

Introducing farmer group learning and development into organic small holder farming systems in the global south -including a case study from the state of Madhya Pradesh, India.

Organic Farming in a Development Perspective
Aarhus University

Malene Jakobsen (20111492)

31-05-2012

1. Introduction

On most continents food production has surpassed the growth in population (Knudsen *et al.* 2006). Still it is estimated that approximately 1 billion people are undernourished (FAO 2011) and the greatest number of people suffering from chronic hunger are living in South and East Asia (FAO 2012a). More than half (3.1 billion people) of the developing world's population live in rural areas. Of these, approximately 2.5 billion derive their livelihoods from agriculture (FAO 2012a). The majority of small scale farmers in the global south lack financial and natural resources to be able to improve production and food security (Knudsen *et al.* 2006).

A United Nations' report on organic agriculture and food security concludes that organic agriculture increases the availability and access of food in the location where hunger and poverty are most severe (FAO 2007). According to UNEP (United Nations Environmental Program) non-certified organic practices in Africa outperforms conventional industrialized agriculture and provides improved soil fertility, retention of water as well as resistance to drought (UNEP 2008). The Millennium Development Goals are targeting sustainable agriculture specifically (United Nations 2009) and in the report by the IAASTD panel, focus on small scale farmers and the use of sustainable agricultural practices are recommended (IAASTD 2008).

Organic farming emerged in the 1920s with the concept of an inextricable link between soil, plant and animal health and of the composting process as an important element to obtain this. Hence artificial fertilizer was looked upon with great concern. In the 1960s and 1970s organic farming faced a turning point due to the negative consequences of industrial farming methods including the use of chemical substances. The work of many volunteers, heavily engaged in organic farming, led to the foundation of the International Federation of Organic Agriculture Movements (IFOAM) in 1972 (Kristiansen & Merfield 2006).

IFOAM has formulated four basic principles: Principle of health, ecology, fairness and care. They serve to inspire the organic movement, are the basis from where standards are developed and are presented with a vision of world-wide adoption (IFOAM 2005). According to IFOAM organic agriculture is: *“A production system that sustains the health of soils, ecosystems and people. It relies on ecological processes, biodiversity and cycles adapted to local conditions, rather than the use of inputs with adverse effects. Organic agriculture combines tradition, innovation and science to benefit the shared environment and promote fair relationships and a good quality of life for all involved”* (IFOAM 2008).

Frequently, in the global south, the meaning of organic agriculture is confused with “farming without chemical inputs”, “traditional farming” or “certified organic farming for export purposes” (Vaarst 2010). In this assignment organic agriculture is defined by the above mentioned four basic principles and description of organic farming. This includes the use of agro-ecological methods in agricultural systems which do not necessarily have to be certified organic.

Agro-ecological methods include the use of compost and legumes to improve soil fertility. Mulching conserves soil moisture and suppresses weeds. Intercropping increases yields and keeps the soil covered, hence preventing soil erosion and promoting soil moisture. Crop rotation with high species diversity prevents pests and diseases from building up as well as contributing to a diversified diet. Agroforestry is less affected by drought (deep root system). At the same time it increases soil porosity, reduces runoff and increases soil cover leading to increased water infiltration and retention in soil (Nakasi *et al.* Unknown; Vaarst 2010).

Livestock are an integrated part of organic agriculture supporting biological cycles within the system, in particular nutrient recycling (Hermansen 2003). Another important aspect is that organic farming does not rely on input of costly artificial fertilizers and chemicals. High inputs can force farmers to borrow money from private lenders with high interest rates. Hence farmers are vulnerable if the harvest fails (Halberg *et al.* 2006). Also pesticides can lead to poisoning when applying it and through accidents (Pretty 1995 cf. Halberg *et al.* 2006).

Conscious use of agro-ecological methods requires many skills, a lot of knowledge, assessment and planning (Vaarst *et al.* 2012). Therefore it is relevant to create a situation where knowledge can be exchanged, developed and debated (Vaarst *et al.* 2011). Organic farming is labour intensive, for example it requires labour to make compost, dig trenches, mulch and weed (Vaarst *et al.* 2011). Farmer Family Learning Groups (FFLG) creates a situation where farmers and their families go together to share their knowledge and experiences as well as help each other perform labour demanding tasks (Vaarst *et al.* 2011). Organic farming and Farmer Field Schools (FFS) is a way to assist vulnerable groups to empower themselves to claim their rights and have access to resource mechanisms (FAO 2007).

The objective of this assignment is to evaluate the benefits and barriers of introducing farmer group learning and development into organic small holder farming systems in the global south. The farmer group learning is exemplified by the concepts of FFS and FFLG. The first section describes the concept of FFS and FFLG. Afterwards benefits and barriers of introducing FFS and FFLG are presented. Finally a case study from three districts in Madhya Pradesh, India is reviewed and analysed in terms of introducing farmer group learning.

2. Farmer Field Schools (FFS) and Farmer Family Learning Groups (FFLG)

The concept of FFS is based on farmer participatory, interactive learning. It was developed in Asia in the late 1970s for integrated pest management in rice farming (van der Fliert *et al.* 1995 cf. Vaarst *et al.* 2007). FFS consist of groups of farmers with a common interest, who get together to study “*how*” and “*why*” of a topic. It takes place in the field and is about practical hands on topics (Gallager 2003). FFS is also described as: “*A school without walls*” (Khisa 2003). The aim is to improve farmers’ capacity to analyse their production system, test different solutions and afterwards adopt the practice that are most suitable to their farming system (Sones *et al.* 2003). The FFS curriculum includes use of demonstration farms and

demonstrations plots. A core activity is the Agro-Ecosystem Analysis (AESA) and the facilitators (intern or extern) are an integrated part of this process, leading the group through the hands-on exercises (Gallager 2003). The concept has been found to be relevant across many countries and cultures (Friis-Hansen & Duveskog 2012).

The FFLG concept was developed during a project on “*Development of a Farmer Field School concept for family food security in West Uganda*” in 2009-2010 (Vaarst *et al.* 2012). A core value of FFLG is flexibility since the groups have different backgrounds and different conditions. A common objective in a family increases the success of group survival. Therefore the whole family, also the children, must participate. There is no focus on demonstration farms and demonstration plots. This is replaced by all families in the group opening up their farm to the other families. The concept of “*School*” is replaced by the concept of “*Learning*” and training only takes place when requested by the group. The main focus is building up social capital and together with the facilitator each group must identify their focus and in which way to work. Therefore the facilitator must be educated in order to allow each group to pursue this. In contrast to FFS, FFLG can have a continuous life and develop according to the wishes and ambitions of the group members (Vaarst *et al.* 2012).

The use of these concepts, a combination of them or maybe a different form of farmer group learning depends on the specific context in which they are applied.

3. Benefits of introducing FFS and FFLG into organic small holdings

To be able to understand poverty it is important to focus on poverty carriers rather than poverty indicators (Vaarst & Munene 2011). On an individual level poverty carriers are the acts that produce poverty and which must change if individuals are to escape poverty (Munene *et al.* 2005). Examples are selling one’s piece of land, one’s labour or one’s children’s labour, irresponsible gender planning in families and undirected expenditure. Moving out of poverty is not action but *interaction* with other people (Vaarst & Munene 2011). Since a person is not alone in an environment, one cannot manage the environment as an individual. Hence establishing a group where farmers and families work and learn together is central in order to escape poverty.

The strength of FFS and FFLG is the large amount of knowledge and skills that exists in a group. In FFLG the knowledge and skills are continuously developed in the environment where it is needed, which is important for survival of the groups. The FFLG concept builds on the principles of ownership, commitment, trust and respect between the group members (Vaarst *et al.* 2012). If this is achieved, the members will produce new learning together. This will add to building up human capital on an individual, household and community level, respectively. It has the potential to improve yields and production, resulting in a more diversified diet, whereby food security is increased.

From working with FFS in Uganda, Vaarst (2007) describes how farmers perceived lack of money and resources as embarrassing, which they tried to hide from the local community. This seemed to prevent them from performing and developing improvements which was visible to the community since, by doing this, they were actually revealing their lack of money.

Use of inputs such as medicine for animals is perceived as positive since it shows that a farmer does not lack money, which adds to community status. However, opening up one's farm to other farmers as well as being confronted with other farmers shows that all members of the group more or less have similar living conditions. The actual feeling of working and living under the same conditions made room for the farmers to develop an array of possibilities for improvements leading to empowerment. Further, experiences with FFLG in Uganda have shown to reduce domestic violence. This was due to increased food security resulting in a reduced incidence of arguments in the family (Vaarst *et al.* 2012).

When group members increase human capital and engage in developing relations based on mutual trust and respect, this builds up social capital. Social capital has been defined in many different ways and categorized into different "schools". Munene (2008) describes social capital on an individual basis as: "*When the individual sacrifices (are willing to sacrifice) something on short term basis for the community to the long term benefit of everybody and the community*" Hence, social capital can be perceived as the capacity of a community to mobilize resources (Vaarst *et al.* 2011) which includes making an effort.

Access to resources is crucial in order to improve peoples' livelihoods (Bebbington 1999) and therefore also crucial in order to move out of poverty. Social and human capital are not only resources that people use when improving livelihoods, but assets which give people the capability to be and to act (Bebbington 1999).

