Cultivating under contract
an actor-network perspective on the socio-technical shaping of farmers' practices in North India

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Cultivating under Contract

An Actor-Network perspective on the socio-technical shaping of farmers’ practices in north India.

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Identity number 0641211

In partial fulfilment of the requirements for the degree of

Master of Science
in Innovation Sciences

Supervisors:
Dr. Saurabh Arora  Eindhoven University of Technology
Prof. Jeffrey James  University of Tilburg
MSc. Yuti Ariani  Eindhoven University of Technology
Preface and acknowledgments

Cultivating under Contract has become the title of my thesis on the effects of contract farming on the practices of farmers. With this thesis I will complete the master Innovation Sciences at the University of Technology in Eindhoven. During my master I had the opportunity to follow my interest and increase my knowledge on the effects of technologies on society in developing countries. The research for my master thesis was a challenging but satisfying way to finish my study. This research would not have been possible without the help and support of many people in the Netherlands and India.

First I would like to thank my supervisor Saurabh Arora for giving me the opportunity to execute this research and for trusting me in his project. Furthermore I would like to thank him for his guidance during the process and his critical comments. I feel that I have learned to think in a more critical manner and without his help this report would not have been the same.

My gratitude also goes to my second and third supervisor, Jeffrey James and Yuti Ariani for their valuable comments on the report.

In India, I would like to thank Deepti Verma for being my translator and friend. I could not have wished for someone better to work with, thank you for your incredible friendly and open way of approaching people which opened the door to everyone I wanted to speak. Finally I want to thank you for all the adventures, even in the most horrible weather conditions, it was great!

Furthermore, I would like to thank Suman and Pramod Vohra for welcoming me in their house and making me feel at home in Dehradun. Without their love and hospitality I would have felt very lonely in India.

Special thanks go to all the farmers in Kashnagar, their willingness to tell me everything about their lives and show me their practices in the field were an invaluable source of information and without it my research would never succeed. Thanks for sharing your lives with me and for all the cups of tea we drank together.

Finally I want to express my gratitude towards Frans van Herwijnen for making me smile when I was feeling lonely, for listening to my stories and for giving advice when I was stuck again. Thank you for reading every chapter and share your vision with me.

Agriculture in India remains challenging, despite new policies and techniques. I hope this report will give some more insights in the effects of a popular approach, contract farming, on the livelihoods of farmers.

Enjoy reading,

Naomi Baan Hofman
Eindhoven, July 2011
Summary

The research done for this report focuses on the effects of contract farming on farmers’ practices. There have been many agricultural problems in India, caused for instance by the effects of the Green Revolution and the implementation of neo-liberal policies by the Indian government. Since recent years there has been attention by academics and policymakers for a new development policy that includes the private sector, contract farming. With contract farming there is a direct contract between the farmers (federations) and the firm, sometimes signed by a third party as an independent witness. The price guarantees that farmers get, including easy access to credit and new technologies are often mentioned as the benefits of contract farming for the farmers. The firm on the other hand has direct suppliers and is not dependent on middle men for their produce. Recent literature on contract farming is often mentioning the possible benefits or problems for farmers, but these are usually based on general economic conditions, while there has been little attention for the actual effects of contract farming ‘on the ground’. The goal of this research was therefore to understand the effects of contract farming on the shaping of farmers’ practices.

Research approach

To understand what the practices of farmers are, two social practice theories are used. Firstly Gherardi’s texture, where the relation between different practices becomes clear and secondly Swidlers anchorage that focuses on the hierarchy between practices. For the second analysis that concentrates on the shaping of farmers’ practices, the Actor-Network theory of Latour and Callon is used, specifically the four steps of translation that were made by Callon in 1986. These steps are problematization, interessement, enrolment and mobilization. By using this theory the creation of the actor-network of two farmers and the Local Organic Promotion Council (LOPC) is analyzed, which should lead to a better insight in the process of shaping practices. To make a distinction between different actors the terms mediator and intermediary are used, introduced by Latour in 2005. A mediator can influence the outcome of the process of translation, while an intermediary is only following the orders that are given.

Fieldwork

This research is based on fieldwork in Kashnagar, Northern India. It is in this block of villages in Dehradun district in the state of Uttarakhand, that the original Doon basmati was grown. During a World Bank funded project called Diversified Agricultural Support Project (DASP); the organic basmati program was set up. The main goals of this program were to save the original Doon basmati that was hardly cultivated anymore and to increase the livelihood of farmers by promoting organic cultivation techniques. The organic Doon basmati would be exported and the farmers would gain a premium for their organic produce. When the DASP ended, the program was taken over by the LOPC and they found Swadisht, a Delhi based firm, as the buyer of the organic basmati in 2005. Swadisht then signed a contract with the farmers’ federations in Dehradun district, Kashnagar is one of these federations. The federation represents the organic farmers from that block of villages. The LOPC signs the contract as a third and independent party. It is also the LOPC who makes sure the farmers get their organic certification, which is necessary to export the produce. It was in this situation that I visited many farmers in Kashnagar. Through semi-structured interviews and observations the shaping of practices was followed. In this report the focus is on two farmers, Deepti a small farmer
from a lower caste and the Rawats, one of the larger farmers in the program and from a high caste. The effects of contract farming on these two farmers lead to some interesting outcomes.

Outcomes
One of the main findings of in this thesis was the difference between Deepti and the Rawats. Where the Rawats were able to create a successful actor-network by successfully enrolling different actors such as the LOPC, Swadisht and the basmati plants, Deepti did not manage to create this actor-network. This means that the Rawats were able to speak in name of the different actors that they enrolled in their actor-network and they became mediators in the process of organic basmati cultivation under contract. The Rawats were able to ignore the package of practices, set up by the LOPC and Swadisht and instead follow their own practices. Deepti on the other hand, became an intermediary that cannot influence the process of organic basmati cultivation and instead needs to comply with the rules and practices that are given to her by other actors such as the LOPC, Swadisht and Sareen the federation chairman. Although both farmers tried to create an actor-network with the same goal namely; to cultivate high quality basmati to increase their livelihoods, they did not manage to get the same result. The Rawats did increase their basmati production and therefore their livelihoods as well. Deepti faced many diseases in her plants and was not able to cultivate high quality basmati and therefore her livelihood only decreased. The strange situation occurs that the farmer, who is following all the prescribed practices exactly, is not benefitting from the organic basmati program. On the other hand, the farmer who is following his own practices and does not listen to the prescribed practices, manages to cultivate the organic basmati successfully and therefore benefits from the program.

Conclusions and policy implications
First of all, by using the ANT it was possible to get a better understanding on how the practices were shaped under the organic basmati program under contract. What the ANT did not show, was why one farmer was more successful in creating an actor-network than the other. The devices of interessement used by the Rawats were more effective and probably more distinctive compared to the devices of interessement of Deepti. But this does not explain why Deepti’s devices of interessement did not work and why she was not able to mobilize the actors in her actor-network, while the Rawats did. A possible explanation might be the difference in gender or caste, but this is not something the ANT takes into account.
There are also some policy implications, it seems that contract farming, as a development policy that should increase the livelihood of farmers, does not work. The ethnographic evidence based on the two extremes shows that the effects of contract farming are mainly benefitting the richer and more influential farmers, while the poorer farmers who need the increase in livelihood the most, are not benefitting at all.
Another interesting policy implication is that the success of the organic basmati program under contract is mainly based on publicity. The Rawats for instance, are often mentioned in newspapers and are showing the success story of the organic basmati program. It is this publicity that decides whether the program is a success or not, the poorer farmers are not mentioned in these stories and therefore the effect of the program on their livelihoods is not an indicator for the success of the program as a whole.
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## Abbreviations

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<tr>
<td>AFL</td>
<td>Actual Farmers List</td>
</tr>
<tr>
<td>ANT</td>
<td>Actor-Network Theory</td>
</tr>
<tr>
<td>APEDA</td>
<td>Agriculture and Processed Food Products Export Development Authority</td>
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<tr>
<td>COF</td>
<td>Centre for Organic Farming</td>
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<tr>
<td>DASP</td>
<td>Diversified Agriculture Support Program</td>
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<td>FAO</td>
<td>Food and Agriculture Organization</td>
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<tr>
<td>ICS</td>
<td>Internal Control System</td>
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<td>IFOAM</td>
<td>International Federation of Organic Agriculture Movement</td>
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<tr>
<td>IMF</td>
<td>International Monetary Fund</td>
</tr>
<tr>
<td>IMO</td>
<td>Institute for Market ecology</td>
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<tr>
<td>NGO</td>
<td>Non-Governmental Organization</td>
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<td>NOP</td>
<td>National Organic Program</td>
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<td>NPOP</td>
<td>National Program for Organic Production</td>
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<tr>
<td>OPP</td>
<td>Obligatory Passage Point</td>
</tr>
<tr>
<td>PoP</td>
<td>Package of Practices</td>
</tr>
<tr>
<td>Rs</td>
<td>Rupees (Indian currency)</td>
</tr>
<tr>
<td>SHG</td>
<td>Self Help Group</td>
</tr>
<tr>
<td>SRI</td>
<td>System of Rice Intensification</td>
</tr>
<tr>
<td>LOPC</td>
<td>Local Organic Promotion Council</td>
</tr>
<tr>
<td>UP</td>
<td>Uttar Pradesh</td>
</tr>
<tr>
<td>USOCA</td>
<td>Uttarakhand State Organic Certification Agency</td>
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1.0 Introduction

This thesis is about basmati, something that can be bought in supermarkets all over the world, but is cultivated only in India and Pakistan. The case of the organic basmati program in Uttarakhand, a state in Northern India, is used to analyze the effects of contract farming on the cultivation practices and social relations among farmers and other relevant actors in the program. This chapter will start with the problem definition and research objectives, followed by the research questions, societal and scientific relevance, methodology and an outline of the total report.

1.1 Problem definition

Agriculture is still one of the main sources of income for many people in India, but there are many problems in India related to agriculture, where the recent ones are often referred to as ‘agrarian distress’. There are different political and economic reasons that have been given for this problem, the main ones being the effects of the Green Revolution that started in the 1960s and the implementation of neo-liberal policies in the 1990s. The main goal of the Green Revolution was to increase the production of wheat and rice, and later also cash crops such as cotton. This was achieved by promoting high yield varieties of seeds, chemical pesticides and fertilizers and consequently the farmers needed to use more inputs to gain higher yields. These inputs were subsidized by the Indian government in the period until the 1990s and the Green Revolution spread throughout India (Walker, 2008). However, over the years the production started to decrease and many farmers needed to invest increasing amounts in irrigation systems, seeds and other technologies to obtain the desired production yields. This was the situation in India when an important trading partner of India, the Soviet Union, collapsed and the world economy started to change (Kohli, 2006). The Indian government started to implement neoliberal policies in the 1990s because of the increased understanding by the Indian political leaders that a relationship with the US was important. Furthermore the IMF was approached in 1990 for a loan which was of the ‘structural adjustment type’. These structural adjustments of the IMF meant opening the market. This together with the increased pressure of Indian firms for a more open market can be seen as some of the reasons why neo-liberal policies were implemented (Kohli, 2006).

The neo-liberal policies caused a large decrease in government expenditure and this had an effect on agriculture in India: the subsidies for seeds, fertilizers and pesticides were curtailed which meant an increase in price of these inputs (Kumar, 2005). Furthermore, trade liberalizations made the farmers extra vulnerable for volatile crop prices on the world market. Without any trade protections, farmers were getting lower prices for their crops (Ghosh, 2005). Finally there was financial liberalization as well, which reduced the availability of rural credit. Due to these developments, many farmers became dependent on local money-lenders with high interest rates (Ghosh, 2005). As a consequence there was a high rate of farmers’ suicides in Green Revolution states (Walker, 2008). The combination of the Green Revolution and the neoliberal policies of the Indian government during the 1990s have played a large role in the current agrarian distress in India.
1.1.1 Contract farming

The agrarian distress as described, has given rise to policies trying to reduce poverty in rural areas and improve the livelihood of farmers. Lately contract farming has been proposed as a solution for the problems within agriculture by policymakers and academics such as Singh (2005) and Gahukar (2007). Contract farming already exists for a long period of time also in developed countries where it is often used for perishable agricultural products such as milk for the dairy industry (Bijman, 2008). The use of contract farming in developing countries has expanded rapidly and according to Bijman there are three developments that cause this rapid expansion. First of all there is the rise of supermarkets in urban areas of developing countries. Supermarkets often prefer a vertical coordination for production which favors the introduction of contract farming. The second development is the reduction of state involvement in marketing, providing input and technical services which happened under liberalization. This creates a void which is filled by firms who, it is argued, can provide research and extension services through contract farming. Finally there is the increased ambition of donors, NGOs and governments of developing countries to improve the position of smallholders in the market. According to them contract farming is the right instrument to achieve this (Bijman, 2008). This development is confirmed by the World Bank which is actively promoting contract farming in India. According to their 2008 report, the Indian Government should complete the deregulation of the agricultural market system and focus more on quality standards and grading of agricultural commodities for export and domestic markets. Besides that the Indian government should attract FDI to invest in agriculture in the form of contract farming, ‘to link farmers to the market’ (World Bank, 2008).

The definition of contract farming as given by the FAO is the following:

“Contract farming can be defined as an agreement between farmers and processing and/or marketing firms for the production and supply of agricultural products under forward agreements, frequently at predetermined prices” (Eaton & Shepherd, 2001, p. 2).

The basis of such a contract is the commitment that the farmer will produce a certain commodity at the quantity and quality determined by the purchaser and the firm will support the farmer’s production and will purchase the commodity (Eaton & Shepherd, 2001). There are different types of contracts and the product type, buyer and destination market have an influence on the type of contract between firm and farmer (Bijman, 2008).

1.2 Research Objectives

Recent literature on contract farming is mainly based on the possible crop profitability and productivity of farmers under contract for instance in Bijman (2008) and Singh (2005). Little attention is given to the ‘voice’ and practices of the farmers who are engaged in the contract, although Little and Watts (1994) base their research on many case studies where they want to understand the social, economic and cultural complexity of contract farming, it does not look at the practices of the farmers and continues to describe the general effects of contract farming on farmers, such as effects on income. The effects of contract farming on the cultivation methods of farmers and the role of the farmers’ own knowledge, past practices and socio-economic relations outside the direct sphere of contract farming are thereby neglected. Furthermore the quality and grading standards that have been set by international, usually Western, organizations have a direct impact on the farmers when they are implemented by the contracted firm. Farmers’ compliance to
these standards has probably the largest effect on their practices (Ouma, 2010). Although contract farming should help to alleviate poverty in agriculture in India according to some academics and policymakers, there has not been much attention for the relation between contract farming as a development policy and the practices entailed in the implementation of this policy (Mosse, 2004). In order to have a successful policy, ‘the ‘black box’ between policy descriptions and their poverty reduction effects should be opened’ (Mosse, 2004, p. 641). By analyzing the practices of farmers engaged in contract farming, this ‘black box’ can be opened and better insights can be gained in the effects of contract farming as a development policy. These insights can again be used to implement an effective program or policy. Therefore my research objectives are:

1. Map the cultivation practices of farmers.
2. Analyze the effects of contract farming on the practices of farmers.
3. Identify the factors that shape the practices of farmers.

1.3 Research questions
The research question that I will try to answer will be the following:

How does contract farming shape agricultural practices of Basmati rice farmers in Northern India?

Sub questions:
1. What are the farmers’ agricultural practices?
2. How are these practices shaped by farmers’ agency, past practices, technology and the local and non-local social relations of contract farming?

An important part of the research question is the practices of farmers. Therefore the first sub question is meant to find out what the agricultural practices of the farmers are. Knowledge on the practices is necessary to be able to answer the second sub-question. The practices are analyzed using the concepts of ‘texture’ and ‘anchorage’. Texture describes the linkages among practices, while anchorage focuses on the importance of one practice compared to others. Texture and anchorage help to understand the relations between the practices and its hierarchy. These will be explained further in the theoretical framework. When it is clear what the important practices are and how they are connected with each other, it is possible to analyze how these practices are shaped. The practices are shaped in many ways, where the farmers’ agency, past practices, technology and local and non-local knowledge play an important role in forming interactions with other actors. This socio-technical shaping through interactions will be analyzed using the Actor-Network Theory. With the Actor-Network Theory it is possible to ‘follow’ the actors and understand the different interactions and alliances that are being made between both human and non-human actors. The next chapter will provide more information about this theory.

Finally these changing practices will probably have an influence on some other aspects as well such as the local ecology, labor and knowledge autonomy of the farmers. It is interesting to focus on these three elements since contract farming might affect them directly. Some argue that green revolution technologies have had a devastating effect on the ecology since land became less fertile due to the excessive use of chemical pesticides and fertilizers, and there was a decrease of agrarian biodiversity because of the focus on cash crops (Gupta, 1998). With organic farming the use of chemicals or genetically modified seeds is not allowed. This means many of the ecological problems
that occurred during the Green Revolution are not being repeated again. How beneficial is this for the local ecology?

Besides the effects of contract farming on the ecology there are expected effects on labor and knowledge. With contract farming the firm often supplies the technologies and knowledge that is necessary to use these technologies such as seeds, biochemicals, fertilizers and irrigation techniques. The farmer on the other hand will deliver the labor necessary to grow the crops. A possible effect of these contracts might be that farmers’ knowledge that was needed to grow local crops, such as knowledge about which crops can be planted together, when to plough and when to harvest, may be diluted with the general knowledge on cultivating cash crops for a firm. This has an effect on the capacity of the farmers to carry out their profession at the termination of the contract. It can also have an effect on labor since the firm might introduce solutions which require less knowledge and the need for highly skilled labor decreases which can reduce the bargaining power and the wages of the laborers. On the other hand it is not likely that farmers will do away with all their knowledge to accept solely the practices brought by the firms. As described by Gupta (1998) when talking about the green revolution, farmers may combine their knowledge with the more ‘modern’ knowledge brought by the firms. Therefore it is interesting not only to explore how knowledge from firms has been adopted but also how it is being transformed and controlled by the farmers involved. These aspects will be taken into account when answering the research questions since it forms an important part of the impact of contract farming.

1.4 Societal relevance

Improving the livelihoods of farmers in India who are affected by the continuous problems in agriculture is socially relevant. Contract farming is regarded as a way of achieving this. This means that farmers are included in the global value chain where they need to comply with the food safety and quality standards of mainly the United States and Europe in order to sell their produce on the international market. But agriculture is more than only increased productivity and crop profitability; many small farmers in India have been cultivating their land for generations and are part of a larger network of socio-economic relations, past practices and technologies. With contract farming, farmers have to enter into relations with actors in the global value chain as well. These changing relations in agriculture can have a large impact on the livelihood of farmers, for example dependency on the firm for income. Therefore it is useful to gain more insights and develop a better understanding of the changing relations in practice and to see these changes as a process in order to understand the transformations in agriculture in India.

1.5 Scientific relevance

There are many studies that delve into the complexities and problems of agriculture in developing countries and specifically in India. Many of these are focusing on possible policy solutions where the inclusion of private parties have become increasingly popular, this is especially noticeable in the World Bank report of 2008 (World Bank, 2008). Academics univocally take notice of a transition going on from traditional marketing systems towards more market liberalization and globalization. Corporations are entering the food market and accelerate the process of market transformation (Birthal, 2008). It is in this situation that the concept of contract farming is gaining popularity, both in academic literature as in practice as the case study in this report will show. Often both the positive as the negative sides of contract farming are mentioned for instance in Birthal (2008) and Singh (2005) where the decreased bargaining power of smallholders forms the most important problem.
But even though there are differences in the literature regarding contract farming there is one similarity; no research has been executed on the effects of contract farming on the practices of farmers. Although research has been done on the effects of the Green Revolution and how farmers adopted or incorporated knowledge and technologies promoted during the Green Revolution by Akhil Gupta. This research focused on farmers’ practices in a village in Northern India in the 1980s. According to Gupta, farmers are using ‘scientific’ knowledge promoted by the government in light of the green revolution together with indigenous knowledge which he calls ‘humoral agronomy’ (Gupta, 1998). So while farmers are using many ‘scientific’ technologies such as hybrid seeds, fertilizers and pesticides they also take natural elements into account. For instance the impact of the soil on crops gives information where and when to plant which crop. Also the wind plays an important role, an uncommon hot wind can cause a bad harvest. Furthermore, irrigation techniques can be called ‘modern’ but timing of irrigation is often based on traditional knowledge. By using this hybrid form of knowledge the farmers cannot be considered as absolutely ‘modern’ in the Western sense but neither as originally indigenous (Gupta, 1998). This research is interesting since it shows that farmers do not automatically adopt all ‘scientific’ top-down knowledge, but they will combine this with their local knowledge.

My research will also focus on the practices ‘on the ground’ and see how the standards, techniques and information imposed by the firm shape the farmers’ practices. As Gupta has shown, farmers will not automatically adopt all technologies given by the firm, but will translate them into their own network. They might adopt, change or ignore certain technologies or standards, this process can be best described when ‘following’ the actors. The Actor-Network Theory (ANT) will be used to describe this process; this will be preceded by some practices theories, to find out what the actual practices of the farmers are. By combining the practices theory with the ANT to unravel the influence of contract farming on the shaping of farmers’ practices, an addition to the literature on contract farming is made.

1.6 Research Approach
In this section the research boundaries and the methods of data collection will be discussed.

1.6.1 Research Boundaries
The focus of this research was on the practices of organic basmati farmers. I limited myself to the organic basmati farmers in the villages of Kashnagar, a block in Dehradun district. The farmers I interviewed were all members of the Local Organic Promotion Council (LOPC). This means that non-organic farmers and organic farmers from villages outside Kashnagar are not taken into account in this research. The exact geographical boundaries are further discussed in chapter 3. Furthermore the focus is on the shaping of practices through contract farming, this means that a comparison with farmers without a contract is beyond the scope of this thesis. Although I observed many practices during my research period, I concentrated myself on the practices related to plant protection. With this focus it is possible to understand the shaping of practices more precisely. The shaping of plant protection practices among different farmers can be compared as well.

1.6.2 Methodology and Data Collection
Based on Gherardi’s and Swidler’s theories on practices I did my first analysis to find out what the practices of farmers are. The shaping of farmers’ practices is based on the ANT and forms the content of the second analysis.
These analyses are based on fieldwork in Kashnagar where I had semi-structured interviews with farmers, laborers and representatives of the Organic Commodity Board and Swadisht, the firm who signed the contract. Besides interviews, observation was another important aspect of my research. For this the multi-sited ethnography approach was used, because “when executing multi-sited research it is possible to follow people, connections and associations across space” (Falzon, 2009, p. 1). Since the Actor-Network Theory is based on following people, connections and associations; multi-sited ethnography is a useful methodology to use in this research. An important point to mention is that the goal of multi-sited ethnography is not a holistic representation of one site as happens in ethnography (Marcus, 1995). Instead, the research I conducted is a combination of different sites and situations which did not include a representative group of actors involved in basmati rice and contract farming. This research is not meant to be representative for all farmers but to give an idea of the shaping of practices using multi-sited ethnography.

It can be concluded that my fieldwork was two-fold. First the practices of farmers were observed and mapped and secondly the human and non-humans that are needed to understand the shaping of the farmers’ practices were followed.

1.7 Report Outline

This report starts with the theoretical framework where the two theories used in the analyses are explained. Secondly, an extensive introduction in the organic basmati program, its history and important actors is given. This section also describes the intended situation of the organic basmati program and is followed by the first analysis that focuses on the observed situation in the field. The actors described in the introduction will be mentioned again and the practices of two farmers are described in detail. These two farmers will come back in the second analysis describing the shaping of farmers’ practices using the ANT. Finally the report will end with a concluding chapter where the results are discussed and an answer on the research question is given, leading to a discussion on the theory and possibilities for further research.

In order to protect the identities of the involved persons and organizations, pseudonyms are used in this report. In some cases I changed the gender of the involved actor as well.
2.0 Theoretical framework

Before I can answer the question what the influence of contract farming has been on farmers practices I have to know what these practices are. Therefore I will start my research with the analysis of the farmers’ practices. I will use two concepts to analyze these practices and to approach them from a theoretical point of view. These concepts are **texture** and **anchorage** of practices and developed by Gherardi (2006) and Swidler (2001). After explaining the two concepts I will focus on another theory I will use: Latour’s (2005) and Callon’s (1986) Actor-Network Theory (ANT). This will also include the role of brokers as mentioned by Lewis and Mosse (2006). Thirdly the concept of intermediaries and mediators will be discussed and how these can be used in both the practices theory and the ANT.

2.1 Practices

When looking up the term practice in the dictionary as Gherardi (2006) has done, the following definition will be found;

- In reality; as a fact, when actually applied
- Skilled at something through recent exercise in it or performance

It is important to distinguish these two definitions when analyzing practices since it is both important to “study the knowledge ‘when actually applied’ and the performativ aspect of knowledge which, when applied to itself, produces further knowledge and can be seen as learning” (Gherardi, 2006, p. 46). Practices are multiple and cannot be seen separately from each other. Gherardi describes this as a texture that connects practices to each other and the texture is held together by some practices that anchor other practices (Gherardi, 2006). But she also argues that texture cannot be defined although it can be shown and a question that can be asked is; what connects one practice with another and how is that connection made? But also; when is a practice regarded as appropriate and will therefore be sustained and transmitted (Gherardi, 2006)? In order to answer these kinds of questions it is helpful to see texture as connectedness-in-action, where there is an endless series of relationships continually changing and influencing each other (Gherardi, 2006). These relationships can be between the different actors, human and non-humans whenever they decide to form a connection. The connections are based on the context in which they happen and are therefore shaped for example by the socio-economical situation. In the agricultural practices where I have my focus on the organic basmati rice cultivation, there are certain practices where texture and connectedness-in-action are clearly visible. An example are the practices related to transplanting, here certain relations are made for example between the farmer and his laborers that certain work is done, but also between the laborers and the basmati seedling that it will go in the soil, does not break or flow away in the water. Another relationship exists between the laborers and the farmer that certain techniques are used during transplanting. This list can be extended endlessly with different relations among the human and non-human actors which are related to transplantation practices. Among these practices certain practices are more important than others, this difference in importance forms the basis for the concept of anchorage which will be explained in more detail later on.
Whether a certain connection is made or not made is related to power. The way power is used here can be explained by the actor-network theory where Latour describes the power of associations. He argues that power can be explained by the actions of others who obey an order instead of some virtue possessed by the leader who gives the order. So the power exercised by a leader does not depend on the amount of power he ‘possesses’ but on the amount of other actors that take action. In other words, power is viewed as a relational or associational phenomenon. These actors will translate the order, they may let it drop, modify it, betray it, add to it etc. Also among these receiving actors there is difference in power to be able to reshape the orders or wisdom received. The order will change constantly when it goes from hand to hand (Latour, 1986). Power establishes associations and these associations form the texture in a field of practices. Both humans and non-humans are included in forming the connections that lead to texture.

The texture of knowing in practice is woven together by power and through power (Gherardi, 2006, p. 63).

An example of power when talking about practices is the relation between the farmers and the firm with whom they have a contract. The firm is only powerful when his order regarding for example plant protection practices, are also accepted and followed by the farmers. It can also happen that the farmer decides to change the order of the firm and shape it according to his own experiences.

The second term; anchorage suggests that there is a hierarchy according to which some practices are more important than others. There are practices that can anchor, control, organize or constrain others (Swidler, 2001). An example of anchoring practices is related to hiring laborers during transplantation time. A farmer can choose between local laborers and laborers from Bihar, another state in Northern India. The laborers from Bihar use a different technique when they transplant the seedlings from the nursery to the field, which means that the practices related to transplantation are anchored by the descent of the laborers. The spacing between seedlings, the amount of seedlings that are used and the manner of payment are all different when Bihari laborers are hired instead of laborers from Dehradun district. This example shows that there is some hierarchy between the practices and what effect this has.

2.2 Translation
The second research question was how the practices are shaped by the farmers’ agency, past practices, technology and its local and non-local social relations. This heterogeneous shaping of practices can be explained with the use of the Actor-Network Theory (ANT). As already mentioned in the research question, heterogeneous shaping of practices not only includes humans, technologies play and active role as well. This is why the ANT is a useful theory, since this research tries to go beyond the social relations and incorporate the natural and material parts as well. With ANT it is possible to understand the process of shaping the farmers’ practices and include the role of non-humans into this process.

According to Callon and Law (1997) the actor and the network are co-extensive, the Actor-Network. For example an organic basmati farmer is also the field of basmati, the organic practices prescribed by the organic certification agency, the meetings with other farmers etc. All these things together make this person an organic basmati farmer. So the farmer is not only an individual, but also a network. A farmer can only become this network when he has successfully enrolled and mobilized
the other entities. This means different alliances need to be made by the farmer to achieve its goal. For example, for a farmer to become an organic basmati farmer he needs to make an alliance with the basmati to react on organic plant protection methods, with the organic commodity board in Uttarakhand to be registered as organic farmer, with the other organic farmers organized in a federation etc. In order to analyze the formation of this network and its socio-technical situation, the actors should be followed without any attempt to decide what the important associations are; by following the actors one can find out what associations are relevant to understand the situation (Latour, 2005).

In my case I will set some boundaries in order to understand a set of practices, which are the plant protection practices of organic Basmati rice farmers who have a contract with a firm and besides that I will follow the actors whose agency shapes these practices. In order to understand how these practices are shaped different moments of translation can be distinguished where the actor tries to form its network. Callon has come up four moments of translation which are the following (Callon, 1986):

1. Problematization: First the principal actor needs to define the problem and identify the actors which are necessary to solve the problematization. With the formulation of the problematization the principal actor can position itself in such a manner that it becomes relevant for the other actors to make an alliance with him. This alliance can help the other actors to achieve their goals as well. The following steps are necessary to achieve this alliance.

2. Interessement: The relations envisaged in the problematization need to be determined. This can be done by interessement. This is to force, seduce or in a different way make sure that the actor has an association with you instead of other actors. The devices of interessement are important. These can be reports in order to persuade scientists, or technologies to persuade non-humans (eg. Fertilizers to make seeds grow).

3. Enrolment: interessement does not automatically lead to alliances or enrolment. When interessement is successful the different actors accept their identity defined by the principle actor and an alliance has been made. But during the enrolment stage unexpected things can happen which destroys the possible enrolment and new negotiations need to take place between the principal actor and the others. (e.g. the basmati does not want to grow and the farmer needs to negotiate again with the plant and try new fertilizers).

4. Mobilization of allies: Who speaks in the name of whom and who represents whom? Will the masses follow their representatives? In this step it is important to find out who the representatives are and if they are indeed representing the actors they say they are representing.

These four steps can be used to understand the constitution or socio-technical shaping of agro-practices, although there is one more step which needs to be taken into account. This last step is called ‘dissidence’ and it happens when actors do not want to be represented anymore by their representatives. Often a controversy arises because of the dissidence of actors (Callon, 1986).

When analyzing how practices are shaped, brokers play an important role. Within the organic basmati program brokers are needed to understand the meaning of the program and translate this
to the farmers in order to avoid fragmentation (Lewis & Mosse, 2006). A broker can maintain a consistent representation of the social realities and besides that it will also try to improve its own social identity (Lewis & Mosse, 2006). A similar concept is mentioned by Latour, when he describes an actor that can transform the output and is called a mediator (Latour, 2005). According to Latour, a mediator is the opposite of an intermediary who cannot change but can be used to influence the shaping of practices. A mediator can have a large influence on the way a program develops and how it changes the practices of the farmers. By including the mediator in the analysis, the shaping of practices will become clearer. A mediator will always change in the process of translation since it tries to enroll others in its own plans. During this research I will use the term mediator instead of broker for reasons of consistency.

The concept of intermediaries is based on “the dynamics of socio-technical networks from Callon (1992). “Intermediaries can be used in order to explain how heterogeneous activities are brought into relationship with each other” (Callon M., 1992, p. 73). There are four different types of intermediaries that can be used to explain these relationships in a network. Callon has classified the following (Callon M., 1992, p. 75);

- Texts such as books, reports, articles etc.
- Technical artefacts such as machines, consumer goods etc, which are stable organized groups of non-human entities carrying out certain tasks.
- Human beings and the skills they incorporate.
- Money in all its different forms.

This means that an actor, human or non-human, can fall into two categories, an intermediary or a mediator. This depends in its ability to influence the outcome of a process. When analyzing the practices and how these practices are shaped, the intermediaries can be used to explain the relationships between different actors. Certain intermediaries are used to control or persuade farmers into certain practices. In the ANT the intermediaries can be used to explain the interessement and enrolment of actors into certain alliances. But a mediator can attribute something while an intermediary cannot. In the process of translation an intermediary will not change, while a mediator can change and enroll others. Therefore a clear difference needs to be made between the intermediaries that do not change and the mediators who do.
3.0 Intended situation

The focus of this research is the organic basmati program which includes several actors with their own roles and tasks. This chapter will focus on the ‘official’ tasks and roles of the actors involved in the organic basmati program. I will call this the intended situation of the organic basmati program and it should give a clear overview of the important actors. The second part of this chapter will concentrate on the mediators and intermediaries that are used by some actors in the organic basmati program to persuade farmers to use certain practices. The terms mediator and intermediary have been explained in the theoretical framework and this information together with the intended situation of the organic basmati program will form the bases for answering the two sub-research questions. This chapter starts with an introduction in the organic basmati program, its history and main actors.

3.1 History of the organic basmati program

In 1998 the World Bank financed the Diversified Agriculture Support Project (DASP) in Uttar Pradesh (UP) one of the largest and poorest states in India. In 2000 the state of Uttarakhand was formed, which was renamed as Uttarakhand in 2007 and the DASP stayed active here. The goals of the DASP were to support the diversification of agriculture by introducing new crops and to increase farmers’ participation in agricultural research and development, also the access to credit had to be improved (World Bank, 1998). R. Negi was the project coordinator of Dehradun district at that time, he worked with government departments and several NGOs to implement the action plans of DASP. During his work for the DASP he noticed that farmers in Dehradun district were not cultivating the local Dehraduni Basmati anymore. When he asked farmers why they did not grow this basmati variety, they answered him that the yields were very low and more money could be earned with non-basmati varieties such as Kasturi (R. Negi, Interview, November 12, 2010). According to Negi, Dehraduni Basmati is part of the identity of Dehradun and when he found out about the decreased production of this basmati variety he decided he wanted to start up a program to promote the cultivation of Doon basmati. In order to convince farmers to grow Doon basmati it should be profitable and that was when he thought about starting up an organic basmati program. One of the projects of DASP was the creation of bio-villages where the goal was to convince all farmers of that village to use organic composting techniques such as vermicompost; this was where Negi got his knowledge on organic cultivation in first instance. When thinking about a solution for the Doon basmati problem he realized that there is a price premium for organic products in the global market. This premium could mean a profit for the basmati farmers and could convince them to start cultivating Doon basmati again, this time for the export market (R. Negi, Interview, November 12, 2010). When he asked DASP whether an organic basmati program could be included in the action plan he heard this was not possible. Since Negi’s wife was a high placed government official he had some contacts in other state departments. It was in 2002, two years after the state of Uttarakanchal came into existence that he contacted the Forest and Rural Development Commissioner. When he explained the organic basmati program to this high government official he was interested to give him some money to start it up. The commissioner was already aware of the possibilities of organic farming and he arranged that one of the departments of forest and rural development reserved
some money for the project (R. Negi, Interview, November 12, 2010). Negi used the money to buy organic Doon basmati seeds from Navdanya the organization of Vandana Shiva who was already active in Dehradun region, and through his network of other programs of DASP Negi asked several people to help him visiting farmers and convincing them to grow Doon basmati organically. One of them was D. Vohra who is still the field officer of the basmati program in Kashnagar.

With a list of all villages involved in other DASP programs and their knowledge from villages personally they went from door-to-door to different farmers to tell them about the organic basmati program (R. Negi, Interview, November 12, 2010). The choice of farmers was usually based on personal preference. Vohra said that he knows which farmers might be more interested because of previous experiences in other DASP activities where some farmers were more willing to adopt new methods compared to others (D. Vohra, Interview, November 8, 2010). At the same time Negi visited different universities in Pantnagar, Bhopal, Almora, Bangalore etcetera to obtain information about organic cultivation (R. Negi, Interview, November 12, 2010). During the first meeting with the farmers Negi invited a scientist from Pantnagar University to explain organic cultivation to the farmers. Although organic farming was meant to be based on traditional cultivation principles many scientist were involved, according to Negi because the knowledge was needed for a farmer to be able to obtain enough production with organic cultivation methods (R. Negi, Interview, November 22, 2010). At that moment there were 250 farmers present, but during the second meeting only 75 farmers were left and finally 35 farmers decided to experiment with the organic cultivation of Doon basmati. According to Negi this reduction in the number of interested farmers was caused by the different cultivation techniques they had to use for the Doon basmati such as sowing the seeds much later compared to both other basmati and non-basmati varieties. The seeds need to be sown in the fourth week of June and transplanting has to be done in late July instead of sowing the seeds in early June. By sowing later, the basmati would have a cold period in the end of the cultivation period which is good for the aroma of the basmati. Many farmers did not want to sow that late because they were afraid it would decrease their production and therefore refused to join the program. (R. Negi, Interview, November 12, 2010). The 35 interested farmers got training on organic cultivation techniques where they learned how to prepare cow urine, pesticides and vermicompost.

During this period Negi had close contact with these farmers who were from different villages in Dehradun district. In 2003 the DASP bought 30,000kg of organic Doon basmati from these farmers for rs25/kg and this was mainly used for seed purposes and exhibitions on organic cultivation. The next year the amount of farmers interested in the organic program increased enormously and this made DASP also interested in the program and included it in their action plan (R. Negi, Interview, November 12, 2010).

In September 2003 a new formed board called the Local Organic Promotion Council (LOPC) was set up, but it was only in March 2004 during the second year of the organic basmati program that the DASP was handing over its responsibilities to the LOPC (LOPC, 2004). According to Vohra this was the only project of DASP that was continued after 2004, mainly because of the influence of the Chief Secretary of Uttarakhand who got personally involved in the organic program. This already happened when R. Negi approached him for funds when he was the Forest and Rural Development Commissioner and he did not lose his interest in the program from then onwards (D. Vohra, Interview, November 8, 2010). The Chief Secretary used his powers to set up the LOPC and transfer the money from DASP to the LOPC. At this time the program manager of the LOPC was appointed, this was S. Mohan. In 2003 before the LOPC came into existence the federations were set up on block level. At this time there were four blocks of villages active in the organic basmati program in
Dehradun district, these were Kashnagar, Doiwala, Sahaspur and Raipur. At the block level, farmers’ federations were set up. According to Negi, this would give the farmers their identity as organic farmer because they would have their own office at the local market and the farmers would belong to a group (R. Negi, Interview, November 12, 2010). The federations became the important actor for other parties to deal with. For example the LOPC was able to talk to the chairman of the federation directly and he could pass this information through to the other members of the federation during the federation meetings.

When the organic basmati program was taken over by the LOPC a buyer had to be found. DASP had bought the produce the previous year for a good price but this was the first year and only 35 farmers were involved. In order to guarantee all the farmers who registered in the second year a price premium a buyer was needed. A buyer was found by S. Mohan, but due to a controversy where the farmers accused S. Mohan of corruption when he found a buyer, the LOPC decided that they did not want to be held responsible for the price of the organic basmati. The next buyer had to sign a contract with the farmers’ federation directly; this would prevent the LOPC from being accused of corruption again (D. Vohra, Interview, November 8, 2010). For Dehradun district this became Swadisht foods from Delhi, and from then on contract farming was established in Kashnagar.

At present the organization of the organic basmati program is centered around the LOPC, the farmers’ federations and Swadisht foods. Swadisht has a direct contract with the federations of the different blocks in Dehradun district. This contract is signed by the chairmen of the different federations and the LOPC functions as a third and independent party when the contract is signed. Swadisht will then provide the federation office with organic basmati seeds which the farmers can buy. During the cultivation period Swadisht will provide certain trainings and in the end they will collect all the produce and pay the farmers the agreed price. The LOPC will make sure the farmers will be certified organic by conducting an internal inspection and arranging the external inspection from an independent certification agency. Besides the certification, the LOPC also employs a field officer who assists farmers when there is a problem and is the spokesperson of the LOPC in the fields. Finally the federation itself holds a meeting every month to discuss problems that occur in the field and the finances of the federation.

A timeline of the most important events in the history of the organic basmati program can be found in figure 1.

![Figure 1: Timeline Organic basmati program](image-url)
The focus of this research has been on the villages in Kashnagar block in the state of Uttarakhand located in Northern India as can be seen in figure 2. In Kashnagar block there are farmers of 33 villages active in the organic basmati program\(^1\). These villages have a total of 250 organic farmers (LOPC, 2009). The farmers in Kashnagar block are mainly small landholders, in the organic program the average amount of land owned by a farmer is 1.5 hectares of which approximately 1 hectare is used for organic cultivation. There are of course differences between farmers who are completely organic and farmers who only have a very small plot of organic land (LOPC, 2009).

\(^1\) The amount of villages is based on the actual farmers list (AFL) of the LOPC in 2009. According to the official government administration some villages are brought together under one name but are still registered as separate villages in the LOPC administration.
3.2 Structure of the organic basmati program

In Figure 3 the organizational structure of the organic basmati program can be found. As can be seen the contract exists between the LOPC, