village from Chiapas, Mexico, emphasizing that interveners should *pay close attention to the outcomes of village self-assessments* in order to guide future actions. This also encourages villagers to critically review their own situations.

Narayanaswamy et al. (2005) argued that sometimes group activities do not provide enough space for people to participate. Among those who participate, one or two dominate, so a conflict among members tends to arise, leading to a waning of interest and even group disintegration. Guevara (2007) drew attention to *leaders' roles* as settlers, linkers, motivators, facilitators and negotiators. At the same time, however, the participatory imperative implies that leadership should rotate according to the resource framework of the group.

Linked to the issue of leadership and political organisation of groups, the APMAS/EDA (2006) study of Indian SHGs reported the problem of dropout among members, revealing the need for *clear norms* regarding members' organizational behaviour. SHGs, it is suggested, may discuss and finalize a set of byelaws, indicating rules and regulations for group functioning as well as roles and responsibilities of members. In this respect, Olivier de Sardan (2004:76) noted that 'maneuvers, intrigues, influence struggles, monopolizations, the rhetoric and manipulations, come from all sides'. There is thus a need to take into account the collaboration and complicity of *marginal actors*, to analyse how the so-called 'beneficiaries' understand and manipulate the rhetoric, rules and rewards of aid delivery (Mosse & Lewis 2006).

In view of all these different experiences and results, a proper consideration of factors contributing to ME development and support by SHGs that reflects on their strengths and weaknesses is indicated in order to build and improve a SHG-based ME.

4.5 ME and SHGs

Development in rural areas is confronted with a wide range of problems grounded in the very poverty that it seeks to tackle. Issues related to extreme and chronic poverty are areas like poor income, dominance of and dependency on the market and a lack of opportunities created by ‘Empire’ (Hardt & Negri 2000). These areas are among the challenges facing rural people as they organize themselves for specific SHG-based MEs through which they aim to reach autonomy (Scott 1985; Mitlin & Bebbington 2006; Gledhill 2007, Ploeg 2008). Factors contributing to ME development and support by SHGs are reviewed below under the headings of finance, training and skills development, mobilization and representation of local people, target group approach, and marketing and technology support.

4.5.1 Finance

An important aspect for ME development is *finance* and to get access to resources through which rural people strive for autonomy. A rural ME-promotion programme developed for the Philippines and other countries in the region (COSOP 1999) reviewed the ways in which financial needs are addressed. This paper concluded, among other things, that the formal-sector banking network and institutionalization of agriculture and rural credit rarely provide access for the poor in India. Thus, the rural poor turn to the informal sector for their credit needs, principally to traders, moneylenders and landlords, which results in exploitation, leading in turn to the development of various group-based microfinance schemes aimed at providing credit to the poor. It was also argued that financial services are needed in addition to suitable access to credit, as well as non-financial business services, such as skills, training and technology, market access, better market and pricing information and insight into the functioning of local markets.

Concerning the *capital shortages* and inadequate access to *financial services* for both agricultural and non-farming activities, various MEs have been set up in India to challenge the long-standing problem of sustainable local financing. Thus, SHGs have come to provide the financial (saving and credit) services as financial intermediaries in a cost-effective and sustainable manner to facilitate the access to resources for the rural poor and attenuate risks. Included as a crucial element in the poverty alleviation measures from 1996, *SHG banking in India has grown to become the developing world's largest microfinance programme for the rural poor*, comprising around seven million SHGs with a total of 70 million (self-selected) members, 90 percent of them women, credit-linked to some 36,000 bank branches and cooperative societies. The NABARD SHG-bank linkage programme (essentially a central development bank financing local SHG banks) benefited nine million families covering an estimated 45 million poor (NABARD 2013). This shows that rural people are not unattached, isolated and expected to work alone but depend on others, by choice. Indeed, they are involved in groups; they adopt values or behaviours that lend priority to that group and, in doing so, they enhance access to resources. As observed by Brunori, Galli and Rossi (2004), using the example of wine routes in Tuscany, such *collective action* produces the local framing of a constructed environment, institutions and routines which give people access to resources that could not be accessed through acting individually.

4.5.2 Training and Skills Development

Another crucial aspect for ME development is *capacity building*, the process by which individuals, groups, institutions, organizations and societies enhance their abilities to identify and meet development challenges in a sustainable manner (CIDA 1996, Morgan & Qualman 1996). It also concerns a *struggle for new connections and reconnections* through, as Roep and Wiskerke (2004) emphasize, the construction of organizational novelties that develop novel links to natural and local resources. Rural people also link to other stakeholders in food networks, both backwards and forward, as well as to processors, scientists, research institutes, government institutes, banks and others. They move from being passive recipients of information, services and regulations to a situation in which they utilize public and/or private institutions as resource providers and thus take full

responsibility for their development. Hagmann (2000) describes how an effective vehicle for capacity-building development has proven to be the joint development of technical and social innovations by local people with external agents, based on a synthesis of indigenous and scientific knowledge. Capacity in terms of micro-entrepreneurship depends on community, social-economic environment, the nature of business, market and entrepreneurial skills (Sapovadia 2007).

Indian SHGs are generally found to be very effective in organizing the informal education and training (e.g. entrepreneurial and technical training) programmes for the exchange and sharing of knowledge and skills of the rural folk. Many NGOs, government programmes and micro-finance institutions organize training programmes for SHG members and leaders. Training and Technologies Development Centres (TTDCs) represent one such, aiming to introduce innovative technologies for the qualitative improvement of the products made by SHGs. Other examples include the *Stree Shakti* programme in the dairy cooperative sector in Madhya Pradesh and the training-cum-employment programme for women the Women's Economic Programme, the *Swa-Shakti* Project, *Rashtriya Mahila Kosh* (Sardana 2002; Adolph 2003).

It is not clear, however, what proportion of SHG members in India have benefited from such training and what proportion of trainees has been able to make use of this training by starting a ME. Moreover, training alone is not enough to ensure that group members take up ME – their success depends also on markets for the services and products produced (Adolph 2003).

4.5.3 Mobilization and Representation of Local People

Miller and Grace (1990) argued for the creation of a systematic learning approach to ME development. They believed that learning is not the simple acquiring of skills in order to achieve objectives, but a process of fulfilling the need for self-improvement. Further, they suggest an ME-learning system should include experiences that (1) focus on problem-oriented issues, (2) have a direct relationship to need and use, (3) stress measurable performance that can be positively reinforced, and (4) emphasize

experiential activities. Assuming a SHG approach, these involve the representation of local people, thereby building participatory-oriented organizations contributing to the development of MEs and enhancing their effectiveness in rural areas. Moreover, SHGs are involved in the participation and decision-making processes that contribute to the well-being, dignity and (self-) identity of local people.

4.5.4 Target-group Approach

Liedholm and Mead (1999) argued that rural organizations and the representation of rural interests are important, and that among the array of small enterprises there are various target groups, each with different contributions and with different support needs. Steel (1994) revealed that for women peasants as entrepreneurs in the rural areas, gender stereotyped perceptions of self, a lack of confidence and assertiveness appear to be major barriers, and the SHG strategy contributes to their empowerment through income-generating and capacity-building activities and provides a space for them to gain strength through participating in groups and thus to avail new ideas and develop the self-confidence for entrepreneurial capacities. SHG may thus operate against societal oppression. As Ploeg (2010) argues, explanations of rural people's resilience have focussed on forms of resistance, such as 'open struggles' by rural community' organizations, employing collective action in pursuit of shared interests. Through the construction of *organizational novelties* (Roep & Wiskerke 2004), rural people – and within them, disempowered groups or classes – strive for freedom from harsh conditions and the ability to align food production to their specific interests.

Shri Mahila Griha Udyog Lijjat Papad, or *Lijjat*, is an example of an organization that has engaged in empowering poor women across India, as well as evidencing the growth potential of ME. The word '*mahila*' means woman in the Gujarati language, '*griha udyog*' stands for cottage industry, '*lijjat*' (the brand name) means tasty, and '*papad*' is the thin, round savoury snack the organization produces for sale. Starting as a small group of seven women in 1959, Lijjat now has more than 40,000 members in 62 branches across 17 Indian states. The women maintain good-quality food products

(*papads*), a practice that has turned out to be their main strength. The target-group approach in this case was established by word of mouth and advertising in a local newspaper, which contributed to the group's rapid growth. Subsequently, the group became attractive for its economic benefits and the SHG values it promoted. In most families with *Lijjat* members, the wives' monthly earnings are a valuable addition to the total family income, and this has enhanced their status and power within the family, while *Lijjat* follows principles of self-reliance and trust, and all members have equal rights (Bhatnagar, Rathore, Torres & Kanungo 2009). This reflects a recognition of women's participation in agricultural and specifically food production. They deliberate, decide and then act purposively in food production and other processes related to processing, packaging and distribution; they control their food production according to their own social, economic and cultural logics.

Other interesting examples of SHGs in ME development in India include *Okhai*, *Lohardaga* and *Meerut Sewa Samaj*. 'Okhai' refers to a village (Okhamandal) in Gujarat state, where rural women ubiquitously practice and pass down traditional handicraft skills, such as mirror work, patchwork, embroidery and appliqué work. The Okhai enterprise was initiated, in 2002, by the Tata Chemicals Society for Rural Development (TCSR), a body that organizes training in making traditional designs appealing to consumers (the market) along with workshops on teamwork, quality issues and marketing to strengthen women's practical business know-how. In partnerships with other organizations, such as Tata, National Institute of Fashion Designing (NIFT) and Sasha (*Sarba Shanti Ayog*), Okhai sells its products through exhibitions in cities such as Delhi, Mumbai, Pune and Ahmadabad. Again, this organization focuses on collective action in construction of novelties and catalytic materials (various products) that are not only guided by the market but also related to the sense of well-being, dignity and identity of local people.

'Lohardaga' is also a village name, referring to a community in the eastern state of Jharkhand where the state government initiated a dairy programme for farmers, in 2004-05. Since then, more than 700 farmers have become involved in dairy activities, producing milk and dairy products such as cheese, yoghurt and cottage cheese. Rural people have organized themselves

to utilize local resources (local production) for their own economic, nutritional and cultural needs. Through collective actions, farmers strive to establish those arrangements in the production, processing and marketing of food production that creates autonomy for them.

Meerut Sewa Samaj is a village-level organization that makes beaded-jewellery accessories, such as belts, bracelets and necklaces. Market linkages are developed by a member of the organization, who visits local markets with product samples to obtain orders, while orders are distributed among the members of the organization. This programme has been successful, and other businesses or activities have been developed in nearby villages in other product areas, such as textiles, weaving, handicrafts, bangle decorations and bee-keeping (Herschel 2009). Thus, specific relations are established with market that connect the rural people to the surrounding world and allow them a level of flexibility. The collective actions of rural people provide opportunities for the development of various MEs.

4.5.5 Marketing and Technology Support

Clearly, access to local market is an important aspect of ME initiation and development – or, the resource-poor need to acquire the ability to challenge their lack of access to the local market and its services in the context of their dependency and marginalization. Aheeyar (2007) states that problems related to marketing and obtaining a reasonable price for products badly constrain the majority of MEs, with 40 to 50 per cent of failures due to marketing-related problems. Competition from retailers, supermarkets and other marketing agencies is seen in the marketing of products pioneered at a small level. This, coupled with lack of knowledge on business management and inadequate resources and support mechanisms, reduce the development perspectives of MEs (Kibas 2005). In this respect, local organizations have to depend on marketing agencies as promoters for marketing of their products – which invites the suggestion that SHGs work as *integrated networks* of local people, where they share the responsibilities of product packaging and distribution.

Equally, local people should be able to sell directly to the consumer and avoid the huge mark-up taken by mediating (marketing) agencies. Thus,

special attention needs to be given to create a *local market linkage*. Additionally, to stay competitive, backward linkages with *information technology* are important. Edgcomb, Klein and Clark (1996) place a stress on workable information systems that facilitate the work and provide timely and needed information. SHGs might contribute as sites where people gain (information) technology in their local settings (environment).

Ganpathi and Malar (2008) emphasize reasonable and affordable product prices as an important factor influencing consumers to buy from SHGs. Purchasing decisions are also influenced by factors like service, quality, value for money and the homemade nature of the products. Customers are reported to feel that product packaging needs to be improved. Jose and Nair (2011) point to another marketing shortfall, that SHG products do not receive enough advertising. These two points combine in the criticism that products are generally not branded, properly processed or sealed – due to the lack of appropriate technology – and sales can thus take place only in the very immediate vicinity.

Nevertheless, with the re-organization of peasants systems, Wittman (2009) refers to the potentiality of *reconnecting society and nature*. An imperative challenge, it follows, is to create linkages with markets by local people in local organizations, such as SHGs, in such a way that the specific quality characteristics of the products are recognized by the consumers – for example, through specific forms of packaging – so that the peasants will receive an enhanced income from the higher value developed and by selling the products outside the direct vicinity of the village.

In respect of marketing, Karuppasamy (2010) suggests that the government should arrange presentation and advertising training programmes, and that the government channels might broadcast SHG advertisements at minimal or no charge. Strategic actions linking local production to local preferences of food consumption, local processing, packaging and labelling of products are necessary to facilitate access to markets, market decisions (such as better pricing) and avoid the huge mark-up made by mediating (marketing) agencies on SHG materials and products. In this sense, the SHG not only provides access to markets or linkages with markets (consumers) pertinent

to autonomy, but may also strengthen the capacities of local communities in the strengthening of local food networks for sovereign food systems.

4.6 Reflections on SHG-ME actions

With the intention of fulfilling certain requirements for the development of MEs, SHGs in India are organised as an important means for the development of autonomy in rural communities. The collective actions of SHGs involved in establishing and running MEs enable a shift from neglect to co-agency, making rural people the subjects of development. Through this type of development, not only are relationships between the local, natural and social environments strengthened but also new relationships are established with the surrounding world that enhance rural people's abilities and capacities and therefore develop autonomy. In order to develop SHG MEs in tune with the material and social situations of the local people, locally available resources and skills are used in a range of areas, such as in dairy, tailoring and embroidery – and the processing and packaging of mung-bean food products (Chapter 5).

Throughout this self-help approach, aimed at encouraging autonomy and creating a community atmosphere, various factors contribute to SHG-supported ME development and create possibilities for SHGs to constitute food autonomy, as listed (above). The SHGs are not only a space to develop a vision/mission and maintain organizational management systems but also to develop participation in groups, avail new ideas and develop a self-confidence that facilitates peasants' capacities. Three main features of the SHGs might be usefully summarized and emphasized here in the context of SHG MEs as an agent of change for the autonomy of rural communities in India.

Firstly, *SHGs facilitate rural people's access to resources*. In SHGs, the rural people enhance access to resources (such as finance, trainings, technology) and/or use of resources (such as food, skills and knowledge) which are relevant to their social, economic and cultural well-being. This creates capacities and abilities in rural people and contributes in reducing

dependency and marginalization of rural communities. SHGs also enable rural people to use resources for their own development perspectives.

Secondly, *SHG-based MEs are creating recognition*. Various SHGs (such as *Lijjat*, *Okhai* and *Lohardaga*) show rural people deliberating, deciding and then acting purposively so as to enhance their control over the definition of their food production according to their own socio-economic and cultural logics. SHGs are thus the expressions of rural people's needs and interests in their own participation and empowerment; they emphasize that people are not objects of development, but on the contrary are co-agents and subjects of development. SHGs establish relationships among rural people, and they participate in action that prioritizes those others as a group, enabling the experience of a relative freedom. Practices of full participation and transparency in group operations and functioning assuming homogeneity among members are factors that contribute to SHG success and thus to SHG-ME development, just as do clearly defined goals, well-defined steps and delegation of tasks. The willingness to participate, desire for cooperation and consideration of members' expectations about the group are equally important for group action, which empowers through the development of a positive self-identity and local appreciation derived from and leading to material success.

Thirdly, there is an improved access *to markets and decision-making*. The SHG approach describes the construction of organizational novelties that offer a freedom to act in such a way that food production is aligned to members' specific interests. It provides decision-making opportunities, with negotiation, planning and management. The social and material elements that characterize SHGs are creating new social relations to produce food in particular and rural life in general. It is imperative that SHGs create linkages with local markets in such a way as to receive a higher share in the value created. Through SHG MEs, peasants gain access to decision-making capacities of their marketable surplus.

The growth of SHG MEs shows that rural people working for their autonomous development. Firstly, the rural people *self-organize* to create their own ME for the production and distribution of goods. Secondly, *horizontal structures* enable producers, consumers, and research institutes to

share knowledge and skills systems. With these structures the interests of rural people are not only included, but become central. Finally, the *SHG strategy* is implicitly organized with the aim of creating autonomy.

4.7 Concluding remarks

The chapter has discussed SHGs and the possibilities for their development of MEs as a part of the food network in relation to food autonomy. SHGs are not organized exclusively to combat poverty and unemployment in rural communities but also reflect an approach to create autonomous development. The various SHG initiatives mentioned represent rural communities' attempts to involve themselves in and take control over their own development process. Quite clearly, SHGs are not recipients of development, but are emerging as co-agents in this. Moreover by focusing on *full participation, homogeneity among members, group goal, and transparency in group operations and functioning*, they develop this strategy as a social and material resource for autonomy rather than just as an alternative approach for development. It promotes the decision-making capabilities, knowledge and skills of rural communities and their increased use of and access to resources. It values the local communities and their developmental potential. The organization of SHGs is not exclusively related to the market, but also to their own social, economic, cultural logics and needs.

Concluding, we can say that the development of SHG MEs constitutes a *self-help strategy of autonomous development* insofar as it facilitates the food autonomy of rural communities and promotes, by way of collective action, new forms of local connectivity. In the process of SHG-ME development, various collective actions are initiated to develop linkages, such as those comprising a food network. These collective actions are not only developing a food network, but also constitute food autonomy. The SHG thus acquires a territorial character that encourages access to resources, use of resources and recognition organized around food to enhance food autonomy.

CHAPTER 5

SHG ME enhancing food connectivity for food autonomy¹⁷

5.1 Introduction

This chapter focuses on the concrete activities of a SHG mung-bean food-based ME initiated in Mangali village by a group of peasants to meet the local (territorial) needs. Industrial market developments have been focussed on commoditization of mung-bean food products to maximize profit and operated to neglect local production/consumption logics, and disconnect peasant producers from consumers. Instead of contributing to territorial connectivity, food processing (production) is organized for the trade and industry demands of agro-industry (Chapter 3).

In contrast to such exogenous developments, the concept of self-help draws attention to the collective actions in food processing and market relations that can facilitate territorial connectivity of a local food network. It advocates for SHG efforts/activities in food ME development to move rural communities from being passive recipients of information, services and

¹⁷ Some of the major findings of this chapter were presented at the 2nd International Conference on Knowledge Commons for Sustainable Agricultural Innovations held 8-11 April, 2014, in Maringá, Brazil.

regulations to a situation in which they are able to share resources, knowledge skills and take responsibility for their autonomous development (Singh et al. 2011). Collective efforts/activities in local food production also take them away from subsistence farming and toward the dual-circuit system of both peasant and market (re)production (Van Ploeg 2013) by strengthening the former, as will be shown in this chapter. In this study, the SHG is approached in relation to the maintenance, improvement and strengthening of its own seed, labour investment and end products in a food network and, moreover, the development of resources (food processing and packaging technologies) as a potential catalyst (Ruivenkamp 2005) to not only maintain but also develop new social relations in that network for the enhancement of food autonomy.

This chapter describes *key collective activities* of the peasants' SHG in Mangali, indicating the ways in which the peasants are connecting with the surrounding world and establishing a mung-bean ME. Also, it investigates *innovations* within the mung-bean food network that are built upon the preferences and expectations of peasants and their communities. In this analysis, I define 'innovation' as a new way of doing and thinking by changing existing practices and/or by setting up a new practice with the potential to do better (Wiskerke & Ploeg 2004). Summarizing, this chapter reflects on the activities of the Mangali SHG and its ME in relation to developing and creating relations for the strengthening of the mung-bean food network from the perspective of food autonomy.

I focus here on a SHG as community-based social structure concerned with mung-bean food production, processing and marketing organized through *collective action* to strengthen the *territorial connectivity* of the mung-bean food network. In this setting, the self-help peasants' group plays at least three identifiable roles: i) it consolidates local mung-bean food production, local resources and motivations of the peasants; ii) it develops another perspective of development based upon a more localized choice for processing, distributing, marketing and accessing local mung-bean food; and iii) it empowers local people (especially peasants and the poor rural community) and strengthens the connectivity between local mung-bean production and consumption. This allows the members to create recognition of their food production, provide opportunities to access food processing for

their marketable surplus and establish linkages with the market to reinforce their food autonomous development.

The SHG is characterized by forms of connectivity based on specific incentives, past experiences and future expectations combined with the motivations, abilities and activities of the peasants and other rural people. Autonomy, meanwhile, develops with the connections between peasants, social institutions, researchers, research university and consumers (markets) developed by the SHG that result in, for example, *capacities in mung-bean food processing and relations with the market*.

The core question of this chapter (fourth thesis sub-question) is:

How are the SHG strategies organized, in what ways do they create forms of connectivity in the mung-bean food network, and how does this contribute to enhanced food autonomy?

In order to address these questions, a methodological approach of critical-constructivist research is utilized. This involved continuous critical reflection on the SHG mung-bean food network development activities through the conceptual lens of self-help, investigating the collective actions and innovations organized by the SHG in relation to strengthening the territorial connectivity of the network. It is also employed to identify possibilities for involving the SHG in food network developments and autonomous development process by reflecting on the empirical findings and critical ideas from a food-autonomy perspective.

A combination of data-collection methods were employed. Using self-help as an analytical tool, the functioning of the SHG was investigated through participant observations, focus group discussion and interviews. A total of twenty interviews were conducted using a semi-structured questionnaire with the SHG members, group leaders and others from the community. Three FGDs were also conducted to generate qualitative information on the SHG activities. Another important source of information collection was the observation of participants during various SHG meetings, while further information was gathered during the processing and packaging training sessions and through participation in day-to-day activities of the SHG and informal discussion with members.

In this chapter, I first describe the motivation of peasants to initiate a SHG, and then I describe the SHG initiative of the mung-bean food based ME development. Next, I present the collective activities of the peasants' SHG in the mung-bean food production, procurement, processing, packaging and labelling, and then I look at the group initiatives in mung-bean marketing (market relations) and the challenges faced by the SHG. After that I reflect on the SHG strategies in strengthening connections of the mung bean food network for enhancing food autonomy, suggesting some ways of strengthening the SHG, and draw conclusions.

5.2 Empirical research findings

5.2.1 Motivation for the SHG

In 2008, the peasant community of Mangali village in Hisar district began to organize itself aiming at connectivity in the mung-bean food network for the enhancement of food autonomy. The community realized that this could be developed through a SHG ME aiming at mung-bean food processing, distribution and marketing. The SHG that emerged is now an informal organization in which peasants integrate their resources and interests and engage in collective actions and innovation creation for enhancing food autonomy.

This group in Mangali operates with the voluntarily participation of twenty to twenty-five peasants from the village. It is not formally registered, but has a structure and group norms. The primary collective action initiated by the group is in the primary and secondary processing of mung bean, packaging and labelling at community level, where larger volumes of locally produced mung bean is dealt with. Other initiatives undertaken by the peasants' group include local distribution, bulk selling and direct marketing of certain mung-bean food products. The group members themselves decide on the strategies to be undertaken, supported by the CCS Haryana Agriculture University in the (Hisar) district under the multidisciplinary TELFUN programme. The university acted as an initial facilitator for the group, helping the villagers to provide a mung bean processing and packaging machine and related training for skills

development. The initial process of the SHG development is presented in Figure 5.1 and described further below.

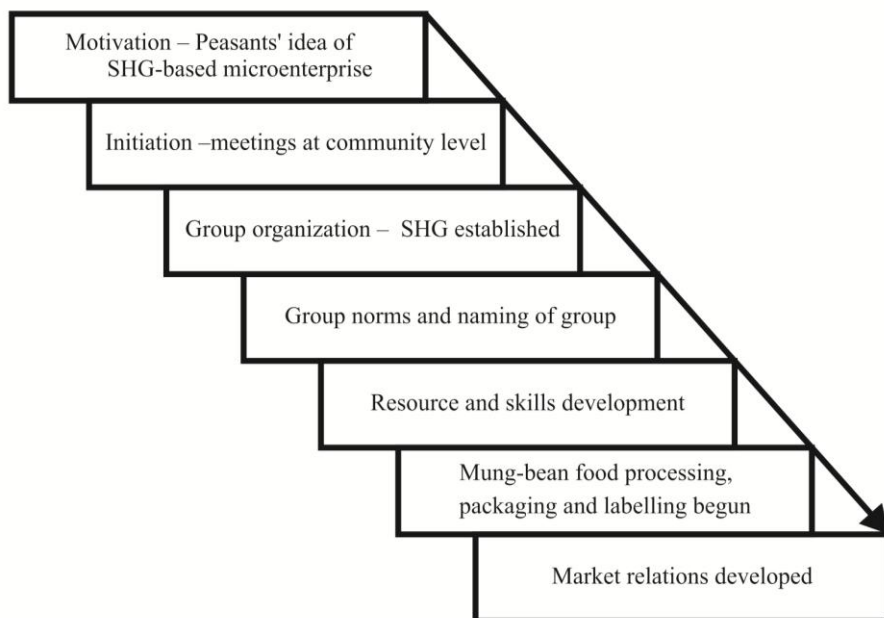


Figure 5.1 Developmental process of the SHG (2008-11)

According to what was expressed in the village, four common reasons why the peasants decide to get involved in the SHG may be identified. These are i) to be able to determine the price of their food products themselves, ii) to develop a space in which to make their own production decisions, iii) to become involved in marketing their own mung bean food production, and iv) to learn more about other (trading, techniques, etc.) matters. Clearly, these motivations are all closely related to livelihood needs.

The following are some examples of what people said in explaining why they had become involved with the SHG: ‘We (me and my husband) work very hard and sometimes we cannot cover our basic needs’ (Parmeshwari); ‘We need a better price for our farm produce’ (Parmod); ‘We’re involved because we want to do mung bean processing with the

community’(Rammurti); ‘My main motivation to become part of group is because I can learn more skills with the community, and we may be able to improve our food processing’ (Mahaveer). The peasants also complained about the harsh conditions – the dependency on village traders for mung-bean marketing and low market prices – implemented by the market regime. Establishing the link between production and consumption was another motivating force for most of the peasants: ‘We want to know where our mung bean ends up, we want to have more opportunity in the whole process from producers to consumers – that is very important for us.’

The local nature of the SHG, as rooted in the community, was important, both from the perspectives of trust and social activity: ‘The SHG is a good local organization in our village, we like to participate in SHG activities by doing things, sharing experience and knowledge.’ It was in this context also that they considered the group as a food production initiative for their own crop and for local processing – in other words, as important from the perspective of food autonomy: ‘Our main objective is to improve access to manage/use of our product ourselves through mung bean food based ME of SHG.’

Thus, the group members were motivated towards the group initiatives for managing their own mung-bean produce – and they were doing this with a raised *political consciousness*. Manifestly, the economics of their situation – facilitated by a range of factors related to education level, media exposure, organizational interventions, and more – had opened the villagers’ perceptions to their embrace of a politicization of its structure. As one articulate member explained,

We see our group initiative as a crucial entry point for our pursuit of autonomy in managing the local mung bean. It is possible that processing of mung bean will increase in the future at the community level. It is useful to have local mung bean food processing capacity. The locally produced-processed mung bean will hopefully support the market prices. This capacity contributes to the resource base of the village.

The various articulations of the members of the SHG indicated that their motivations are not only related to their livelihood, to initiate the processing of the mung bean they cultivate to improve household economic conditions,

but also to create a capacity for mung-bean food processing at *community level*. There was an awareness of the need for activities to be collective, for a *resistance*, in fact. The peasants' aims in initiating the SHG to manage the use (processing) of their mung bean, participate in decisions about the market price of their produce and manage the marketing to strengthen connections between what they grow and consume were clearly related to control over the fruits of their labour, access to the means of production and terms of trade, and thus to *autonomy in the conditions through which they reproduce their own livelihoods*. Their motivation to learn about and develop the various necessary capacities for mung bean processing is related to their *access to resources*; and the *local orientation* of the fundamental conception of the project means also that it comprises a material investment (their time and effort) for technical (skills) development in order to enhance *territorial connectivity* and to sustain *natural resources* and create *local resources*.

This all implies that the peasants' motivations about mung-bean food based ME development are not merely a derivative of market forces, but are related to a sense of local self-direction and self-regulation in respect of their mung-bean cultivation. The peasants want to rely on their own social organization, structured by their own, self-help initiatives. They have chosen to make decisions about food based ME development through initiating the SHG in the mung-bean food network, wherein the SHG is linked not only with the local livelihood strategy but also with capacity of local mung-bean food processing. In this sense the peasants' SHG is an initiator or a motivator of a collective action, enriching territorial connectivity of the network toward food autonomy.

5.2.2 The SHG ME initiative

Establishment

The peasants organized frequent meetings to discuss the co-ordination of their activities, sharing of information and collective decision-making for the formation of the group. As a result, the mung bean food-based enterprise of the SHG group was established around specific collective activities that

included mung bean processing, packaging and marketing. Table 5.1 shows the characteristics of the group members involved in the SHG.

It was observed that most of the SHG members were 30-40 years of age and living in the village. The group profile showed also that the group was quite homogenous in terms of type of farming (small-scale mung-bean production), use of mung bean (household and commercial purposes) and socio-cultural circumstances (education, land-holding and income). Members valued the community base in forming the SHG because it provided opportunities to cooperate in group activities and share information with one another other easily, without any constraints of time and distance.

Table 5.1 Profile of the Mangali village SHG

| Description of group members | |
|------------------------------|---|
| Age/sex | 30-40 years / 40% male, 60% female |
| Education | Primary |
| Land holding | 5-10 acres |
| Annual income | 40-50,000 INR = c. €740 (2008-09) |
| Crops | Mung-bean, pearl millet (<i>bajra</i>), wheat, sorghum (<i>jowar</i>) |
| Use of mung-bean | Household food provision and commercial |
| Residence | Mangali village |

Role and responsibilities were discussed in group meetings held in the community environment and decided upon by the members through informal acceptance. The participation of group leaders – similarly selected – in the SHG activities was discussed both in the group and in the local

government (*Gram Panchayat*) of the village, and then responsibility was given over to the SHG leaders to organize the meetings, trainings and other activities, both to strengthen cooperation in the group and in the locality for functioning of the SHG.

The naming of the group was an important activity for the peasants. It was an occasion for peasants to identify themselves. The location was a backyard of a member's (Prameshvari's) house. All members participated to give a name of their group – *Baba Ramnath SHG-Mangali*. The use of their local god and locality names as a result of the collective exercise clearly established the group identity at community level. As one member stated,

We have the feeling of belonging to a group. The participation is increased now as we are tackling all the activities in a group. We take care of our locality. The mung beans we produce are not only of interest to the markets but also important for us.

Access to resources and skill development

Baba Ramnath SHG-Mangali engaged in gaining access to food processing for local-food production. It started processing of whole mung bean into split and split, dehulled mung bean through an electrically operated processing machine obtained with the support of the university in Hisar, which procured it from a manufacturer in the Kanpur District of Uttar Pradesh. The manufacturer has an official association with Pulse Research Institute Kanpur, which designs food-processing machines and technologies. Commonly known as the mini dhal mill, this processing machine is considered to be suitable for small farmers. It has a processing capacity of 85 kg/hr, dhal recovery of 80-85% and is easy to operate. A packaging machine was also procured from a manufacturer in the Hisar district.

The procurement of these two machines by the group to develop its mung-bean food-processing and packaging capacities not only enhanced strategic resources within the locality but also created new social relations outside the community. The SHG initiative comprised a collective action to access the resources that were important in strengthening the territorial connectivity of the food network from which it had emerged within and in which it was embedded. Practically, the peasants gained time, or made a labour efficiency

saving: ‘We use *chakki* for mung-bean processing at household consumption, which consumes time and human energy,’ explained one member. ‘Now we can do more mung-bean food processing and packaging.’ This was not exclusively for economic gain, however, but also geared towards reinforcing autonomy of the rural community: ‘It gives us a position in the development of our group activities in local mung-bean food production,’ explained another.

The employment of new technologies (the machines) was the basis for further SHG activities. The group established links with various departments of the university, including the College of Agriculture Engineering and Technology for Technical Information, the Department of Extension Education and Communication Management for Exchanging Information and the Department of Seed Science and Technology, in order to obtain on-field training in mung-bean processing and packaging. The training was organized by the university at community level and focused on the technical aspects of mung-bean processing and packaging machine operation.

A combination of training methods – demonstration and learning-by-doing – was utilized to facilitate the learning process. The group members participated in demonstrations organized at community level, while the university also contacted the manufacturer of the mini dhal mill to organize demonstrations at the village. Links were thus extended to the machine-making company as well as the research university, enabling the SHG to receive appropriate resources and skills support in furtherance of its activities.

The group learnt about the new method of mung-bean food processing (production) through self-directed experimentation building on their own experience. For example, the soaking of grains is an important step in mung bean processing; the peasants monitored grain reactions at different time periods and evaluated their effects, adjusting the soaking-time based on their observations and interpretations to the optimum according to grain-size and shape. It was also observed by the peasant group that they required a specific oscillating sieve, one that was suitable for sorting the local grain-size, so they visited the Workshop of Seed Science and Technology

for support in purchasing of the appropriate sieve. By experimenting, exchanging information and sharing experiences within and outside the group, the peasants started the processing of their locally produced mung bean.

The food processing and packaging technologies appears to have some potential to become a catalyst for local mung-bean food network development. First, in the SHG, the heterogeneous set of social agents (peasants, food processing manufacturer, packaging machine manufacture and research university) converged to coordinate the local mechanization of mung-bean processing for an agricultural development (mechanization) within the farming community itself, dictated by the peasants living in the village rather than external capital and thus meeting the local (territorial) needs instead of serving the outside interests of private profit. The SHG operates as a place where peasants and producers of processing and packaging technologies come together to share knowledge and develop mung-bean processing and its packaging and, moreover, on the peasants' terms. Normally, of course, there would be no such interaction – as previously there had not been – with the technology producer dealing with the urban businessman as processor. Now, with the collective action organized at village level, peasants have access to information (machines usage and features) and attain a certain capacity (machine operation) to manage social-technical resources.

Second, the SHG not only operates as a means through which peasants perform mung-bean food processing and packaging, but the activities themselves, of sharing information, resources, skills and ideas, create new social relations outside the community with the connections between peasants, research institute and other actors (such as food processing and packaging manufacturer) through which the SHG creates a *horizontally integrated network* centred on the village. The SHG thus develops a community-based information system for enhancing territorial connectivity of the local food network. In so doing, it creates opportunities for the development of autonomy in a rural community.

5.2.3 *Collective production activities: procurement, processing, packaging and labelling*

The SHG currently focuses on four activities: the supply of mung-bean seed, the procurement of mung bean, its processing and finally the packaging and labelling of mung bean to be marketed at village grocery shops, schools, small retailers and directly to consumers within and outside the village (Figure 5.2).

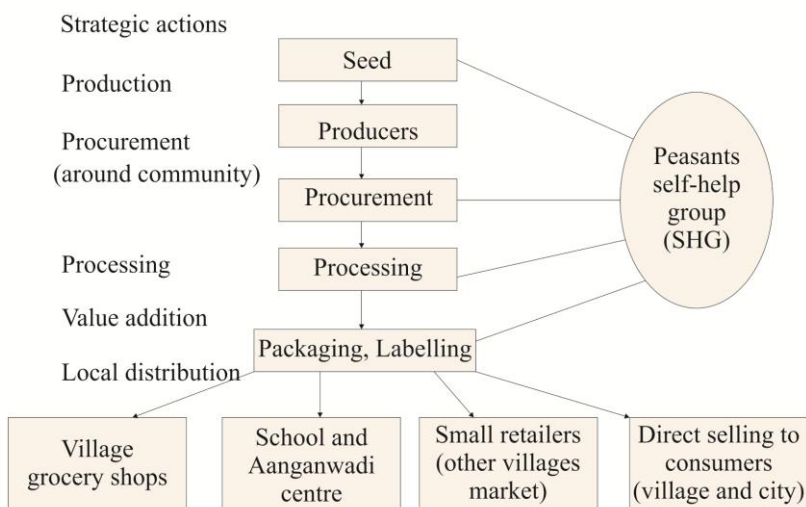


Figure 5.2 Representation of the activities of the peasants' SHG

Production and procurement

In this collective action, some peasants (procurement members) procure mung bean from the members of the SHG while others (processing members) process the mung bean. Procurement starts within the group, and if it is insufficient, expands to other mung-bean peasants in the community. For the purpose of procurement, they use a shared vehicle to visit their fellow villagers and collect the seed. Information about the demand for

mung bean is provided by the processing members of the SHG to the procurement members. Between 2009 and 2010, the processing of mung bean procured in the community increased from 1.5 quintals to 4.5 quintals. This procurement of the local mung bean for enhancing local processing may be regarded as a SHG-directed *territorial intensification*.

To further encourage the local production system, the peasants' group is also involved in obtaining mung-bean seeds and sharing information about mung-bean production with researchers and the university using the seeds of specific mung-bean varieties selected by the peasants (members and other mung-bean peasants in the village) in the participatory varietal selection process (Chapter 3). The SHG itself is engaged in cultivating the short duration mung beans (focusing on the disease-resistant, high-yielding and medium-size, green seed), and then in supplying, and, after the harvest, also storing the seeds. In so doing, they strengthen the *ecological connectivity* of local mung-bean production, tying the local environment and (short duration) production system to local consumption patterns (peasant bean preferences) and strengthening the local production resource (seeds) system through participatory breeding activities that include seed storage and supply as well as selected variety cultivation. Thus establishing a *social-technical system of sharing and developing* local resources (labour, time, vehicle, seeds and crop) and experiences, knowledge and skills for local mung-bean production and processing, the collective actions are strengthening the local mung-bean food network and contributing to autonomous development.

Food processing

The processing members are engaged in various mung-bean processing activities: cleaning, drying, sorting, soaking, de-hulling and splitting. First, the grains are cleaned of bits of straw and twigs, stones, dust, immature grains and weed seeds. Then, the cleaned grain is soaked for one to two hours to add moisture for de-hulling and splitting (which gives good colour to the final cooked food). After soaking, the grain is sundried for one or two days (using the drying yards of their houses). The bean is machine pitted, de-hulled and split and then conditioned with edible oil. Some processing members are also engaged in the preparation of the local mung-bean food

products *wadis* and *papad* (Chapter 2). These are locally consumed and preferred by consumers because of specific food consumption qualities such as ready-to-cook (short-cooking time) and good (six-to-eight-month) shelf-life (storability of food products), as well as taste.

In its mung-bean processing activities, the SHG is thus initiating a range of novel and strategic collective actions that again further the local mung-bean food network connectivity. Members are enhancing their involvement not only in managing their food cultivation but also in processing, both in terms of primary and secondary processing (preparation of processed food products). Again, the peasant initiative, here in respect of the local processing of the local food production, enhances community autonomy.



Figure 5.3 Processing, packaging and labelling

Packaging and labelling

The Baba Ramnath SHG-Mangali members have also initiated the packaging and labelling of the food products (whole, split, and split, de-hulled mung bean, *wadis* and *papad*). They use half-kilogram and one-kilogram packets, which they seal by machine and then label with name and quantity of the product and the group name and contact details. Members report that the labelling activity offers them an opportunity to creating an identity (branding) for their local food production efforts, which is directed toward the next stage of strengthening the local mung bean food network, through the development of market relations.

This strategy has resulted in sales of the locally produced and processed mung-bean food products in Mangali and surrounding villages and even in Hisar city. The group manages the processing, packaging and labelling activities through income generated (i.e., it is now self-financing), organized in accordance with consumer preference (the local market), as explained by the members:

Consumers like whole mung bean, split mung bean and split-dehulled mung bean processed by us. They want dhal to be natural and to have natural ingredients [locally produced and without any polish or artificial colour]. So they are buying our clean, green colour and regular-size local mung bean.

Consumers also place a higher value on cleanliness and medium size mung bean. We are considering the consumers' preference in our mung-bean food production activities which helps to create connections with the mung-bean market.

Consumers are very interested in locally processed mung-bean food products, *wadis* and *papad*, which are based on traditional recipes. Shopkeepers like to have our mung-bean food products in their shops. They are selling our locally processed mung bean and tell us that customers specially ask for SHG Mangali village mung.

Packaging and labelling of food products are good not only for us but also for consumers... The SHG label has information about local mung-bean food production and packaging provides better handling... which reduces losses of grain in storage and transportation and further contributes to improved sales.

The peasants' action in the labelling of mung-bean food products and their responses illustrates their new awareness of the importance of these activities to the development of connectivity between production (village, smallholder farmers) and consumption (the local [rural] and distant [city] markets). Again, these trading activities related to local food management and resources strengthen territorial connectivity through the local mung-bean food network for an autonomous development.

5.2.4 *Marketing initiatives*

As part of the marketing of local mung-bean food products, various linkages were established by the group. The members prefer to connect with their friends, relatives and neighbours for the promotion of their locally processed food products. The group originally sold its mung-bean food products to (rural) consumers via village grocery shops (in Mangali and then in surrounding villages)¹⁸ and sometime also directly, through the group's outlet. Also, as mentioned (Chapter 2), schools and *Aanganwadi* centres are engaged in mung-bean food preparation (lunchtime *mung dhal* and *khichadi* for the community children). Reaching out to the urban market is another sales development.

The group initiative in market development for local mung-bean food products was observed in the organization of promotional market stalls in the city of Hisar to promote the products directly to urban consumers (Figure 5.4). The consumers were informed about the SHG-*Mangali* initiative in mung-bean food production and, reportedly, appreciated the farm-to-plate initiative. The group is also distributing its products by selling to small shopkeepers in the city: 'We are connecting to small shopkeepers... and sharing information about the market' explains one member, 'We can share information with them easily.' Peasants also take pride in their achievement: 'This is our SHG Mangali-village mung bean, says another member, showing the label, 'We processed and packaged it ourselves at the community level.'

¹⁸ Dabra, Daha, Ladwa, Nalwa, Khokha, Mirka, Gangwa, Dahima, Kaimri, and Hari kot.



Figure 5.4 SHG marketing initiatives: city shop (L) and market stall (R)

The marketing linkages to schools, *Aanganwadi* centres and village and urban market resulted in sales of some five quintals of mung bean food during the period 2009-11. On average, the whole mung beans were sold at 28-30 rupees per kilogram, split at 40-42 and split-dehulled at 45-46/kg, an average increase in profit of about 25-30%. The local mung-bean food processing, packaging and labelling of food products were helpful in enhancing the collective bargaining power of the peasants' group, while bulk marketing in the village was also helpful in increasing income. Clearly, the actions in mung-bean food-product marketing shows the peasants' ability to take control of selling their own, locally produced and processed mung bean-food products, by making market decisions on type of market (institutional, rural and urban consumers) and pricing. This strengthens connectivity between local mung bean food production and consumption for autonomous territorial development.

The packaging and labelling of the whole, split and split-dehulled mung-bean and mung-bean-based food products at community level enables the peasants to connect with the market (complete the collective approach). The market seems open to locally produced and processed mung-bean food products because of its local food consumption qualities (consumer preference) such as *cleanliness*, *uniform size*, *storability* and *taste*

(traditional recipes). The promotional stalls and meetings with shopkeepers by peasants themselves enhance this approach. Similarly, in actively engaging with the SHG initiative, moreover, this research project contributed by sharing the findings of its consumer preference study with the group to further refine its marketing strategies. Indeed, every step and linkage is interrelated, both the source and outcome of other steps and linkages. All such activities directly or indirectly strengthen the territorial connectivity of the mung-bean food network and therefore contribute to reinforcing the autonomy of the rural community.

5.2.5 Challenges

The progress toward increased autonomy and territorial integrity is not always smooth and easy, of course. The SHG faces various challenges and has not yet fully established itself. The main challenge facing the SHG, I was informed, is the mung-bean food processing machine (technology). ‘Mung-bean processing on a large scale is not possible as the available processing technology [dhal mill] does not process large quantities,’ explains one member. ‘It requires regular maintenance, so we have to contact frequently with the university and manufacturer for its proper functioning,’ says another. ‘It is really a lot of work to manage it. It has some problem with parts,’ the group leader adds.

It appears that processing technology is inadequate or still in the process of development; most peasants seem to be dissatisfied with the mill and unwilling to continue with it. Despite these negative feelings the experience also indicates, however, that the peasants (group) are not passive receptacle of directives and very much have their own interpretation of the meaning of the situation and ideas about the future; it also implies that they can play a constructive role in the development of technologies (technology construction) for the food network.

Another, though related, difficulty concerns the power supply, or rather, the high electricity costs of running the machinery. As one group member explains, ‘We are not much using the processing machine, electricity is not regular here [in the village] all the time, but [the] electricity bill is high. It is really lot of payment for us.’ Consideration of the expense and compatibility

of energy supply with the technology available is an issue, therefore, and implies that more technological and political efforts are needed in this area.

Another difficulty is more of an internal problem related to the notion and operation of collective action. The dynamics of the initiative are such that activities are centred around five or six people (the leader and other active members). These members, who were all crucial in the instigation of the SHG, feel responsible for its continued development. The enthusiasm and sense of responsibility of just a few members, therefore, remains a major driving force. These people dedicate lot of time and energy to keeping the SHG going, dealing with challenges and seeking new opportunities. At the same time, this has become a barrier, as the SHG more or less depends on these members.

Most of the participating peasants, let alone other peasants involved in the activities, do not share the feeling of responsibility felt by the most active, leading group. They take a peripheral role, more or less sitting back and awaiting suggestions and opinions from the core. This implies that peasants may become reluctant to reflect on the shape and goals of the initiative or to critically judge options brought forwards by the few more active members. Inevitably, a SHG will develop or decline over time according to the input and personal working relations of its members. This will tend to occur in phases of change, especially in respect of key personnel. In this respect, the Baba Ramnath SHG-Mangali is still in its first phase.

5.3 Reflections on the initiative for strengthening the food network and local autonomy

The Mangali SHG aims to give peasants room for manoeuvre to strengthen the mung bean food network in its local social and cultural and ecological context. Generally, there are various ways of strengthening a food network, although the exact lines along which this can be done may vary significantly (de Bruin and van der Ploeg 1990). Realizing this potential in the present case necessarily involves strengthening the local mung-bean food production, processing and distribution. The SHG represents an attempt to achieve this through reinforcing the peasants' abilities and capacities to

produce mung-bean foods that are processed and packaged to the particularities of local settings.

Unlike the private-capital approach of the agro-industrial market, which creates distance between producers and consumers and discourages food autonomy among peasants and rural communities, the community-based SHG approach enhances local participation in food production and management. This peasants' SHG does not demonstrate the central command regulations of agricultural production; rather, it envisages a strengthening of the local food network to connect local production to consumption.

In this case study, we see how a SHG may function as both the condition for agricultural development at peasant level and facilitator for a development of resources. This benefits peasants through income increases with the realization of higher added value and thereby helps to take them away from subsistence farming and toward the dual-circuit system of both peasant and market (re)production (Van Ploeg 2013) by strengthening the former. The SHG-based ME strengthens the capabilities of peasants in local food production, that is, which mainly facilitates a development of market relations, but not at the cost of the reproduction of tradition practices (agricultural techniques, social relations, etc.) insofar as the growth is self-directed. Peasants maintain control of their own seed, labour investment and end product; they continue to consume their own mung bean produce (peasant circuit) and, largely control the level and terms of their entry into market relations. The development of resources in the SHG realizes a potential for autonomous development.

The initiatives of the SHG for the development of the mung-bean food network are based on three main conditions: i) *peasants' motivation* for the development of the SHG ME to create capacity in mung-bean food processing at community level and enhance participation in mung-bean food management and marketing for connecting producers to consumers; ii) *availability of resources*, including the local mung-bean food production, seeds, labour, food processing and packaging machines, community based information network and the capacities (experiences and skills) of the community; and iii) its *activities*, particularly in respect of seed supply,

mung-bean procurement, local mung-bean food processing, packaging and labelling, which are strategic, collective and innovative, as is necessary for this type of development.

This implies that the SHG integrates peasants' motivation, resources and action to create forms of relations inside and outside the community through which they become able to create recognition of their food production/efforts, enhance their capabilities in local food production and local processing, create resources, develop their skills and enhance participation in the market. Four main features of the SHG might be usefully summarized and emphasized here in describing how this self-help system of food based ME has become an agent of change in connecting local food production and consumption.

Firstly, the peasants' group *initiated the ME and developed an identity*. In coming together and naming the group, peasants enhanced a social-cultural locality-based connectivity and created their group identity inside the community. This expressed and effected a transformation of their role, from producer-consumers to producers-processors and/or consumers. The labelling of their mung bean food products with the SHG name then facilitated a wider recognition of the group initiative in local food production, local processing and distribution.

Secondly, the SHG has *enhanced and created resources and developed an information network*. The peasants connected to researchers, the research university and machine manufacturers, thereby developing a horizontally connected community-based information network and enhancing community resources (seeds, processing machine and packaging facilities). Both of these have strengthened the local mung-bean food network.

Thirdly, the SHG has enabled *peasant participation, resource sharing and skills development*. Seed supply activities were observed to engage peasants in the local seed production system for short duration mung bean that strengthens local cropping system. The procurement and later transport of seed was engaged in cooperatively. Mung-bean food processing, meanwhile, was taken on by some of the members and packaging by others. In this way, the SHG created a space for members to share resources (labour, time, crops, seeds, etc.), skills and information about mung bean

food production for development trajectories at the community level in primary and secondary processing.

Fourthly, the SHG has *connected peasants to consumers*. By approaching the local community people (consumers) social institutions (school, *Aanganwadi* centres and village grocery shops) peasants created connections inside the community, while connecting with and nearby village markets, including through small retailers and market stalls, they also created their relations outside the community. At the same time, they connected with the consumer mung-bean preferences (cleanliness, medium-size, easy-to-cook and storability) to integrate into their processing activities. The processing of locally grown-mung bean, introduction of oil for bean conditioning and use of traditional recipes are some of their strategic actions that have developed local producer-consumer and market relations. This has contributed to the development of food autonomy through direct marketing as material and social elements fundamental to improving decision-making capacities in respect of products, prices, place and promotion for the mung-bean network in particular and rural life in general.

The mung-bean food-based SHG ME in Mangali is all the more notable for its context of rural territory with a poorly educated population of smallholders. Effectively disempowered in the capitalist context of private enterprise, this community previously had only a minimal access to the decision-making capacities of its marketable surplus. As Chapter 3 showed, the industrial market constrains the autonomy for rural people to manage their food products; the SHG based food ME may, it seems, offer a practical way forward.

Firstly, a relatively *low level of outside input* in the form of financial capital and institutional expertise has been necessary. Secondly, *self-organized practices* have enabled local people to take control of their own socio-economic reproduction through collective action. Thirdly, the creation of *horizontal structures* of knowledge and skills sharing has enabled the interests of peasants to be not only included but central to moving forward. Finally, the *SHG strategy* is implicitly organized by the people themselves with the aim of creating autonomy.

Regarding the challenges faced (above), the sustainability of this food-based SHG ME indicates the need for technological efforts to address the specific location of peasant resources. In this case, grain quantity (mung bean food production) as well as grain quality (size) have been successfully identified and addressed, whereas the availability (cost) of electricity was and has not. This suggests that it may be worthwhile to collectively involve actors in tailored technology development. Strong connections among these agents are also shown to be important.

For the future of the SHG, it seems equally important to restore or redefine collective responsibility. Stricter measures may help restore collective cohesion, for instance by only allowing peasants who actively invest labour, time and/or money in the SHG to participate. This implies that the SHG members might reject passive participants/peasants, who only participate for personal gain. Rotational leadership and group sensitization meetings may also help to revitalize collective responsibility. During the operational stage of the SHG, much of the collective effort has been dedicated to building and maintaining relationships (both within the community and in the outside world); a collective action, however, should also include a focus on the maintenance of internal relationships, among the group members. It is important to define clear goals, for example, and continually adjust and/or reaffirm them. This means that the group has to consider on a regular basis what they want to perform, how, why and with whom.

5.4 Concluding remarks

This chapter has looked at the ME initiative of the peasants' SHG in Mangali village in the Hisar district of Haryana state for the development of the local mung-bean food network. The focus of the chapter has been on the collective activities and innovations organized by the peasants' group within mung bean food production, processing, packaging, labelling and marketing. I described the process of establishment, from initiation of the food based ME to mung-bean food production and marketing. Collective action has been shown to strengthen the territorial connectivity of mung-bean food network in a variety of ways, identifiable with the process of production from seed to food. This connection involves relations between the SHG and the community and the establishment of connections between

the SHG and outside the community, both rurally, in the local region, and at a distance, with the nearest city.

The peasants were motivated to develop the SHG ME for various reasons, fundamental to which was the peasants' lack of market power; crucially, they were not able to give input into market decisions (share/price) due to lack of participation opportunities in mung bean food processing. Thus, a SHG based ME is a way of enhancing peasant participation in food production and management. Since the (in this case, mung bean) crops are only traded through village-level traders and then processed through the market regime (dhal millers, primary wholesalers), food processing and marketing has to start at the peasant level. Consequently, the SHG is organized as a system of local (mung-bean food) production, local processing and local distribution to strengthen (mung-bean) territorial connectivity.

Around the SHG, a horizontally connected network evolved. I have described the initiation and development of this SHG, with its various activities and ways of connecting local mung-bean food for enhancing autonomy. I described the creation of identity strategies through the naming of group and labelling of packaged mung-bean foods. Then, I outlined how, by connecting the peasants, researchers, research university and machine manufactures, the SHG create/enhance resources and develop a community information system. They process and package mung-bean food products that create local food-processing and packaging capacities. They pool resources (time, crops, vehicle, labour) and practices (seed supply, procurement, cleaning, drying, processing, packaging) that facilitate co-operation in the village. In so doing, they create social capital (Putnam 1993) and thus the resource base for the strengthening of the food network and reinforcement of autonomy in the rural community.

By initiating mung-bean food processing and integrating consumer preferences into mung-bean food products, the SHG develops peasants' capacities for the processing of mung-bean foods that are consumed locally and for intervening in a number of institutional and private market contexts. The opportunities offered by the SHG activities can thus be considered important insofar as they have provided a new form of connectivity between

local mung-bean production and local consumption, by the direct selling of locally produced and processed mung bean food products to schools, *Aanganwadi* centres and community members and to nearby villages (rural consumers) and the city (urban consumers).

The collective incentives to process and market mung-bean food products are rather strong. Indeed, an initiative like this relies on the motivation of the peasants, their cooperative labour, including management, and their various other capacities and strategies to strengthen the food network. Still, even with strong initiative of the peasants, the SHG faces significant challenges. On the technology side, the machine issues reduce processing quantities, resulting in some decline in group interest. The dissatisfaction towards available (current) food-processing technology might also affect the group functioning.

On the supporting (political) side, the SHG power-supply problem (the high price of electricity needed for the processing and packaging machines) has created conflicts in the group. Providing electricity subsidies may help in this respect, but might not be the most appropriate course to take. Other options might be considered to reduce power-supply costs, such as the development of a processing machine that prioritizes the use of less electricity or different (local, renewable) sources of electricity. It is time, perhaps, that such (self-help) sensitivity entered into the arena of enhancing territoriality in this, technological, context, since it has, until now, remained too closely associated with the ideology of poverty eradication and too closely tied up with concerns of employment generation in the rural economy, concerns that do not necessarily lead to food autonomy.

The SHG incorporated motivation, resources and actions to strengthen the process of territorialization and relate this to the process of deepening food autonomy. There is an urgent need for policymakers and technocrats to be more attentive to this self-help (democratic) initiative. The peasants are not passive receptacles of society's directives, and not merely active creators of food networks, but also enablers to enhance the constructive role of technologies and technology construction for food network development. This implies that the opportunities for public participation in technology design should be actively encouraged so as to extend autonomy (interaction

between human and technology). The interactions (experiences) of peasants with the pre-existing machinery may provide the opportunity to determine the practical functionality of technology.

Concluding, we can say that development of this SHG-based ME functions as a *self-help strategy of autonomous development*, as it facilitates connectivity in and of the mung-bean food network inside the community and outside world in the interests of and as directed by its members. In the establishment and continual remaking of these connections, actions are initiated and organized for the local mung-bean food network that is oriented towards autonomy. These SHG actions are strategic, collective and innovative in a way that is basic to a sovereign food system. It involves and introduces food autonomy through the self-help, the development of capacities in food production and food management, the identity creation organized around local food, engagement in non-farming activities and the linkages with markets (local and regional) that enhance connections between food production and consumption. Autonomy is generated in the process of territorialization and strengthening of territorial connections in which self-help (peasants and their SHGs) is crucial.

This chapter thus suggests following concrete suggestions for developing local food networks:

- 1) Strengthen the role of SHGs to mobilise rural people and their participation in food based enterprise development at rural level;
- 2) Strengthen the abilities of SHGs to enhance connectivity between local production and consumption and to create connections between producers and consumers;
- 3) Enhance participation of SHGs in the development of technologies to ensure effective input and feedback communication between technology developers and end-users (peasants, the local community);
- 4) Strengthen the initiatives of SHGs in autonomous development, their abilities to create recognition, their capacities to produce, process, package and market local foods and thus the ability to create a freer environment for rural communities;
- 5) Strengthen the participation of SHGs in the development of community-based information systems for agriculture development.

CHAPTER 6

Discussion and Conclusions

6.1 Introduction

This research has set out to understand how peasants and their collective actions create connectivity between different resources in local food networks and facilitate autonomous developments. Access to regulate and protect domestic agricultural production, such as food crop and seed, manage the use of social and natural resources offered at local level and determine the extent to be self-reliant, on the part of small farmers in agriculture-based countries, are issues of great concern to social movements agitating for the governance of world's agriculture and food production.

Social movements grouped in *Via Campesina* defined food sovereignty in 1996 in terms of the right of peoples to define their own food and agriculture; to protect and regulate domestic agricultural production; to determine the extent to which they want to be self-reliant and to provide local communities priority in managing the use of food resources (Desmarais 2002, Windfuhr 2005, Pimbert 2008, McAfee 2008, Roling 2008, Rosset, 2008, Rosset 2011). This demands a reflection on local food networks, organized by peasants and local communities, which connect and re-connect the food production and consumption and offer the opportunities to create/enhance alternative trajectories of development (Magdoff et al., 2000, McMichael 2004, Pimbert 2008).

A food sovereignty-related issue that has encouraged this study is that of disconnections or de-linking of agriculture (society) from nature as a result

of industrialization of agriculture and food, which destructs the socio-cultural and ecological values of peasant farming systems, and limit their access to manage/use their food production and local markets (Shiva 2004, Ruivenkamp 2005, Long 2007). It is with this in mind, therefore, that the research on a location-specific food network has here investigated the socio-spatial (territorial) organization of mung-bean production, processing and consumption, local preferences of food quality and collective actions of peasants in relation to autonomous developments. The two core elements of this research – territorial connectivity and self-help – have been studied from the perspective of food autonomy. This implies that the study – based on the empirical findings of the socio-spatial organization of food, local preferences of food quality and self-help initiatives – is concerned with the facilitation of autonomy in a food network.

This study has been carried out in an international, multidisciplinary research programme entitled ‘Tailoring food sciences to Endogenous patterns of Local food supply for Future Nutrition’ (TELFUN). The programme was implemented in Ecuador and Ghana/Benin, in addition to India, with each team composed of a plant breeder, food technologist, nutritionist and social scientist. The central theme of TELFUN was that of enhancing food sovereignty through strengthening local food networks organised around specific food crops: lupin, cowpea and mung-bean, in Ecuador, Ghana/Benin and India respectively.

The whole TELFUN India team has focused its research on enhancing food sovereignty by improving existing mung-bean varieties and developing mung-bean based products for better nutrition together with local producers, processors and consumers. The mung-bean was chosen as the reference crop for the Indian research team because considerable concern is being shown for the genetic erosion of mung-bean in India (Ali et al., 2004; Grover et al., 2004), while rather little attention is being paid to how peasants create relations between social and natural resources and initiate change for autonomy. Particularly within the Vavilov centre of mung-bean, within which the research is sited, it may be very important to learn how peasants can organize self-help groups (SHGs) to stimulate food autonomy around this crop.

This TELFUN study has investigated ways in which the territorial connectivity of mung-bean production and consumption can be enhanced through the tailoring of plant breeding techniques, food conservation and fermentation methods and through an improvement of nutritional characteristics of the mung-bean. The multidisciplinary setting of TELFUN team and the focus on the mung-bean network thus served as the investigative context within which I, as a social scientist, was able to consider whether and how territoriality and SHGs facilitate autonomy in a food network. The core question of this research is :

What role do mung-bean quality traits preferences and self-help group play in creating territorial connectivity of the mung-bean food network and does that connectivity contributes to food autonomy in the Hisar district of Haryana State in India?

This core research question is subdivided into the following four sub-questions which are:

1. How are mung-bean production, processing and consumption practices socially (socio-spatially) *organized* in creating territorial connectivity between local food production and consumption for stimulating food autonomous development?
2. How do rural producer, processor and consumer perceptions of mung-bean quality interact with their aim to maintain and develop a territorial mung-bean connectivity so as to reinforce food autonomy, and how does the market (wholesale and retail) affect this connectivity and food autonomy?
3. What are the SHG possibilities for the development of MEs as a part of the food network, how can such initiatives be introduced and what does and might this mean for food autonomy?
4. How are the SHG strategies organized, in what ways do they create forms of connectivity in the mung-bean food network, and how does this contribute to enhanced food autonomy?

The theoretical frame of reference for answering the research questions is situated within the intersection of the following conceptual frameworks:

food-network studies (e.g. Powell 1994, Ploeg & Dijk 1995, Henry et al. 2004, Potter, Binns, Elliot et al. 2004, Wiskerke 2004, Manzini 2005, Ruivenkamp 2005); *territorial studies* (e.g. Henri 1974, Sack 1986, van der Ploeg 1992, Massey 1995, 2005, Magnaghi 2005); *developmental studies* (e.g. Scott 1985, Friedmann 1992, Mitlin & Bebbington 2006, Gledhill 2007); *self-help studies* (e.g. Narayanasamy et al. 2003, Elders 2003, Sabhlok 2006, Fernando 2006, van der Ploeg 2008); and *autonomy studies* (e.g. Lang 1998, Deci & Ryan 2000, Hardt & Negri 2000, Roep & Wiskerke 2004). Within these frameworks, the mung-bean food network has been explored for understanding how peasants and their collective actions create connectivity between different resources in local food networks and facilitate autonomous developments. The study focused on two interrelated analytical domains:

3. A *territorial domain*, which focused on i) connectivity in the socio-spatial organization of mung-bean production, processing and consumption, and ii) the access to their quality-trait preferences for this on the part of producers, processors and consumers.
4. A *collective action domain*, focussed on accessing multiple collective action strategies by self-help groups (SHGs), with i) SHGs in food-based micro-enterprise (ME) development, ii) the organization of new connectivities among natural and local social resources, and iii) the exploration of collective action to enable their management of food production (processing, packaging) for local markets and enhancement of their capabilities in reconnecting local production and consumption.

The empirical research on the *social organization* of mung-bean production, processing, consumption was carried out in villages of Mangali and Dhiktana located in the Hisar district of Haryana state, north India. The study of the *mung-bean preferences* as preferred by producers, processors and consumers was carried out in same study area – in the TELFUN India team purposively designed with the broad objective of exchanging ideas and fine-tuning research priorities among the various disciplines. The empirical research on the *market* (wholesale and retail) was also carried out in Hisar to

understand how they affect this connectivity and food autonomy. The research concerns the SHG possibilities for development of MEs as a part of the food network and the ways in which SHG strategies organized in the mung-bean food network contribute to enhanced food autonomy.

To analyse the options for autonomous food developments organized by peasants and rural communities, a critical-constructivist methodology was applied, which involved an investigation of the location-specific connectivities of mung-bean production, processing and consumption, and of the local preferences for specific mung-bean qualities and products and the possibilities for SHGs to realize autonomous developments within and for the mung-bean food network. The critical-constructivist research approach deals with the relevance of concrete practices and processes of change that are realized by local people and reflects on these changes. It also evaluates SHG activities in order to indicate additional opportunities for food autonomy. It implies that the research not only describes the actual connections in the mung-bean food network, but also aims to consider whether the local initiatives indicate opportunities for additional connections in the mung-bean food network. This Conclusion first addresses the first four research questions (6.2), and the all-over key research problem (6.3), followed by possibilities of food qualities and SHGs in the strengthening of territorial connections (6.4), followed by a conclusion that reflects on the practice of a multidisciplinary research project and ends with the formulation of some suggestions for improving the multidisciplinary research approach (6.5).

6.2 Addressing the research questions

In this section, I present the empirical research results in view of the critical-constructivist approach and from a food autonomy perspective. Four issues are discussed critically, as determined by the first four sub-questions: the social organisation of mung-bean production, processing and consumption, local people' (producers, consumers and processors) mung-bean preferences, SHGs in food-based micro-enterprise (ME) development and collective actions of SHG in the strengthening of the mung-bean food

network against the background of the idea of *enhancing its autonomy* in the network.

6.2.1 *Social organisation of mung-bean production, processing and consumption*

The study engaged in the development of insights into the social-spatial organization of mung-bean production, processing and consumption in creating territorial connectivity between local food production and consumption for stimulating food autonomy (Chapter 2). The study indicates opportunities for stimulating food autonomy with two possibilities in the local communities of the Hisar District, related to the *local mung-bean (food) production system* (for *agricultural development*) and to the *mung-bean based food products* (as *processed and consumed locally for the enhancement of community health*).

The empirical research showed that mung-bean production is based on a range of purposes of the cultivation that support sustainable farming and community life. The socio-spatial organization of mung-bean production, household processing and consumption practices connects agriculture to its local environment, the regionally tied agriculture produce to local consumption patterns and food production, and consumption to *livelihood* and *health*, or *well-being*, enabled by the abilities and practices of peasants, and stimulate food autonomy. This is realized through the following activities that suggest associated potentials for support and autonomy oriented extension activities.

First, peasants take initiatives to *connect mung-bean to the local environment* through a variety of strategic actions, such as growing crops that are reliable and require less inputs. Hence, their preference for mung-bean that withstand the high temperature characteristics of the local environmental conditions, that contain fertilizer characteristics (mung-bean's high nitrogen fixation rate) that tackle poor soil fertility and environmental degradation problems, and require fewer inputs from the perspective of household income as well as from the perspective of *food crop* characteristics for household food consumption needs. The empirical research showed that peasants have *ability to make decisions* about food

production through selecting the range and nature of activities in mung-bean production, such as changing inter-crop and mix-crop patterns and planting times in which the local production of mung-bean is not only linked with the local environment but also with strategies of local livelihood. These mung-bean qualities, that contribute to the decision to cultivate, represent local preferences that need to be considered in agriculture development efforts in order to improve peasant access to and use of productive resources.

Second, mung-bean crops are important for household income. In addition to supplying nutritional needs, peasants also use this crop to gain money. Obviously, there may be tensions in the ways that this can be developed by further entry into the market in respect of the traditional practices associated with autonomy, but it also affords them autonomy insofar as the profit gained facilitates their access to goods and services generally. This is an area that can be usefully supported by agencies not desiring to gain materially, thus limiting risk for the peasant communities.

Third, peasants informally conserve the natural resources, considering the idea of saving seeds for planting each year, and also exchange with local seed sources (friends, relatives) to maintain variety diversity at community level. Exchanging seeds with local seed sources enables peasants to carry out seed selection in their communities (easy to access implication) and keep out a dependency on the market and money-lenders. In a localized seed system, they also become able to conserve the production of community *living assets* (seeds) that are related to the mung-bean farming system to continue to develop and adapt to the local environment. One of the areas that might be threatened by further entry into the market is this activity and it is suggested that this needs to be encouraged to ensure conservation of agro biodiversity and strengthen the food network '*from within*' (improve peasants' access to use and manage their own local natural and cultural resources).

Fourth, the empirical research showed that household processing practices also connects local production to consumption purposes through small-scale processing. The practice of *cleaning* of mung-bean associated with their motivation in maintaining/conserving own food (as it *removes straws, twigs, stones, dusts, immature grains and weed seeds*). *Sun drying* is performed by

them as a preventive measure to protect mung-bean from insect infestation and maintain optimal moisture in grains during storage. The research results showed that they are also using ash, sand and neem leaves in protecting mung-bean grains (food) from insect infestation during storage. For the processing of mung-bean into split mung-bean, traditional (at household level) milling is organised with the use of hand-operated *chakkies* or a disc-sheller. Smallholders process the foods they produce in order to consume them, a labour input associated with the domestic sphere and women's work in particular. This is another area in which present activities can be further facilitated, for example by appropriate technical development.

Finally – mung-bean consumption, which is, after all, the original and continuing purpose for its cultivation – is perceived as having *health value*. This perception is supported by evidence of role that mung-bean plays in, for example, national dietary needs (especially as a vegetable protein source) and includes, for example, ease of digestion, as well as nutrition itself. Peasants consume mung-bean for its health related benefits, and this offers possibilities for development, including outside interventions. Peasants prefer *easy to digest* characteristics for general health, *easy to cook* characteristics from the perspective of household income (less input (fuel) requirements) and *good taste* characteristics for household consumption practices as well as *health value* characteristics for specific food consumption needs of family members such as *pregnancy, lactation period, illness and old age*. In this way the peasants' communities are not only the custodians of cultural cultivation but also of processing and consumption practices in which skills are passed on to generations in doing so, they become able to preserve their inherited knowledge and abilities for mung-bean food network development.

The study also noted the use (consumption) of mung-bean (*mung-bean dhal and khichadi*) as *children's foods* in mid-day meal scheme of schools (classes I-VIII) and *Aanganwadi* centres (courtyard shelter for children below six years), mung-bean (*pakore, bhalle and namkeen*) as *street foods* and mung (*wadis and papad*) as *rural community foods*. These foods processed and consumed by rural communities and resulting from the interaction between human/social, economic and environment- are developing connection between local food production and consumption, and around which the food

based micro-enterprise develops by local people themselves (Chapter 4, below 6.2.4).

From this research study of the social-spatial organisation of mung-bean production, processing and consumption the relevance of mung-bean qualities as helping to create and enhance territorial connectivity is apparent (which is the starting point for Chapter 3, below 6.2.2). Concerning the role of mung-bean qualities as perceived by producers, consumers and processors to create territorial connectivity and enhance food autonomy, a more detailed study has been carried out and reported in Chapter 3 (below, 6.2.2). Several other potentialities for enhancing food autonomy have also been indicated in the course of the research; the study has indicated that the food autonomy in the community is enhanced through production of mung-bean in the local farming system, saving and exchanging local seed sources and practices, developing local mung-bean production-consumption patterns and disseminating a wide utilization of mung-bean-based food products in the community for which community members actively strive and which may present opportunities for further development. These activities are strengthened by

1. The abilities of peasants to discern crop quality traits able to withstand harsh environmental conditions, provide soil fertility and conserve biodiversity (see Fabricius *et al.* 2007);
2. The practice of peasants to be the custodians of genetic resources and indigenous farming knowledge;
3. The practice of peasants in maintaining culinary practices and the culture-traditions of the locality.

6.2.2 *Producers', processors' and consumers' mung-bean food quality preferences*

From the food autonomy perspective of defining the local food (mung-bean) qualities from a perspective of production, processing and consumption for strengthening/development of local food networks, the aim of this part of the research is to understand whether and in which concrete ways the producers, processors and consumers aim to realise territorial connectivity

for food autonomy. This study thus extends the mung-bean food network study reported in Chapter 2.

Focusing on the production activities (of mung-bean) at producers communities, the study also encompasses rural consumption (of mung-bean), and food processing (at small-scale, level) in Mangali and Dhiktana; the functioning of wholesale and retail markets in Hisar has also been investigated to understand how these preferences are affected, and whether the observed preferences and functioning of the mung-bean markets create a social space that may facilitate the efforts of the mung-bean food network to strive for mung-bean food autonomy such as food-based ME development SHGs. (Chapter 4, below 6.2.3).

Producers' specific mix of quality preferences focussed on household food needs, household income, agro-ecological (natural) environment (for example, soil fertility), local production (crop rotation, intercropping system) and consumption patterns of the community, so it reinforces food autonomy. The empirical research showed that the producers prefer *medium-height* plants of *long pod-size* varieties, which are not only suitable for household consumption and income but also allow them to make use of available resource (dry land) in relation to environmental conditions (dry and hot conditions), with low cost implications (no input for irrigation). Medium-size, dark-green mung-beans are mostly preferred because they are seen as easy to germinate.

The empirical research findings showed that, overall, the most preferred traits for breeding considerations among producers are *non-vigorous plant growth, tolerance to disease, yield and maturity duration*. These are preferred in combination, which is to say that the preference for any one trait is not exclusive and that combinations are more or less acceptable (for example, early maturation with long pod-size, for better yield, and disease-resistant). The research findings also made it clear that the producers' preferences for specific mung-bean varieties are based on their interpretation of *mung-bean production qualities*, which are *connected with the social, economic and natural environment* for food autonomy rather than on the specific grades (certificates or standards) of a variety. These mung-bean preferences need to be considered to and integrated into the variety of

farming systems with their different cultivation purposes. For farming in dry and high temperatures, for example, the medium-height plant-variety trait becomes crucial.

Referring to the mung-bean production qualities, the study also shows that the producers' are concerned about low price (received by producers from traders at village level), since mung-bean is processed, packaged, distributed and traded through the traders, wholesalers, millers and retailers (Figure 3.1); indeed the consolidation of mung-bean food production (processing, packaging) and marketing in the hands of market-players generated maximum profit margins for them and marginalized producers. About a 50% price difference from producer and consumer was found for all mung-bean forms – whole, split and split, dehulled. The higher prices paid by the consumers are not reaching the producers. It is the traders/intermediates who receive this. Thus, the producers seek to do the processing of their marketable surplus mung-bean themselves (at the *village-level*), which is associated with their motivation not only to meet economic needs but also by a desire to connect with the market and thus for their work (mung-bean production) to be 'recognized'. This means that autonomy is also related to recognition of producers' participation in mung-bean food production and their capacities to process mung-bean and get access to the local market.

The research showed that the general impression among producers is that locally produced mung-bean can indeed be processed at village level through appropriate collective actions, such as through SHGs and/or MEs; in so acting, the producers can obtain better prices and become able to act relatively freely in strengthening connectivity between local production and consumption. This shows that the producer mung-bean preferences indicate a self-directed way forward for development that aims toward autonomy in order to deal with the dependency and marginalization that has arisen in the market. It implies also that mung-bean production is not a cultural fossil of traditional production and consumption systems, but may emerge as a *lever for enhancing food autonomy*. The producer (rural consumer/processor) and market study combined, therefore, suggest the potential of SHG/ME development; what then becomes necessary is an investigation into the interrelations between ME and SHGs for autonomous development, which is tackled in Chapter 4.

The empirical results show that consumers' preferences for mung-bean are based on their experiences (knowledge and practices) in mung-bean food consumption, which are *associated with grains quality* rather than the varieties. A different interpretation of the mung-bean quality is evidenced in preferences of the consumers— who see the mung-bean qualities in terms of beans/grains for food preparation – as compared to the interpretations at production level. There were grain-quality criteria on colour, size, cleanliness and storability (free from insect' infestation) characteristics studied.

Referring to the consumers' preference, the study shows that shiny, green, medium-size mung-beans are mostly preferred by consumers. The farmers prefer medium-size mung-bean for early germination and green for local dishes (taste and appearance), and consumers also prefer these traits of mung-bean grains for their local consumption practices. This shows that the consumer preferences are *related to the producer preferences*. In other words, local food qualities describe the connectivity between local consumption practices/needs (taste, appearance and convenience/easy to cook) and local (mung-bean) production.

Next, consumers prefer mung-bean qualities – grain size, grain colour, cleanliness and storability – that are also related to their *food choices*. About all the respondents stated a preference for medium-size, green beans for consumption. Medium-size beans are brittle and easier (quicker) to cook, which seemed to account for the preference more than aesthetic qualities. This allows them to make use of available resources (local mung-bean production) in relation to consumption needs (easy to cook) and has low cost implications (less fuel requirements, so saving resources). The clean mung-bean grains not only save resources (energy and time) but also provide taste to dishes. The consumption/demand (consumer) for the split and split, de-hulled mung-bean varieties (forms) is high, which is partly supported by the *high storability* in comparison to whole mung-bean (which is more susceptible to *insect infestation*). This shows that the issue of storability is also linked to mung-bean processing and implies that the processing advantage makes food (mung-bean) suitable to consumers (including the producers) and creates a market for local food-processors and enhances food autonomy. It means that the processing (splitting and hulling)

also has importance in maintaining local consumption and conservation of local food.

Empirical results show that consumer preference for mung-bean is also associated with its perceived *health value* as a trait for mung-bean. A specific preference for mung-bean is evidenced by the (rural) consumers - who see mung-bean in term of *healthy food* (maintaining health and suitable during illness, pregnancy and lactation). This implies that mung-bean consumption preferences also relate to overall family food (health) needs (Table 3.4), and are important in food autonomy at the household and/or community level. The study findings found consumer preferences for mung-bean traits, such as grain size, grain colour, storability and perceived *health value*. This shows that the mung-bean offers *choice to prepare* local dishes (being suitable to local food preparation), *easy-to-prepare* (short cooking time) and *maintain health* that offer consumers *access to choose appropriateness (suitability) of their food* and connects local food production to the consumption patterns of the community.

The mung-bean consumption (consumer preference) findings showed that *price* of mung-beans as a trait for (food) consumption is important. Consumers are seeking to satisfy their food consumption needs through the use of affordable food products. This implies that mung-bean qualities are not only related to functional issues (taste, appearance, easy to cook and health) but also to the economic affordability of food. In other words, qualities that cannot just be described as and restrict to grades. This suggests that the local processing and local distribution of mung-bean (community level) which could offer better access to local food are important for the strengthening not only of local food production but also of local consumption patterns.

The important criteria for the processor quality preferences were found to be *good water soaking capacity* (essentially, mung-bean is soaked before processing), *short cooking time*, *good consistency* (of the mung-bean flour and water mix) and *surface shininess* (for bean products). The research results showed that medium-size grains were considered to be important by processors for *sprouts*, *dhal*, *ladoo* (for better water-soaking capacity) and mung-bean *dhal* (whole, split and split, de-hulled) (offer good consistency);

using beans for mung *halwa* and mung *burfi* (a pudding and sweet, respectively, made of split, de-hulled mung-bean paste), they preferred shiny mung-bean grains. It was found that *shiny, green, medium-size and brittle texture beans* were generally preferred for *financial implications* (for processors and consumers), as well as for the *consistency, colour and appearance of prepared (cooked) mung-bean products*. The processor preference regarding mung-bean qualities was found to be linked not only to the processing characteristics of food products (consistency, appearance, colour), but also to the kind of food products (recipes), amount of food preparation and diversity (hence choice) in food consumption, as well as to the communities' consumption practices, thus enabling autonomy (*to control/maintain the appropriateness of mung-bean foods*).

The broader findings from the study results are that mung-bean qualities play a significant role in maintaining traditional culture (production, consumption and processing) and stimulating food autonomy. It becomes evident that there is a *territorial (connectivity) interpretation of what constitutes mung-bean quality* among producers, processors and consumers and indicate a potential for the development of new social relations. By way of example, connectivity is created (suitable for local cropping system and soil fertility) through the producers, preference for short-duration mung-bean varieties, while other preferences may also be compatible (like the green, medium-size preference for mung-beans noted among rural consumers and processors).

This study has illustrated that food quality does not necessarily require production of standards or food grades; it does describe important issues that can be tackled in breeding programmes (Almekinders, et al. 2007) and also aim to create new social relations in food networks for autonomous development. Local preferences about food qualities can be a meaningful element in a non-industrial approach to food network development, provided that not only agro-ecological functioning, but also the social relations of food production, processing and consumption is given a crucial role. Locally, for example, facilitating/improving mung-bean food processing techniques can increase the participation of peasant and communities in their mung-bean food qualities development and allow them to sell their preferred mung-bean directly to consumers, which can enhance

the food sovereignty of rural communities. Exploiting the advantage of local organizations (SHGs) for local food network development (ME development) can strengthen links between local mung-bean production and local consumption.

The research findings support the idea (from the rural sociology and development perspective) that the food quality (preferences of producers, and consumers/processors) may play a constructive role in strengthening of connections between local production and consumption in local communities, which will contribute to the realisation of food autonomy. The forms of connectivity in food production, processing, and consumption – which may be viewed as implicit in the food autonomy – require that local people (producers, processors and consumers) must be able to manage their products, display their skills, their needs and wishes and their willingness to act towards reinforcing autonomy. There needs to be a self-directed way forward for development that gives them the real possibility of making contacts, of presenting their skills, of building relationships that aims toward autonomy in order to deal with the dependency and marginalization that has arisen in the market. Villagers can bring their specific preferences to strengthen local production activities, make stronger connection between local production and consumption and reinforce communities' food consumption systems. From the study of the mung-bean quality preferences among producers, consumers and processors, some of the constraints and possibilities of SHG in ME development are discussed (Chapter 4, below 6.2.3).

6.2.3 Self-help groups in ME development

The research carried out here looked at the SHG possibilities for development, especially of MEs (and as a part of a food network for food autonomy). Chapter 4 showed that SHGs are organized not exclusively to combat poverty and unemployment in rural communities but also reflect an approach to create autonomous development for rural people. Rural communities that are well organized have better chances to develop such MEs, for example by means of self-organization and the generation of

community based income generating activities (Gurumoorthy 2000; Barbara & Mahanta 2001). The self-help movement represents an alternative development strategy, one that involves a process of social economic empowerment and whose long-term objective is to constitute autonomy in society. Centred on people and their environments, it is based on a humanist model of development – focused on men and women, and not just on the growth of materials, which are merely means (Friedmann 1992; Elders 2003). Moreover by focusing on *full participation, homogeneity among members, group goal, and transparency in group operations and functioning*, SHGs develop this strategy as a social and material resource for autonomous development rather than merely as an alternative approach for development. The *clearly defined goals, well-defined steps and delegation of tasks* also facilitate the development of SHG MEs, while a willingness to participate, desire for coorporation and consideration of members' expectation about the group are equally important for group action.

With respect to the research question, this study has found that SHGs have emerged as a popular structure for the facilitation of ME development by government, NGOs and educational institutes in rural areas in India. These initiatives are not simply the expressions of neo-liberal politics that favours entrepreneurship and markets as a key for development, but are also the expressions of rural people's needs and interests in their own participation and empowerment (Narayanasamy et al. 2003). The study found a very high incidence of SHGs in the rural areas. Rural people in the study area have demonstrated the strong ties that they have to the SHGs, and their general willingness to facilitate SHG and coordinated management of (food) systems and the physical environment, and at different spatial scales.

In adding SHG to autonomy, the study found that the SHGs are based on trans-active planning, meaning they are oriented towards mutual learning among local actors and based on informal participation, which is also crucial for the survival and sustainability of the groups. As such, the SHG phenomenon can be an important means for autonomous development, offering an approach that puts people first, based on their collective actions. It is important to emphasize that a SHG strategy has people not as objects of development, but, on the contrary, as *co-agents and subjects of development*, whereby the people have access to and control over resources

(Fernandez 1994). The rural poor turn to the informal sector for their (credit) needs, principally to traders, moneylenders and landlords, which results in exploitation, leading in turn to the development of SHG MEs aimed at gaining the financial (saving and credit) services in a cost-effective and sustainable manner to facilitate the access to resources for the rural poor and attenuate risks.

The study discussed how SHG-based ME develops a learning system that is not the simple acquiring of skills in order to achieve objectives, but a process of fulfilling the needs for self-improvement and include experiences that focus on problem-oriented issues. In general, individuals, groups, organizations and communities enhance their abilities to identify and meet development challenges in a sustainable manner through exchange and sharing of knowledge and skills. This attests to the need to realize the exchange and sharing knowledge and skills (learning together) in group setting as constituting autonomy among rural people.

The mobilization and participation of local people in SHG MEs also constitutes autonomy aspects. It helps to develop self-confidence among rural people who would otherwise often feel as passive recipients, it provides space to participate in groups that facilitates autonomous development. It is flexible and open to the input of local people, beginning with community diagnosis, in which community members have the opportunity to identify their problems and come up with their own ideas for how to address them. The SHG acquires a territorial (connections) character that encourages the access to resources, use of resources, and recognition organized around food to enhance food autonomy.

In SHG, the rural people enhance access to resources (such as finance, trainings, technology) and/or use of resources (such as food, skills and knowledge) which are relevant and efficient for their social, economic and cultural needs. This creates capacities and abilities in rural people and contributes in reducing dependency and marginalization of rural communities. SHGs illustrate the abilities of rural people to use resources, from their own development perspective. They also provide decision-making opportunities, with negotiation, planning and management. Some examples of SHG-based ME in India, such as *Lijjat*, *Okhai*, *Lohardaga* and

Meerut Sewa Samaj, are also discussed from an autonomy perspective, with rural people involved in '*papad*' (round savoury snack) making, traditional handicraft skills, production of milk and dairy products and beaded jewellery.

This shows that people deliberate, decide and then act purposively which enhance their control over the definition of their (food) production (of added value) according to their own social, economic and cultural logics. SHGs are thus the expressions of rural people's needs and interests in their own participation and empowerment. They establish relationships between people and they participate in action that provides priority to those others as a group, and, in so doing, experience a relative freedom. In short, SHG ME is a self-help strategy of autonomous development for rural communities.

Having established the role of SHGs in ME development, the focus of the thesis then moves to an exploration of the *key collective activities* of the peasants' SHG in Mangali village, indicating the ways in which the peasants are connecting with the surrounding world and establishing a mung-bean ME. Also, it investigates *innovations* within the mung-bean food network that are built upon the preferences and expectations of peasants and their communities. The focus is thus on collective actions and innovations organized by peasants' group within mung-bean food production, processing, packaging, labelling and marketing and whether it enhances/contributes indeed as a catalyst for food autonomous development (Chapter 5, below 6.2.4).

Summarizing, the following recommendations for the consideration of SHGs in ME development processes are suggested:

1. Consider the SHG as a self-help strategy of autonomous development, not only its abilities to fulfil the need of finance, training and skills but to enhance access to resources, market/decisions and abilities to create recognition in rural communities;
2. Consider the intricacies involved in SHG-formation, thorough an understanding of local conditions and possibilities to intervene before replicate it as a success model;

3. Investigate opportunities for SHG MEs organized by rural people themselves to enhance connectivities of food networks.

6.2.4 SHG ME enhancing food connectivity for food autonomy

The organization of SHG ME development is not only limited to income generation and employment but it also moves rural communities from being passive recipients of information, services, and regulations to a situation in which they are able to share resources, knowledge, skills and take responsibility for their autonomous development. It requires analysis of collective efforts/activities in local food production that take them away from subsistence farming and toward the dual-circuit system of both peasant and market (re)production (Van Ploeg 2013) by strengthening the former. A necessary part of the framework for this may be set through the type of suggestions offered here (above).

The study reported here (Chapter 5) focused on a SHG as community-based social structure concerned with mung-bean food production, processing and marketing organized through *collective action* to strengthen the *territorial connectivity* of the mung-bean food network from the perspective of food autonomy. In light of the role of SHGs in ME development reported in Chapter 4, this study moves to an exploration of collective actions and innovations organized by the peasants' SHG in Mangali village in enhancing the connectivity of the mung-bean food network and whether and how it contributes to food autonomy.

The empirical research findings showed that the peasants were motivated to develop the SHG ME for various reasons, fundamental to which was the peasants' lack of market power; crucially, they were not able to give input into market decisions (share/price) due to lack of participation opportunities in mung-bean food processing. Thus, a SHG ME is a way of enhancing peasant participation in food production and management. Since the mung-bean crops are only traded through village-level traders and then processed through the market regime (dhal millers, wholesalers), food processing and marketing has to start at the peasant level. Consequently, the SHG is organized as a system of local (mung-bean food) production, local

processing and local distribution to strengthen (mung-bean) territorial connectivity.

The research findings made it clear that around the SHG, a horizontally connected network has evolved through various activities that connect local mung-bean food and enhance autonomy. The *group initiation* involved the mobilization and participation of the peasants in group meetings, discussions on roles and responsibilities (group norms), and decision on group leadership by themselves. The *access to resources and skill development* involved the procurement/use of mung-bean processing and packaging machines to develop capacity in the processing and packaging of locally produced mung-bean at community level. The members of the group received training in mung-bean food production from the manufacturer with the help of university at the community level.

This shows that with the collective action organized at village level, peasants have access to information (machines usage and features) and attain a certain capacity (machine operation) to manage social-technical resources. Thus, for setting up a real sustainable development, the self-management of some social-technical resources is crucial to gain control over certain technological and economic developments. The group processes and packages mung-bean food products that create *local food processing and packaging capacities*. They pool resources (time, crops, vehicle, labour) and practices (seed supply, procurement, cleaning, drying, processing, packaging) that facilitate co-operation in the village. In doing so, they create social capital (Putnam 1993) and thus the resource base for the strengthening of the food network and reinforcement of autonomy in the rural community.

The study also described the creation of identity strategies through the naming of group and labelling of packaged mung-bean foods. The peasants named their group *Baba Ramnath Self-help group-Mangali*, aiming to create a brand identity for its mung-bean foods. By initiating mung-bean food processing and integrating consumer preferences in mung-bean food products, the SHG develops peasants' capacities for the processing of mung-bean foods that are consumed locally and for intervening in a number of institutional and private market contexts. The opportunities offered by the

SHG activities can thus be considered important insofar as they have provided a new form of connectivity between local mung-bean production and local consumption, by the direct selling of locally produced and processed mung-bean food products to schools, *Aanganwadi* centres and community members and to nearby villages (rural consumers) and the city (urban consumers). The collective incentives to process and market mung-bean food products are rather strong. Indeed, an initiative like this relies on the motivation of the peasants, their cooperative labour, including management, and their various other capacities and strategies to strengthen the food network.

The research has also shown that even with the strong initiative of the peasants, the SHG faces significant challenges. On the technology side, the machine issues reduce processing quantities, resulting in some decline in group interest. The dissatisfaction towards available (current) food-processing technology might also affect the group's functioning. On the supporting (political) side, the SHG power*supply problem (the high price of electricity needed for the processing and packaging machines) has created conflicts in the group. To reduce power*supply costs some options are suggested, such as the development of a processing*machine that prioritizes the use of less electricity or different (local, renewable) sources of electricity. The peasants are not passive receptacles of society's directives, and not merely active creators of food networks, but also enablers to enhance the constructive role of technologies and technology construction for food network development. This implies that the opportunities for public participation in technology design should be actively encouraged so as to extend autonomy (interaction between human and technology). The interactions (experiences) of peasants with the pre-existing machinery may provide the opportunity to determine the practical functionality of technology.

The study revealed that the SHG incorporated motivation, resources and actions to strengthen the process of territorialization and relate this to the process of deepening food autonomy. It facilitates connectivity in and of the mung-bean food network inside the community and outside world in the interests of and as directed by its members. In the establishment and continual remaking of these connections, actions are initiated and organized

for the local mung-bean food network that is oriented towards autonomy. These SHG actions are strategic, collective and innovative in a way that is basic to a sovereign food system. They involve and introduce food autonomy through self-help, the development of capacities in food production and food management, the identity creation organized around local food, engagement in non-farming activities and the linkages with markets (local and regional) that enhance connections between food production and consumption. Autonomy is generated in the process of territorialization and strengthening of territorial connections in which self-help (peasants and their SHGs) is crucial.

This chapter suggests following concrete suggestions for developing local food networks:

1. Strengthen the role of SHGs to mobilise rural people and their participation in food based enterprise development at rural level;
2. Strengthen the abilities of SHGs to enhance connectivity between local production and consumption and to create connections between producers and consumers;
3. Enhance participation of SHGs in development of technologies to ensure effective input and feedback communication between technology developers and end-users (peasants, the local community);

6.3 Role of quality-trait preferences and self-help initiatives in creating territorial connectivity for food autonomy

This thesis has focussed on identifying opportunities for creating/enhancing connection between different resources in local food networks by applying and elaborating two social-scientific core concepts, namely *territoriality* (Henri 1974, Sack 1986, van der Ploeg 1992, Massey 1995, 2005; Magnaghi 2005) and *self-help* (Narayanasamy 2003, Elders 2003, Sabhlok 2006, Fernando 2006, van der Ploeg 2008). These two key theoretical concepts have been used here particularly to understand connectivity in food production, processing, consumption in relation to food autonomous

developments and stimulate a reflection on the opportunities for enhancing this connectivity in the focus areas of mung-bean food quality and self-help groups. Conclusions elaborating on the role of these two concepts in this research are presented here.

6.3.1 Territorial connectivity in social organization of mung-bean production, processing and consumption and mung-bean (food) quality preference

The concept of territorial connectivity here relates to various levels of connections based on different initiatives of peasants. There are local environmental connections organized by peasants, through a variety of strategic actions, such as growing crops that are reliable and require less inputs; hence, their preference for mung-bean with its tolerance to high temperatures and irregular rains and its ability to grow and mature rapidly, suitability for intercropping and nitrogen-fixing value that improves soil fertility.

Mung-bean crops are important for household income and the research shows that household processing practices also connects local production to consumption purposes through small-scale processing. Smallholders process the foods they produce in order to consume them. Peasant motivations are associated with the mung-bean production, processing and consumption characteristics to satisfy the community's needs related to its farming system and food culture to sustained life and promote multi-layered natural-social relationships. Having established the preferences for mung-bean quality as helping to create and enhance territorial connectivity by local people (producers, processors, and consumers), this research further presents (Chapter 3) the role of mung-bean qualities as perceived by producers, consumers and processors to create territorial connectivity and enhance food autonomy, and how the functioning of the markets (wholesale and retail) affect this connectivity and food autonomy.

On the consumption side, there is the development of the mung-bean network around various mung-bean food products. Mung-bean is mostly preferred by local people because it is perceived as having *health value*. This perception is supported by evidence of role that mung-bean plays in,

for example, national dietary needs (especially as a vegetable protein source) and includes, for example, ease of digestion, as well as nutrition itself. Peasants consume mung-bean for its health related benefits, and this offers possibilities for development.

In the analysis of the mung-bean quality preference (Chapter 3), the *mung-bean food quality* emerged as the lever that, through preference for non-vigorous plant growth and medium-height plant varieties, producers' create connectivity between local mung-bean production considerations and the natural environment. Similarly, medium-size, dark-green mung-beans are mostly preferred because they are seen as easy to germinate, while from the consumer's point of view, they are easy to cook and their appearance and taste are related to local dishes. From the processor perspective, they provide good consistency to local dishes. The empirical findings show that mung-bean food qualities are directly involved in the development of the food network and are stimulating the autonomy.

Alongside the establishment of location-specific sustainable relations with the agro-ecological environment, two other type of territorial connectivity have been identified: the producers prefer short-duration varieties enabling an enhanced local inter-cropping system, thereby providing additional financial income from production surpluses (three crops in a year) and improved soil fertility. With household food consumption needs in mind they also tended to cultivate medium-height mung-bean plant varieties that resist the harsh environmental conditions and diseases, thus obviating the need for agro-chemical applications, which both had low-cost implications and allowed the mung-bean plant leaves to be used as animal fodder. These qualities all create territorial connectivity.

An important result of the research is thus that food quality preference particularly that of production-consumption, for *connectivity* needs to be considered important. Food (e.g. mung-bean) quality is often considered as a grade or standard, while the empirical findings here indicate clearly how relevant it is to consider it as a lever for creating *connectivity* not only at the *level of food production and consumption* but also to form new social relations in food network for *enhancing food autonomy*: it is not sufficient to refer to food quality alone in forming standards or grades, since it is

crucial to consider it as means for maintaining things like the local cropping system, livelihood, food consumption, culture and preserving agro-ecological environment.

Considering the mung-bean quality preferences of the rural processors, this research shows the processors (vendors and street food sellers) to interpret mung-bean quality differently from producers (in general), with the most preferred traits for preparation of mung-bean products being size, colour, shininess and brittleness of mung-bean grains, not only linked to the processing characteristics of food products (consistency, appearance, colour) but also to the kind of food products (local dishes), amount of food preparation (sprouting) and variety (offer choice) in food consumption, as well as to maintain the communities' consumption practices and enable autonomy (*abilities to maintain the appropriateness of mung-bean food*).

Having investigated mung-bean qualities among the producers, processors and consumers— where connectivity is created for reinforcing food autonomy, the research further explored whether and in which ways the market (wholesale and retail) affects this territorial connectivity of mung-bean and food autonomy. The empirical findings indicate that the market traders (wholesalers, dhal millers and retailers) are dominating the activities of processing, packaging and distribution of mung-bean and derive maximum profit margin, that not only create a gap between producers and consumers but also constraint the food autonomy of local people. It is emphasised that the peasants aimed to create new form of connectivity in mung-bean production, processing and marketing (distribution) and desire to be 'recognized' of their work (mung-bean production). It implies that (mung-bean) food qualities among peasants are meant for enhancing connectivity for reinforcing food autonomy and that is related to *recognition* of their participation in mung-bean food production and their capacities to process (*access to resource*) mung-bean and access to local market (consumers). This concurrence is explained by the idea of self-help (below).

The research reveals that it is important to recognize that the collective actions in the food network are also organized and there are opportunities for SHG ME development which is particularly organized by the peasants. This implies a need for further research focussed on the question whether a

SHG forms connectivity in food production, processing, distribution and consumption, in other words, whether and in which ways a SHG ME is organized. This was considered for the case of Mangali, but first I will indicate how the self-help concept related with food based ME development indicates the possibilities of SHGs in ME development.

6.3.2 SHGs in ME development enhancing food connectivity for food autonomy

The study of SHGs in ME development has delivered insights into the SHG possibilities for the development of MEs as a part of the food network for food autonomy. These opportunities are fundamentally related to the self-help of local rural communities. In this research, the self-help concept has been used to analyse the processes and challenges involved in establishing and implementing food-based SHG MEs, and *collective activities* of the peasants' SHG and *innovations* within the mung-bean food network in enhancing territorial connectivity of mung-bean. The self-help concept helped to develop a retrospective view on how SHG-based ME development has been organised in India and identified the possibilities (constructive view) to establish local resource (food) based micro enterprise development by rural communities. The self-help concept analysed SHG activities in order to indicate additional opportunities for food autonomy.

The research revealed that the SHG MEs (Chapter 4) among rural communities are built upon and organized through specific income-generating and capacity-building activities and provides space to participate in groups, avail new ideas and develop self-confidence that facilitates peasants' capacities. The review study findings reveal that SHG ME development by government, NGOs and educational institutes can be an important means for autonomous development. Development in rural areas is confronted with a wide range of problems grounded in the very poverty that it seeks to tackle. Issues related to extreme and chronic poverty around areas like poor income, dependency on market players (dominance of market players) and a lack of opportunities/options of local food-processing are among the challenges facing rural people as they organize themselves as specific SHG MEs.

The formation and consistency of a SHG are influenced by aspects such as whether all members *fully participate* and if there is *homogeneity among members*, group goal, and *transparency in group operations and functioning*. It also indicates that the SHGs engaged in building MEs in India become successful when they are able in general to fulfil their needs of finance, training and skills development. Particularly it was found of great relevance that SHGs represent an autonomous development through local people's involvement in identifying and tackling issues that affect their members and communities. SHGs involve participation (participatory opportunity for action), decision-making processes and facilitation of local capacities that constitute autonomy. Indeed, success of SHGs is based on a thorough understanding of local conditions and possibilities to intervene.

Unlike the private-capital approach of the agro-industrial market, which creates distance between producers and consumers and discourages food autonomy among peasants and rural communities, the community-based SHG approach enhances local participation in food production and management. This peasants' SHG does not demonstrate the central command regulations of agricultural production; rather, it envisages a strengthening of the local food network to connect local production to consumption. *Group planning and management of activities*, the *convergence of resources*, and skill development through *participatory learning methods* are the some important features of the SHG. The *autonomy* reinforces in the SHG ME.

The *novelties* – in the food network – of mung-bean implies development of resources (food processing and packaging technologies) to not only maintain but also develop new social relations in that network for the enhancement of food autonomy. The SHG creates/enhances resources and develops a community information system by connecting the peasants, researchers, research university and machine manufactures. The creation of *horizontal structures* of knowledge and skills sharing has enabled the interests of peasants to be not only included but central to moving forward. They have provided a new form of connectivity between local mung-bean production and local consumption, by the direct selling of locally produced and processed mung-bean food products to schools, *Aanganwadi* centres and community members and to nearby villages (rural consumers) and the

city (urban consumers). Indeed, the research has shown that these are *innovations* that enhance the connectivity of mung-bean and through the initiation of these *collective action* and *novelties/innovations*, peasants become relatively free to *make decisions* and put their viewpoints in the *management of their food production*.

The SHG study (Chapter 5) made clear the role of the SHG in the process of territorialization and strengthening of territorial connections in which autonomy is generated. The study illustrated the creation of identity strategies through the naming of group and labelling of packaged mung-bean foods. The research revealed that they pool resources and practices that facilitate co-operation in the village. In doing so, they create resource base for the strengthening of the food network and reinforcement of autonomy in the rural community.

Chapter 5 also shows that the SHG operates as a place where peasants and producers of processing and packaging technologies come together to share knowledge and develop mung-bean processing and its packaging and, moreover, on the peasants' terms. The research has also shown the challenges faced the sustainability of this food-based SHG ME indicates the need for technological efforts to address the specific location of peasant resources. In this case, grain quantity (mung-bean food production) as well as grain quality (size) have been successfully identified and addressed, whereas the availability (cost) of electricity was and has not. This suggests that it may be worthwhile to collectively involve actors in tailored technology development. Strong connections among these agents are also shown to be important.

The SHG study made clear that this self-help sensitivity entered into the arena of enhancing territoriality in this, technological, context, since it has, until now, remained too closely associated with the ideology of poverty eradication and too closely tied up with concerns of employment generation in the rural economy, concerns that do not necessarily lead to food autonomy. There is an urgent need for policymakers and technocrats to be more attentive to this self-help (democratic) initiative. Given the crucial role of SHG MEs in the strengthening of food networks, it becomes clear that it is not sufficient to consider their (peasants') abilities to discern crop-quality

traits, protect/save genetic resources and indigenous farming knowledge only as *participation*, *resource sharing* and *skills development*, but that they should also be considered important participant in the construction of technologies for enhancing connectivity of food networks. This implies that the opportunities for public participation in technology design should be actively encouraged so as to extend autonomy (interaction between human and technology).

The research reveals that the initiatives of the SHG in development of mung-bean food network are based on three main conditions i) *peasants' motivation* in development of the SHG micro-enterprise to create capacity in mung-bean food processing at community level and enhance participation in mung-bean food management and marketing for connecting producers to consumers; ii) *availability of resources*, including the local mung-bean food production, seeds, labour, food processing and packaging machines, community based information network and the capacities (experiences and skills) of the community; and iii) its *activities*, particularly in respect of seed supply, mung-bean procurement, local mung-bean food processing, packaging and labelling, which are strategic, collective and innovative, as is necessary for this type of development. In short, the SHG functions as both the condition for agricultural development at peasant level and facilitator for a development of resources.

This process, which in the scientific literature (Van der Ploeg 2013) has also been referred to as the 'dual-circuit system' of both peasant and market (re)production incorporates the assumptions about self-help in strengthening/reviving localized food networks. That is, the incorporation of assumptions in the strengthening/reviving localized food network reflects the role of peasants' SHGs in the territorialization and strengthening of territorial connections for food autonomy. Thus, the assumption to emphasise the possibility for the peasants' group for the strengthening of the food network is apparent.

The study also reveals that the SHG *connects producers to consumers*. By approaching the local community people (consumers) social institutions (school, *Aanganwadi* centres and village grocery shops), peasants created connections inside the community, and while connecting with and nearby

village markets, including through small retailers and market stalls, they also created their relations outside the community. At the same time, they connect with the consumer mung-bean preferences (cleanliness, medium size, easy-to-cook and storability) to integrate into their processing activities. This illustrates that the SHG realizes the *creation of an identity*, development of resources, information network and *resource sharing* and *skills development* as well as connections between producers and consumers in a potential for autonomous development.

This research has not limited itself to acknowledge the relevance of practices (social organization of food production, local preferences, self-help groups) in territorialization and strengthening of territorial connections, but also indicated some possibilities (and/or some specific lessons) that are important for strengthening/enhancing of those territorial connections. In this sense, this research shows the possibilities of food qualities and SHGs in strengthening of territorial connections for food autonomous development.

6.4 Possibilities of food qualities and SHGs in strengthening of territorial connections

This research has revealed that connections are created/enhanced by rural communities (producers, processors and consumers) concerning the mung-bean qualities and SHGs. These connections motivate the peasants to create the forms of connectivity in mung-bean production, processing, distribution and consumption. The research has also revealed different opportunities to improve the linkages between production practices of the peasants and the food consumption, which is realised by the SHG.

It has been indicated that – despite the markets discourage territorial connectivity of mung-bean– there are food quality preferences among producers, processors and consumers that have potential to *strengthen the territorial connectivity* of the mung-bean. For example, short-duration mung-bean varieties with disease-resistance qualities are integrated and the SHG involved in the food ME development. Indeed, the research has shown that it is not sufficient to carry out an analysis and makes explicit

shortcomings (here, in the market system), but that it is also necessary to reveal this *constructively*, so as to identify opportunities.

Concerning the critical approach, the research unravels the debatable socio-cultural assumptions concerning food autonomy, reveals the territorial connectivity in the social organization of mung-bean production, processing and consumption and discusses the mung-bean quality preferences among producers, processors and consumers in reinforcing food autonomy. Regarding the SHG, the critical approach reveals the role and discusses the possibilities of SHGs in ME development. Concerning the *constructive* approach the research refers to the collective activities and creation of novelties organized by the peasants' SHG in territorialization and the strengthening of territorial connections for enhancing food autonomy. It has also been emphasised that for real sustainable development it is important to get control over certain technological developments (resources) that are crucial among rural communities. The reconstructive part of the research also refers to possibilities for the strengthening of the SHG.

In this discussion of the conclusions of the food qualities and self-help group in territorialization the following lessons are outlined:

1. Create and maintain a *community-based learning environment*
2. Explore and understand *relevant diversity*
3. Make new and effective *connections*
4. Improve one's own *situation and prospects*
5. Assess the value of the *unexpected*
6. *Facilitators* are crucial to set a process in motion
7. Creating *alignment / strengthen connections is a continuous process*

6.4.1 *Create and maintain a community-based learning environment*

The SHG study in this research show that a *community-based learning environment* is an important factor, especially in the initial stages. First of all it requires learning about the effectiveness, performance of a novelty (processing and packaging machines) for performing a special purpose. Second, a learning environment should facilitate double-loop learning processes (Hoogma 2000), i.e. learning about meanings and preferences that

local people have during the process of novelty creations. Third, it is important to understand/learn about self-help groups building and management as well as interaction between the social, economic, technical and organizational aspects of novelty creation.

6.4.2 Explore and understand diversity

It is of crucial importance to explore and attempt to *understand diversity*. For example, in reference to the processor preferences (Chapter 3), the most preferred traits for preparation of mung-bean products – the size, colour, shininess and brittleness of mung-bean grains – are not only linked to the processing characteristics of food products (consistency, appearance, colour) but also to the kind of food products (local dishes), amount of food preparation (sprouting) and diversity (offer choice) in food consumption, as well as to the communities' consumption practices and thus enabling autonomy. It is suggested that local mung-bean food qualities related to suitability in the local cropping system, processing requirement (short cooking time, better consistency and appearance) and consumption choice (easy to cook, healthy food) need to be considered to strengthen connectivity between local production and consumption to reinforce food autonomy at rural community level.

6.4.3 Make new and effective connections

The empirical findings of the research reveal the strategic actions of peasants and local communities in the organization of mung-bean production, and the organization of the self-help group. The social relations organized by peasants' SHG shows the importance of experimenting, exchanging information and sharing experiences within and outside the group through which they become able to enhance their capabilities in local food production and local processing, create resources, develop their skills and enhance participation in the market.

6.4.4 *Improve one's own situation and prospects*

A self-evident lesson is that the peasants are involved because of the prospect of improving their own situation and prospects. If there is no progress or reciprocity (at the level of either material or the social), then every attempt at management will fail. This evidently applies to all actors involved.

6.4.5 *Assess the value of the use and reuse*

The study of the mung-bean food quality preferences and the study of the SHG demonstrates that the territorialization depends on the capacity of the people involved to make use of food into some useful or valuable. This implies that connectivity is created not only in production process but also during consumption and processing to make use of, and create useful connections (e.g. mung-bean plant leaves to be used as animal fodder, mung-bean consumption during *pregnancy, lactation, illness and old age (health value)* and mung-bean *wadis and papad*).

6.4.6 *Facilitators are crucial to set a process in motion*

Facilitators are needed to make the connections – here, between the local communities, research institutes, schools, and Aanganwadi centres – creating room for manoeuvre at the local level. Their role is to envision windows of opportunity, express expectations and link people groups. The case discussed demonstrates that a SHG can play an important role as *facilitator*. Moreover, it creates *horizontal structures* of knowledge and skills sharing that have enabled the interests of peasants to be not only included but central to moving forward. Strong connections among these agents are also shown to be important.

6.4.7 *Creating alignment (strengthen connections) is a continuous process*

To strengthen a SHG, it is equally important to restore or redefine collective responsibility. Stricter measures may help restore collective cohesion, for instance by only allowing peasants who actively invest labour, time and/or money in the SHG to participate. During the operational stage of the SHG, much of the collective effort has been dedicated to building and maintaining

relationships (both within the community and in the outside world); a collective action, however, should also include a focus on the maintenance of internal relationships, among the group members. This means that the group has to consider on a regular basis what they want to perform, how, why and with whom. Continuous management of the SHG and its connections, aimed at maintaining individual responsibility for, and commitment to, the collective goals remains an important activity.

6.5 Reflections on multi-disciplinary research

This PhD thesis was prepared alongside and in relation to the other scientific disciplinary contributions of the TELFUN research group, in which a plant breeder, food technologist and nutritionist have investigated ways in which the territorial connectivity of mung-bean production and consumption can be enhanced through the tailoring of plant-breeding techniques, food conservation and fermentation methods and through an improvement of nutritional characteristics of the mung-bean.

The mung-bean preference study was conducted in collaboration with the plant breeder and the food technologist. The objective of the study was to fine-tune specific disciplinary research questions and find possible multi-disciplinary collaborative research areas to enhance effectiveness of the research outputs. The study ensured effective interactions with local communities and helped researchers to acquire first hand information on the societal needs. This facilitated the research fine-tuning process and ensured a bottom-up approach to the understanding of societal challenges and potential solution, thereby ensuring a more integrated approach to the solving of both scientific and social research problems.

Another strategy developed in the TELFUN project for information sharing and collaborative efforts was the organisation of *annual workshops*. The TELFUN annual workshops, which were rotated among the participating countries (Ecuador, India, Ghana and Benin) with field trips to project communities, constituted a unique and innovative development research strategy. This offered practical learning experiences at both

multidisciplinary and disciplinary levels and strengthened interactions between PhD students and supervisors, especially during evaluation and feedback sessions at the fieldwork level. The multidisciplinary research approach opened up opportunities for data sharing, analysis and joint discussions on cross-cutting themes. This also offered team members the opportunity to understand the interrelationship of food production activities.

I have learnt many lessons from this multidisciplinary research. Firstly, it is important that researchers work in *collaboration* for effective interactions, cost-effectiveness, organization of meetings and exchange of ideas both formally and informally. For a multi-disciplinary PhD, research activities to be well-integrated and there must be *strong collaboration between PhD supervisors as well*. Supervisors from the collaborating disciplines need to agree on possible synergies and barrier-breaking areas between disciplines in order to foster stronger linkages among PhD students. This was lacking in TELFUN and therefore there was pressure on PhD students to find common areas of integration in their work by themselves. The experience of learning new things among peer colleagues from various disciplines, however, was *great*.

Multidisciplinary research *helps to build teamwork skills* and reveal the contributions of other disciplines. Collaboration from multidisciplinary interactions helps to orient *better disciplinary research activities* and create a *common understanding* of the local challenges. Indeed, the complex nature of real life problems and challenges require multidisciplinary research efforts, where different problem solving strategies from various disciplines will be employed concurrently.

Suggestions for improving multidisciplinary research approach include the needs i) to develop multidisciplinary research methodologies, ii) for well planned multidisciplinary research areas to avoid inefficiencies and time wasting, and iii) for more multidisciplinary journals to facilitate multidisciplinary publications.

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Summary

The concepts of *territoriality* and *self-help* are used to understand connectivity in food production, processing, consumption in relation to food autonomous developments and to stimulate a reflection on the opportunities for enhancing this connectivity in the focus areas of mung-bean food quality and self-help groups. As a part of the multidisciplinary project TELFUN, this research explores opportunities for the strengthening of territorial connections of the mung-bean food network in the Hisar district of Haryana state, north India, particularly through the initiatives of a self-help group (SHG) that is part of the network.

This research focussed on i) understanding the *location-specific connectivity* in the social relations of *production, processing and consumption* in the mung-bean food network; ii) examining the *(rural) producer, processor and consumer preferences* related to mung-bean *food quality* to realize the role of these in *strengthening territorial connectivity*; iii) understanding the *relevance of SHGs* in the development of *(food-based) micro-enterprises (MEs)* and identifying the *success factors* for SHG formation and opportunities for SHGs and MEs in respect of food autonomy; iv) understanding the *SHG strategies* in creating *novelties* in the mung-bean food network and *strengthening* local mung-bean production to community consumption patterns, and v) investigating the *socio-spatial (territorial)* reorganizations of the mung-bean food network through the collective actions of a SHG against the background of the idea of *enhancing food autonomy* in the network.

The study (Chapter 2) of the social organization of mung-bean production, processing and consumption showed that the mung-bean production and consumption in the Hisar district is deeply *embedded in the local culture*, which strongly shapes the local food network. Composed of multiple and diverse local human engagements (smallholder farmers, household processors, home consumers, vendors, street food-sellers), this network creates a connectivity in the local mung-bean production for local consumption, which leads to a level of food autonomy for the local

community. It is shown that mung-bean processing in the villages of the Hisar district organized by rural communities connects local production to local consumption, enabling, moreover, the communities to maintain their own food supply and preserve their local cultural practices. Moreover, the research results indicate that peasant motivation in mung-bean cultivation is associated with the mung-bean consumption and specific food-product combinations, such as *Mung dhal* and *Khichadi* (mung-bean with wheat or rice), which is illustrative of the efforts of peasants and communities to facilitate food autonomy by satisfying the nutritional needs related to their food culture.

The study (Chapter 3) of the local mung-bean preferences of producers, processors, consumers and the market conditions indicates that local people (rural producers, processors and consumers) have their own interpretations of what they perceive as being ‘good quality’ mung-bean; and that within these interpretations, opportunities exist to improve connectivity that can enhance food autonomy. Producers appear to have preferences for the quality traits of early maturing, disease-resistant and high-yielding varieties, while processors and consumers show preferences for mung-beans that are shiny, green, of medium-size and an uniform shape and with an absence of disease, stones and broken pieces. These quality preferences lead to a consideration of whether the participation of local rural people (peasants and rural communities) in quality development can be organized in such a way that they are not only able to express their preferences to influence variety development, but can also aim to create novelties in the mung-bean food network through which food autonomy can be strengthened.

Negatively, the study findings of mung-bean markets in this district show that mung-bean processing (splitting, hulling) and marketing take place primarily at the agro-industrial level, which strongly affects the locally embedded production-consumption patterns. They also indicate that the market works against peasants (traders and urban processors are winners). Peasants in the local mung-bean food network are found to be pressurized by these two contrasting perspectives to either disconnect mung-bean production from local mung-bean consumption or else to enhance food autonomy by strengthening connections between production and consumption, for which they have organized themselves as SHG.

The study of SHGs in micro-enterprise (ME) development (Chapter 4), discusses the role of SHGs in ME development and identifies possibilities for SHGs to constitute local food autonomy through the functioning of local food (mung-bean) based MEs. In reviewing the literature on SHGs and previous empirical studies, various factors are identified that contribute to a success or failure of a functioning of SHG. These include full participation from and homogeneity among members, and clear group goals and transparency in group operations and functioning; it has also been found that SHGs engaged in building MEs in India are successful when they are able, in general, to fulfil their needs in respect of finance, training and skills development. SHGs represent an autonomous development through local people's involvement in identifying and tackling issues that affect their members and communities; they involve participatory opportunities for action, decision-making processes and the facilitation of local capacities that create autonomy. This study indicates possibilities (processes and challenges) for setting up an SHG-based (food) ME and shows the relevance of the SHG developing its ability to intervene and change the circumstances in which group members live and work and develop new relations.

The study of SHG ME enhancing food connectivity for food autonomy in Hisar (Chapter 5) investigates ways in which this group functions. Different novelties and new connections between social and local resources created by peasants built upon their collective actions and shared interests are shown to lead to the process of an autonomous network development. The chapter also shows how the SHG strengthens linkages between food production and consumption at the local level and indicates some other sustained political and technological efforts that are required.

The thesis concludes (Chapter 6) that the SHG can be a catalyst for the process of territorialization and strengthening of territorial connections in which food autonomy is enhanced. The research presents some concrete suggestions, including i) the SHG should be considered as self-help strategy of autonomous development, not only for its abilities to fulfil the need of finance, training and skills but also as contributing to enhance local access to resources and the market and an empowerment for recognition in rural communities; ii) the capacities of SHGs should be strengthened to enhance connectivity between local production and consumption and to create

connections between (local) producers and consumers; iii) the participation of SHGs in technology development should be enhanced to ensure effective input and feedback communication between technology developers and end-users (peasants, the local community); iv) a community-based learning environment should be created and maintained, and v) alignments should be created connections among SHG members strengthened as a continuous process.

Samenvatting

De concepten van de territorialiteit en zelfhulp worden gebruikt om de connectiviteit in voedsel productie, verwerking, de consumptie te begrijpen in relatie tot autonome ontwikkelingen voedsel en een reflectie over de kansen te stimuleren voor de verbetering van deze verbindingen in de aandachtsgebieden van mung-bean voedselkwaliteit en zelf -help groepen. Als onderdeel van het multidisciplinaire project TELFUN, dit onderzoek verkent de mogelijkheden voor de versterking van de territoriale aansluitingen van de mung-bean food-netwerk in de wijk Hisar van Haryana staat, Noord-India, in het bijzonder door middel van de initiatieven van een zelfhulpgroep (SHG) dat deel uitmaakt van het netwerk.

Dit onderzoek richt zich op i) het begrijpen van de locatie-specifieke connectiviteit in de sociale relaties van de productie, verwerking en consumptie in de mung-bean food-netwerk; ii) het onderzoeken van de (landelijke) producent, verwerker en consument voorkeuren met betrekking tot mung-bean kwaliteit van voedsel aan de rol van deze te realiseren in het versterken van de territoriale connectiviteit; iii) het begrijpen van de relevantie van SHG's in de ontwikkeling van de (voedsel op basis van) micro-ondernemingen (MES) en het identificeren van de succesfactoren voor SHG vorming en kansen voor SHG's en MES in verband met voedsel autonomie; iv) het begrijpen van de SHG strategieën in het creëren van nieuwigheden in de mung-bean food-netwerk en het versterken van de lokale mung-bean productie tot gemeenschap consumptiepatronen, en v) onderzoek naar de sociaal-ruimtelijke (territoriale) reorganisaties van de mung-bean voedsel netwerk via de collectieve acties van een SHG tegen de achtergrond van het idee van het versterken van voedsel autonomie in het netwerk.

De studie (hoofdstuk 2) van de sociale organisatie van mung-bean productie, verwerking en het verbruik bleek dat de mung-bean productie en consumptie in de wijk Hisar diep is ingebed in de lokale cultuur, die sterk vormen de lokale eten netwerk. Samengesteld uit meerdere en diverse lokale

human engagements (kleine boeren, huishoudelijke processors, thuis consumenten, leveranciers, street food-verkopers), dit netwerk zorgt voor een verbinding in de lokale mung-bean productie voor lokale consumptie, wat leidt tot een niveau van voedsel autonomie voor de lokale gemeenschap. Er wordt aangetoond dat mung-bean verwerking in de dorpen van het district Hisar georganiseerd door rurale gemeenschappen verbindt de lokale productie tot lokale consumptie, waardoor bovendien de gemeenschappen om hun eigen voedselvoorziening te behouden en hun lokale culturele praktijken te behouden. Bovendien zijn de onderzoeken geven aan dat boer motivatie mung-bean kweek wordt geassocieerd met de mung-bean consumptie en specifieke voedselproducten combinaties, zoals Mung dhal en Khichadi (mung-bean met tarwe of rijst), die illustratief is voor de inspanningen van boeren en gemeenschappen om voedsel autonomie te vergemakkelijken door te voldoen aan de nutritionele behoeften in verband met hun eetcultuur.

De studie (hoofdstuk 3) van de lokale mung-bean voorkeuren van producenten, verwerkers, consumenten en de marktomstandigheden geeft aan dat de lokale bevolking (rurale producenten, verwerkers en consumenten) hebben hun eigen interpretaties van wat zij zien als 'goede kwaliteit' mung -bean; en dat binnen deze interpretaties, mogelijkheden bestaan om de connectiviteit dat voedsel autonomie kan verbeteren verbeteren. Producenten lijken voorkeuren voor de kwaliteit kenmerken van de vroege rijping, ziekte-bestendig en hoogproductieve rassen, terwijl de verwerkers en consumenten tonen voorkeuren voor mung bonen die glanzend, groen, van middelgrote en een uniforme vorm en met een afwezigheid ziekte, stenen en gebroken stukken. Deze kwaliteit voorkeuren leiden tot een overweging van de vraag of de deelname van de lokale plattelandsbevolking (boeren en rurale gemeenschappen) in de kwaliteit van de ontwikkeling op een zodanige wijze dat ze niet alleen in staat om hun voorkeur uitspreken voor diverse ontwikkeling beïnvloeden kunnen worden georganiseerd, maar kan ook gericht naar nieuwigheden in de mung-bean food-netwerk, waardoor voedsel autonomie kan worden versterkt creëren.

Negatief, de studie bevindingen van mung-bean markten in deze wijk laten zien dat mung-bean processing (splitsen, pellen) en de marketing vinden plaats in de eerste plaats bij de agro-industriële niveau, die sterk van invloed

op de lokaal georganiseerde productie-consumptiepatronen. Ze geven ook aan dat de markt werkt tegen boeren (handelaren en stedelijke processors zijn de winnaars). Boeren in de lokale mung-bean food netwerk blijken te zijn onder druk door deze twee contrasterende perspectieven om ofwel verbreken mung-bean productie van de lokale mung-bean consumptie of anders om voedsel autonomie te verbeteren door het versterken van verbindingen tussen productie en consumptie, waarvoor zij organiseerde zich als SHG.

De studie van zelfhulpgroepen in micro-onderneming (ME) ontwikkeling (hoofdstuk 4), bespreekt de rol van zelfhulpgroepen in ME ontwikkeling en identificeert mogelijkheden van zelfhulpgroepen om lokaal voedsel autonomie vormen door middel van de werking van de lokale gerechten (mung bonen) op basis ME's. In de herziening van de literatuur over SHG's en eerdere empirische studies, zijn verschillende factoren geïdentificeerd die bijdragen aan een succes of falen van een functioneren van de SHG. Deze omvatten de volledige deelname van en homogeniteit onder de leden, en duidelijke groep doelen en de transparantie van de groep activiteiten en werking; Het is ook gevonden dat de SHG's die zich bezighouden met de bouw ME's in India zijn succesvol als ze in staat zijn, in het algemeen, om hun behoeften te vervullen ten aanzien van de financiering, training en ontwikkeling van vaardigheden. SHG's vertegenwoordigen een autonome ontwikkeling door middel van de betrokkenheid van de lokale bevolking bij het identificeren en aanpakken van problemen die hun leden en gemeenschappen beïnvloeden; ze betrekken participatieve mogelijkheden voor actie, besluitvormingsprocessen en het faciliteren van de lokale capaciteiten die autonomie te creëren. Deze studie geeft aan mogelijkheden (processen en uitdagingen) voor het opzetten van een SHG-basis (voedsel) ME en toont de relevantie van de SHG ontwikkeling van haar vermogen om in te grijpen en veranderen de omstandigheden waarin groepsleden wonen en werken en nieuwe relaties te ontwikkelen.

De studie van de SHG ME verbeteren voedsel connectiviteit voor voedsel autonomie in Hisar (hoofdstuk 5) onderzoekt manieren waarop deze groep functies. Verschillende nieuwigheden en nieuwe verbindingen tussen sociale en lokale middelen die door boeren gebouwd op hun collectieve acties en gedeelde belangen worden getoond leiden tot het proces van een autonome

ontwikkeling van het netwerk. Het hoofdstuk laat ook zien hoe de SHG versterkt verbanden tussen productie en consumptie voedsel op lokaal niveau en geeft een aantal andere aanhoudende politieke en technologische inspanningen die nodig zijn.

Het proefschrift eindigt (hoofdstuk 6) de SHG een katalysator voor de werkwijze van territorialisering en versterking van territoriale verbindingen waar voedsel autonomie vergroot kan worden. Het onderzoek geeft een aantal concrete suggesties, waaronder i) de SHG moeten worden beschouwd als zelfhulp strategie van autonome ontwikkeling, niet alleen voor haar mogelijkheden om de behoefte van de financiën, opleiding en vaardigheden te vervullen, maar ook als een bijdrage aan de lokale toegang tot middelen te verbeteren en de markt en een empowerment voor erkenning in rurale gemeenschappen; ii) de capaciteiten van de SHG's moet worden versterkt om de connectiviteit tussen lokale productie en consumptie en verbindingen tussen (lokale) producenten en consumenten te creëren te verbeteren; iii) de participatie van zelfhulpgroepen in de technologische ontwikkeling moet worden versterkt om effectieve input en feedback communicatie tussen technologie ontwikkelaars en eindgebruikers (boeren, de lokale gemeenschap) te waarborgen; iv) een community-based leeromgeving moeten worden gemaakt en onderhouden, en v) afstemmingen moet worden gecreëerd verbindingen tussen SHG leden versterkt als een continu proces.

Completed Training and Supervision Plan

Shweta Singh

Wageningen School of Social Sciences (WASS)



Wageningen School
of Social Sciences

| Name of the learning activity | Department/Institute | Year | ECTS* |
|--|---|------|-------|
| A) Project related competences | | | |
| Writing of project proposal | WUR | 2007 | 6.0 |
| Methodology Clinic A Ethnography and Qualitative Research Design | UVA | 2008 | 2.5 |
| Excursion to the Zeeuwse Vlegel in Zeeland: an example of sovereign wheat production | Zeeland, Netherlands | 2008 | 1.0 |
| Market Access for Sustainable Development | WUR-CDIC Wageningen International | 2009 | 5.7 |
| B) General research related competences | | | |
| CERES Presentation Tutorials | CERES, Utrecht | 2007 | 5.5 |
| Methods, techniques computer tools for qualitative data collection and analysis | Mansholt/WUR | 2008 | 2.3 |
| Information Literacy for PhD + End Note Introduction | WUR | 2007 | 0.6 |
| End Note Advanced | WUR | 2007 | 0.3 |
| C) Career related competences/personal development | | | |
| Presentation skills | WUR/TELFUN | 2008 | 1.0 |
| Techniques for Writing and Presenting Scientific Papers | WUR | 2009 | 1.2 |
| Scientific Meetings and Presentations at Conferences | | | |
| Role of Science and Technology in Re-connecting Local Food Networks for Future Nutrition | Second TELFUN Workshop, Quito (Ecuador) | 2008 | 1.5 |

| | | | |
|--|--|------|-------------|
| What are the social factors influencing mung bean (local) food network? | Third TELFUN Workshop, Hisar (India) | 2009 | 1.5 |
| Self Help Groups and Micro - Enterprise Development for Rural People in India: An Assessment | Seventh International Conference on Humanities, Beijing, China | 2009 | 2.0 |
| How to strengthen the local mung bean food network from a food sovereignty perspective?, Oral Presentation | Fourth TELFUN Workshop, Tamale, Ghana | 2010 | 1.5 |
| Collective action (SHG) in mung bean food network: A case study from Haryana (India), Poster Presentation | Fifth TELFUN Workshop and Conference Cotonou, Benin | 2011 | 1.0 |
| Self- Help in Food Autonomy – A Study from Haryana (India), Oral Presentation | Fifth TELFUN Workshop and Conference Cotonou, Benin | 2011 | 1.5 |
| Self-Help Group strategic actions to intervene in food network development - A Study from Haryana-India | 2 nd International Conference on Knowledge Commons for Sustainable Agricultural Innovations , Maringá, Brazil | 2014 | 2.0 |
| Total | | | 37.1 |

*One credit according to ECTS is on average equivalent to 28 hours of study load

List of publications

Published paper

Singh, S., Ruivankamp, G. and Jongerden, J. (2011). A state of the art of the self help group in India. *Journal of Human Ecology* 36(2).91-102.

Submitted papers

Singh, S., Ruivankamp, G. and Jongerden, J. Understanding the social organization of mung-bean production, processing and consumption for food autonomy in rural Haryana, India.

Singh, S., Singh, R., Dahiya, P. K., van Boekel, M. A. J. S. and Ruivenkamp, G. Local preferences of mung bean qualities: Opportunities for enhancing food autonomy in Haryana, India.

Singh, S., Ruivankamp, G., Jongerden, J., Sethi, N. and Kaushik, S. A study of self-help group micro-enterprise enhancing food connectivity for food autonomy in Hisar, India.

About the author

Shweta Singh was born in Bikaner, Rajasthan (India), on October 30th 1980, obtained her B.Sc. Hons. (2002) from Rajasthan Agricultural University and M.Sc. (2004) in Extension Education, CCS Haryana Agricultural University. She qualified the UGC-National Eligibility Test (NET) for lectureship in the subject of Extension Education in the year 2004.



She has experience, working as Programme Officer in Women Empowerment and Livelihood Programme (WELP-MGP) under Ministry of Women and Child Development (GOI). Shweta has been involved as Senior Research Fellow in CCS Haryana Agricultural University. She also has experience working as Public Relation Officer (NAB) and being associated with the cause of blind people. In 2007, she joined the Social Sciences Group of Wageningen University and Research School- Wageningen School of Social Sciences (WASS) as a PhD researcher. She started her PhD research on the connectivity and self-help groups for food autonomy in Hisar, India under the supervision of Prof. Dr. Guido Ruivenkamp and Prof. Dr. Han Wiskerke (Promotors) and Dr. Joost Jongerden (Co-Promotor) and obtained a research grant from Wageningen University through the Interdisciplinary Research and Education Fund (INREF) the result of which you are now holding. . Her field of interest includes self-organisation, food sovereignty, urban and rural transformation, gender issues and monitoring and evaluation of related projects. She is currently living and working in New Delhi with her husband and child.

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Front and back cover picture represents mung-bean farms, peasants, self-help groups' activities and village.

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