Social capital and access to resources are closely linked. The possible positive effects of engaging in FFLG and FFS are that the members start networking with each other as well as with other groups and people outside the groups. Members get increased self-confidence and awareness of their own worth which can lead to raising a voice in relation to actors on the level of market, state and civil society (Braun & Duveskog 2008). Together they have the capacity to access new markets (joint marketing), credit schemes or get a better prize for their products when bargaining with local buyers or at the market (Vaarst *et al.* 2012). From a questionnaire survey in three East African countries, Friis-Hansen & Duveskog (2012) suggest capacity building of local people to make choices and decisions, to be the most significant effect of FFS.

The informal and participatory concept of FFS (and FFLG) provides a platform for dealing with broader livelihood issues such as nutrition, health and sanitation as well as more difficult issues such as HIV/AIDS, family planning and human traumas (Braun & Duveskog 2008).

When participating in FFLG, farmers and families can pursue labour demanding tasks with mutual benefits for households as well as the local community. Examples are use of common land to propagate plants or a vegetable plot providing the school children with food, compost preparations, sharing animal manure, planting and weeding, making contour lines for water retention and to prevent soil erosion, building storage facilities, building sheds for animals or improving sanitary conditions. Apart from the obvious benefits for the small holdings and the community, it is much more encouraging to work together than working the same amount of hours alone on one's own land (Vaarst *et al.* 2012).

4. Barriers of introducing FFS and FFLG into organic small holdings.

As described in section 3 the success of FFS and FFLG depends on the willingness of the individual group members to invest in long term common gain. Building up social capital demands an effort and commitment (Vaarst & Munene 2011). The immediate benefits for the individual members might not be obvious from the beginning, preventing some from participating. Experiences from Uganda have shown that women are sometimes the first to engage in groups and after a while the men join (Vaarst 2012). From experiences in Kenya Abate & Duveskog (2003) express, that the social aspect of FFS and the practical field based learning approach seem to appeal especially to women.

If the focus from the start is money, the group will not survive (Vaarst & Munene 2011) which can be challenging to a facilitator. Often groups are formed due to people living in the same area and having the same interests, which is not sufficient. It is of major importance for the group members to have a common objective. The members must have the feeling that what they are working with is relevant for their small holding, otherwise the group will dissolve. Hence, ownership is a key word in developing FFLG, along with peoples' wish to change their lives (Vaarst & Munene 2011). Lack of infrastructure could prevent people with the same aim from establishing groups and do networking. Also poor roads and transport network make it difficult for farmers (and families) to move their produce to the market (Braun & Duveskog 2008).

Some farmers or families might feel great difficulty engaging in FFLG since their abilities as farmers and their financial situation will "be revealed" to the others and the community. Also some individuals find it hard to participate due to age or illness and single parent households might prioritize short term needs such as spending considerable time looking for casual work (Braun & Duveskog 2008).

The facilitator has an important role in the ownership process, since the objective of the facilitator is not to teach the group but to facilitate the learning process towards the common aim (Khisra 2003). Handing over the group to an intern facilitator is likewise important, since the person knows the community and its members, speaks the language and knows the area well (Braun & Duveskog 2008). For economic reasons it is also relevant to educate intern facilitators since the groups have to pay for transport and food for an extern facilitator (Braun

& Duveskog 2008). However, it could create problems that the intern facilitator is a fellow farmer if he or she is not aware of the role as a facilitator. The need to train facilitators in facilitation skills are often overlooked (Braun & Duveskog 2008). In some countries limited national funding for public extension systems create barriers for establishing FFS (Abate & Duveskog 2003).

Gender and power distribution can change when forming FFS and FFLG. Usually women take care of crops grown for household purposes and the men of cash crops (Vaarst 2012). If the groups decide to focus on cash crops for certification, this could lead to a shift in power towards men. Since women usually also take part in sowing and weeding of cash crops, they might have less time to grow household crops, putting household food security at risk. The income from cash crops could also lead to a distribution in favour of activities for men and boys, rather than for women and girls and the household in general (Sen 1999).

Cultural and religious customs could be a source of barriers for establishing groups and for making the most optimal agricultural practices. In some African countries local clan leaders might feel that their power is put at risk and will try to interfere with the groups or prevent them from being established. In an example from a polygamous society in West Kenya, it is described how the first wife must plant before the other wives may do so, even though the best practice is to plant with the first rain (Ngeno 2003). The caste system could prevent some people in a community from participating and benefitting from FFS and FFLG. In some hierarchical cultures, the informal nature of FFS and FFLG could lead to challenges if the members are not used to work with external facilitators in an informal manner or work together across gender (Braun & Duveskog 2008). In cultures with a strong division of the roles of men and women in relation to work and decision making, FFLG could challenge this (Vaarst *et al.* 2012).

In countries with a history of emergency support, a situation has been created where community members are accustomed to immediate benefits, handouts and maybe even expect incentives to be part of project activities (Braun & Duveskog 2008). Since FFLG and FFS are both physically and mentally challenging and with a long term focus, it could be difficult to gain immediate participation in some communities.

5. Case study: State of Madhya Pradesh, Districts: Barwani, Khargone and Khandwa

The case study is based on data from a PhD thesis by Panneerselvam (2010) with the title: *“Improving marginal and smallholders’ food security through organic agriculture in India”*. The case study was chosen for this assignment due to the enterprise bioRe interacting with the farmers to secure them a sustainable livelihood.

In India 19% of the population is undernourished (225 million out of a total population of 1165 million) (FAO 2012b). This is a paradox since India produces enough food to be self-sufficient (Panneerselvam 2010). Of the 225 million undernourished people, 175 million live

in rural areas. India is characterized by small farmers with 81% of the farms consisting of less than two hectares (Panneerselvam 2010). Regarding organic production, India has 400,551 certified organic farms which is the largest number in the world. The area with organic agricultural production amounts to 780 thousand hectares which corresponds to 0.4% of total agricultural land in India (Willer & Kilcher 2012).

The state of Madhya Pradesh lies in the central part of India (figure 5.1) and is the second largest Indian state with an area comprising of 308 thousand km². 75% of the population is rural, predominantly marginal and small holder farmers and it is estimated that 28% of the population of 60 million people live below the poverty line. Approximately 65% of the total land holdings belong to marginal and small holder farmers. However, they only occupy 26% of the arable land. About 80% of the farmers have less than one hectare of land (ASSOCHAM 2012).



Figure 5.1. Map of India showing the state of Madhya Pradesh. The most northern state Jammu & Kashmir is not visible.

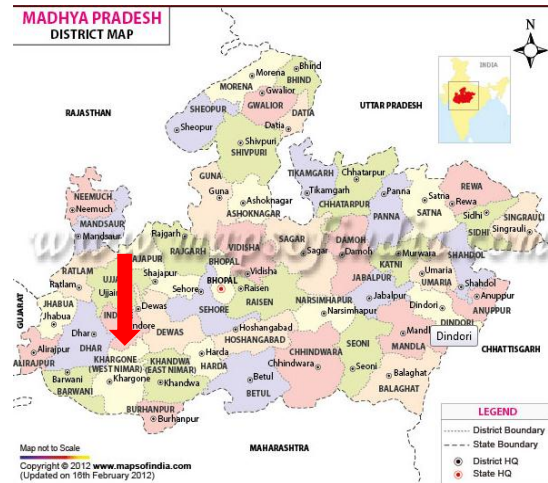


Figure 5.2. Map of Madhya Pradesh showing the districts Barwani, Khargone and Khandwa.

Barwani, Khargone and Khandwa are neighbour districts, situated in the south west of Madhya Pradesh, bordering the state of Maharashtra (Figure 5.2). They are classified as hot semiarid ecosystems with deep black soils (including shallow and medium black soils). The length of the growing season is 120 to 150 days and the water-holding capacity is medium to high. The average annual rainfall is 800 to 1000 mm and the mean temperature is ranging from 24 to 25 °C (Velayutham *et al.* 1999 cf. Panneerselvam 2010).

The enterprise bioRe is active in the area. It started as a non-commercial experiment with the aim of helping cotton farmers to reduce their debt and secure a sustainable livelihood. Now it is an enterprise combining ecology with economic profit based on a profile of social responsibility (Eyhorn *et al.* 2005 cf. Panneerselvam 2010). During the course of the PhD thesis, the Maikaal bioRe project was working with 1500 smallholders in 75 villages. The company supports farmers in growing cotton in a crop rotation with wheat, soybean, maize, pigeon pea and peanut following biodynamic principles. Cotton is the major cash crop and is sold as certified organic (bioRe Unknown). Maikaal bioRe engage in contracts with farmers

with a five-year purchase guarantee. They purchase the seed cotton at market rates and pay a premium prize (up to 20%) to the farmers who have completed the three year conversion period. In the first year, farmers receive inputs on a credit basis, while in the following years input costs are adjusted according to the price premium from the previous year.

The independent but related bioRe Association runs a training centre where farmers are offered education in organic farming. The Association offers interest-free credit to the farmers in order to develop infrastructure (facilities for safe drinking water, irrigation, biogas and vermicomposts).

Maikaal bioRe also provides extension service. During the growing season the farmers are visited by extension officers (monthly basis) to give technical advice. The farmers apply farmyard manure, compost and neem cake (10 kg N/ha) to the fields as well as biodynamic inputs (de-oiled castor cake, cow horn manure and cow pat pit manure). Farmers buy seeds from Maikaal bioRe and if needed also other inputs such as rock phosphate and bio-pesticides (Panneerselvam 2010).



BioRe training center. Photo: bioRe.



Quality control during purchase of cotton. Photo: bioRe.

The PhD thesis provided data from 35 certified organic farms that had been organic for 2-8 years. As shown in table 5.1 each small holding has a mean landholding of 1.5 hectares and on average 5-6 heads of livestock. The cotton is sown in May-June and is mostly intercropped with soybean, pigeon pea and urad bean (lentils). Wheat is sown in November-December and harvested in March-April. On average each farm harvests 1 ton of cotton, 822 kg of mainly wheat, 42 kg of pulses and 101 kg of oilseeds per year.

Table 5.1. Mean number of livestock, cultivated area, food and cash crops and income respectively per small holding for 35 organic farms in the districts of Barwani, Khargaon and Khandwa, Madhya Pradesh, India (Mod. f. Panneerselvam 2010).

Livestock keeping no./farm		Crop production, ha		Food and cash crops kg/farm/year.		Income and costs Rupees/farm/year.	
Cows	1.45	Cultivated area	1.5	Cereals	822	Input costs for crops ²	2592
Buffaloes	0.87	Irrigated area	0.9	Pulses	42	Gross margin from crops ³	27948
Oxen	2.05	Rain fed area	0.6	Oilseeds	101	Net margin from crops ⁴	25295
Goats	1.45			Cash crop (cotton) ¹	1110		
Sheep	0.1						
Total	5.92						

¹Cash crops are primarily cotton.

²Costs for inputs such as seeds and manure. (Input costs did not include labour costs, since small holdings use family labour for all farming activities).

³Calculated by multiplying total yields of food and cash crops with market price.

⁴Calculated by subtracting input costs of crops from gross margin of crops.

Table 5.2 shows the percentage of farms practicing different agro-ecological methods used for improving soil fertility and for disease and pest management.

Table 5.2. Percentage of farms (of 35 farms) using different agro-ecological methods in the districts of Barwani, Khargone and Khandwa, Madhya Pradesh, India (Mod. f. Panneerselvam 2010).

Average number of methods used = 4.8

Soil fertility improvements, %		Pest and disease management, %	
Mulching	3	Trap crops	65
Compost or farmyard manure	30	Intercropping	88
Green manure	13	Natural pesticides	65
Crop residue return	58	Physical trap	60
Crop rotation	60	Pheromone trap	3
Contour cropping	0	Hedge rows	0

The farmers primarily use crop rotation, crop residue return and compost or farmyard manure to increase soil fertility and intercropping, trap crops, natural pesticides and physical traps to manage pests and diseases.

6. Introducing farmer group learning into Barwani, Khargone and Khandwa districts

In general Indian farmers have a low level of technical knowledge about organic methods of production and they need support from NGO's and private companies (Panneerselvam 2010). Also the majority of the farmers in the case study have a low-level of education or no education. Hence, in many ways they benefit from the work of bioRe Association offering education in organic farming and the contract they have with Maikaal bioRe which includes extension service. However, in a number of areas the farmers could also benefit from establishing groups where knowledge is exchanged and developed as well as performing labour demanding tasks together. Also exchanging knowledge in the field where things are happening might be a more suitable way or an additional way for the farmers. The contract on cotton, which the farmers have in common, could be the basis of establishing farmer groups for common learning and development.

Even though the farmers cultivate their land according to biodynamic principles, they only receive premium prizes for cotton. The other rotational crops are sold at conventional prize. Together they could work on finding a way to market these crops as organic or approach bioRe to find a solution in order to increase income. Together they will be stronger in approaching the local governmental institutions for support with price premium.

The organic wheat is yielding 60% of the yield in conventional wheat. As Panneerselvam (2010) describes this could be due to high-yielding Indian varieties being bred for high-input

management conditions. A focus in farming groups could be to find out how to get access to traditional varieties of wheat and to make experimental plots to see how they perform.

Small holding farmers are generally resource poor, hence reducing inputs is of major importance. The case farmers spend less than one third of conventional input costs. However, they still rely on biodynamic inputs and bio-pesticides from bioRe. Making biodynamic preparations is knowledge intensive and time consuming. It could be an advantage for the farmers to make the preparations together while exchanging knowledge on the subject. Since the farmers find control of pests and diseases a challenge, another focus could be further development of agro-ecological practices to avoid this.



Farmers making preparations. Photo: bioRe.



Farmer ploughing his land. Photo: bioRe.

The farmers view lack of labour as a challenge and the family members are involved in all farming activities since they cannot afford to buy in labour. In the groups the farmers and their families could work together on time consuming and labour intensive tasks. It could pose a problem that the farmers are growing the same crops since this means that the different tasks need to be done at the same time. If the farmers help each other this could free more time for their children to attend school and do homework. Since the whole family is involved with the farm work, it could be relevant to create learning groups which include all family members.

The farmers had almost no debt due to low expenditure on inputs. However, they expressed concern about lower total yields compared to conventional farms. This could be due to only 30% of the investigated farms using compost or farmyard manure as well as a low input. Means of increasing soil fertility could be a subject in farming groups. Common investment in a cow and sharing the manure could be an option. Also the milk could contribute to a more diversified diet or be sold to generate income.

It is unclear whether the livestock are raised and live according to organic principles. Often the use of agro-ecological practices result in animals being stabled in order to have control over the manure. However, it poses a conflict since stabled animals are deprived from performing their natural behaviour, grazing or rooting. How to integrate animals in the farming system could be a focus of farmer groups, also to minimize the work load.

The groups could very well make use of the concepts of FFS or FFLG depending on their specific needs and circumstances. Also the aims and the way to work have to be decided jointly by the group members. Otherwise there is no ownership and the groups face risk of dissolving. It would be relevant to include all stakeholders in the process. Hence, bioRe would be an important stakeholder with the obvious task of training the facilitators if the enterprise submits positively to the concept.

7. Conclusion

Introducing different concepts of farmer group learning into organic small holdings in the global south contains several benefits as well as barriers. In a farmer group a huge amount of knowledge and skills exists. If the group builds on the members' ownership, commitment, trust and respect, new learning will be produced. This will contribute to building up human and social capital, eventually leading to increased access to resources. Barriers could be related to lack of commitment, the benefits not being immediately obvious. Lack of common objectives and ways to pursue these increases the risk of group resolution. Training of facilitator skills is of paramount importance for success. Other challenges could be related to gender and power distribution. Flexibility is a key word since the group members' backgrounds as well as the surroundings differ.

8. Colleague supervision

The first colleague supervision took place in March where the projects were still in the early phase. We were four students meeting, taking turn in presenting our project ideas, followed by questions, ideas and inputs to the presenter. I had decided to focus on the element of learning, being very inspired by the Farmer Family Learning Groups in Uganda and the Danish Stable Schools. However, I was uncertain about how I wanted to do this and even more uncertain on which country to include and this was reflected in my presentation. My perception was that because of this, my fellow students found great difficulty in performing colleague supervision on my project idea. It made me realize the importance of being able to present one's ideas to colleagues in a clarifying way and how to do this. Also it made me think at which point in the process colleague supervision should be introduced.

In April I had a session together with my fellow students and the course coordinator, presenting our assignment ideas and giving each other feed-back. It was inspiring and rewarding to hear my fellow students' project ideas, followed by the exchange of questions, ideas and other inputs. This, as well as the feed-back on my presentation, gave me ideas on how to structure my assignment with a part related to theory and a case study part. Also, having to present my assignment, as well as formulating questions to my fellow students on the areas I specifically would like to receive feed-back on, was a clarifying process.

Later on in the project process, we were four students meeting to do colleague supervision. The session was influenced by the fact that most of us were either finished with the assignment or had decided how to structure and what to include in the assignment. It made me realize the importance of coordinating the colleague supervision process with my fellow students and to prepare a time schedule for every assignment presentation.

The process of colleague supervision was an eye opener to me since this entailed a different focus from what I and my fellow students are used to. It was challenging to ask the “right questions” and not to fall into the trap of telling my fellow students what I thought was the right thing to do.

9. References

Abate, A. & Duveskog (2003): *Application of the Farmer Field School approach in Kenya*. In: Sones, K. R., D. Duveskog & B. Minjauw (Eds): *Farmer Field Schools: the Kenyan experience*. Report of the Farmer Field School stakeholders' forum held 27th March 2003 at ILRI, Nairobi, Kenya, pp. 11-15.

ASSOCHAM (2012): *Madhya Pradesh -Inching towards organic farming*. Food & Agriculture Division. The Associated Chambers of Commerce & Industry of India. ASSOCHAM corporate office. Available: http://www.assochem.org/events/recent/event_652/MP_STUDY-2012.pdf [2012 April 19].

Bebbington, A. (1999): Capitals and Capabilities: A Framework for Analyzing Peasant Viability, Rural Livelihoods and Poverty. *World development*, Vol. 27, No. 12, pp. 2021-2044.

BioRe (Unknown): *Company info*. Available: <http://www.bioreindia.com/company.aspx> [2012 May 6].

Braun, A & D. Duveskog (2008): *The Farmer Field School Approach – History, Global Assessment and Success Stories*. Paper commissioned by The International Fund for Agricultural Development, October 2008. A background paper for the IFAD Rural Poverty Report 2009, pp. 43.

Eyhorn F, P. Mader & M. Ramakrishnan (2005): *The impact of organic cotton farming on the livelihoods of smallholders*. Evidence from the Maikaal bioRe project in central India. Research Institute of Organic Agriculture FiBL, Frick, Switzerland, pp. 75.

FAO (2007): *International conference on organic agriculture and food security*. 3-5 May 2007. FAO, Italy. Available: <http://ftp.fao.org/paia/organicag/ofs/OFS-2007-5.pdf> [2012 May 10].

FAO (2011): 2011 Hunger Report. Available: <http://www.fao.org/hunger/en/> [2012 May 10].

FAO (2012a): *World food and Agriculture*. Food and Agriculture Organization of the United Nations, Rome 2012. Available: <http://www.fao.org/docrep/015/i2490e/i2490e00.htm> [2012 April 15].

FAO (2012b): *Food and Agriculture Organization of the United Nations*. Available: <http://www.fao.org/economic/ess/ess-fs/en/> [2012 April 18].

Friis-Hansen, E. & D. Duveskog (2012): The empowerment Route to well-being: An Analysis of Farmer Field Schools in East Africa. *World Development*, Vol. 40, No. 2, pp. 414-417.

- Gallagher, K. (2003): *Fundamental Elements of a Farmer Field School*. LEISA MAGAZINE, March 2003, pp. 5-6.
- Halberg, N., H. F. Alrøe, M. T. Knudsen & E. S. Kristensen (Eds.) (2006): *Global development of Organic Agriculture: Challenges and prospects*. CAB International, Wallingford, UK, pp. 377.
- Halberg, N., T. B. Sulser, H. Høgh-Jensen, M. W. Rosegrant & M. T. Knudsen (2006): *The impact of organic farming on food security in a regional and global perspective*. In: Halberg, N., H. F. Alrøe, M. T. Knudsen & E. S. Kristensen (Eds.): *Global development of Organic Agriculture: Challenges and prospects*. CAB International, Wallingford, UK, pp. 277-322.
- Hermansen, J. E. (2003): Organic livestock production systems and appropriate development in relation to public expectations. *Livestock Production Science*, Vol. 80, pp. 3-15.
- IAASTD (2008): *Agriculture at a crossroad*. Executive Summary of the Synthesis Report of the International Assessment of Agricultural Knowledge, Science and Technology for Development, South Africa, April 2008 pp. 23.
- IFOAM (2005): *The Principles of Organic Agriculture*". Available: http://www.ifoam.org/about_ifoam/principles/index.html [2012 April 16].
- IFOAM (2008): *Definition of organic agriculture*. Available: http://www.ifoam.org/growing_organic/definitions/doa/index.html [2012 April 16].
- Khisa, G. S. (2003): *Overview of the Farmer Field School approach*. In: Sones, K. R., D. Duveskog & B. Minjauw (Eds): *Farmer Field Schools: the Kenyan experience*. Report of the Farmer Field School stakeholders' forum held 27th March 2003 at ILRI, Nairobi, Kenya, pp. 3-10.
- Knudsen, M. T., N. Halberg, J. E. Olesen, J. Byrne, V. Iyer & N. Toly (2006): *Global trends in agriculture and food systems*. In: Halberg, N., H. F. Alrøe, M. T. Knudsen & E. S. Kristensen (Eds) (2006): *Global development of Organic Agriculture: Challenges and prospects*. CAB International, Wallingford, UK, pp.1-48.
- Kristiansen, P., A. Taji & J. Reganold (Eds) (2006): *Organic agriculture, a global perspective*. CABI Publishing, Wallingford, UK, pp. 449.
- Kristiansen, P. & C. Merfield (2006): *Overview of organic agriculture*. In: Kristiansen, P., A. Taji & J. Reganold (2006): *Organic agriculture, a global perspective*. CABI Publishing, Wallingford, UK, pp. 1-23.
- Munene (2008): *Moving out of poverty through interaction*. In: Vaarst, M., T. Tibasiima, J. Nalunga, A. Dissing & I. L. Dissing (2011): *Farmer Family Learning Groups for community development – Based on experiences from “The Rwenzori Project” in West Uganda*. NOGAMU, SATNET & Organic Denmark Global Organic 2011, pp. 18.
- Munene, J. C., S. H. Schwartz & G. M. Kibanja (2005): *Escaping from Behavioural Poverty in Uganda. The Role of Culture and Social Capital*. Fountain Publishers, Kampala, Uganda, pp. 170.
- Nakasi, H., I. Luyiga & J. Mutebi (Unknown): *Training manual for farmer trainers*. Sustainable Agriculture program, Caritas, pp. 47.
- Ngeno (2003): *Opening Remarks*. In: Sones, K. R., D. Duveskog & B. Minjauw (Eds): *Farmer Field Schools: the Kenyan experience*. Report of the Farmer Field School stakeholders' forum held 27th March 2003 at ILRI, Nairobi, Kenya, pp. 2.

- Panneerselvam, P (2010): Improving marginal and small holders food security through organic agriculture in India. PhD thesis - December 2010, AU. Department of Agroecology and Environment, Faculty of Agricultural Sciences, Aarhus University, pp. 128.
- Pretty, J. (1995): Participatory learning for sustainable agriculture. *World Development*, Vol. 23, No. 8, pp. 1247-1263.
- Sen, A. (1999): *Development as freedom*. Alfred A. Knopf, Inc. New York, pp. 366.
- Sones, K. R., D. Duveskog & B. Minjauw (Eds) (2003): *Farmer Field Schools: the Kenyan experience*. Report of the Farmer Field School stakeholders' forum held 27th March 2003 at ILRI, Nairobi, Kenya, pp. 58.
- UNEP (2008): *Organic Agriculture and Food Security in Africa*. UNEP-UNCTAD. Capacity Building Task Force on Trade, Environment and Development (CBTF). United Nations conference on trade and development. United Nations Environment Programme, pp. 47.
- United Nations (2009): *The Millennium Development Goals Report 2009*. United Nations 2009. Available: http://www.unfpa.org/webdav/site/global/shared/documents/publications/2009/mdg_report_09.pdf [2012 May 10].
- Vaarst, M. (2007): *Participatory Common Learning in Groups of Dairy Farmers in Uganda (FFS approach) and Danish Stable Schools*. DJF Animal Science, No. 78, June 2007, pp. 72.
- Vaarst, M. (2010): Organic farming as A Development Strategy. Who are interested and Who are not. *Journal of Sustainable Development*, Vol. 3, no.1, pp. 38-44.
- Vaarst, M (2012): *Slides from the 6th of March 2012 on the subject of "Local community development, human and social aspects of development in rural areas"*. Course: "Organic agriculture in a development perspective".
- Vaarst, M. & J. C. Munene (2011): *Strengthening social capital in Farmer Family Learning Groups for organic development*. In: Vaarst, M., T. Tibasiima, J. Nalunga, A. Dissing & I. L. Dissing: *Farmer Family Learning Groups for community development –Based on experiences from "The Rwenzori Project" in West Uganda*. NOGAMU, SATNET & Organic Denmark Global Organic 2011, pp. 16-22.
- Vaarst, M., D. K. Byarugaba, J. Nakavuma & C. Laker (2007): Participatory Livestock Farmer training for improvement of animal health in rural and peri-urban smallholder dairy herds in Jinja, Uganda. *Tropical Animal Health Production*, vol. 39, pp. 1-11.
- Vaarst, M., T. Tibasiima, J. Nalunga, A. Dissing & I. L. Dissing (2011): *Farmer Family Learning Groups for community development –Based on experiences from "The Rwenzori Project" in West Uganda*. NOGAMU, SATNET & Organic Denmark Global Organic 2011, pp. 49.
- Vaarst, M., T. Tibasiima, J. Nalunga, A. Dissing & I. L. Dissing (2012): *The Rwenzori Experience: The Farmer Family Learning Group Approach to Human and Social Capital Building, Environmental Care and Food Sovereignty*. The Environment and Development Series 15. Third World Network, Penang Malaysia, pp. 56.
- Van der Fliert, E., J. Pontius & N. Röling (1995): Searching for strategies to replicate a successful extension approach: Training of IPM trainers in Indonesia. *European Journal of Agricultural Education and Extension*, Vol. 1, pp. 41-64.

Velayutham, M., D. K., Mandal, C. Mandal, & J. Sehgal (1999): *Agro-Ecological Sub regions of India for Planning and Development*. NBSS and LUP, Publ. No. 35, pp. 372.

Willer, H. & L. Kilcher (Eds.) (2012): *The World of Organic Agriculture - Statistics and Emerging Trends 2012*. Research Institute of Organic Agriculture (FiBL), Frick, and International Federation of Organic Agriculture Movements (IFOAM), Bonn. Available: <http://www.organic-world.net/fileadmin/documents/yearbook/2012/fibl-ifoam-2012-key-table.pdf> [2012 April 19].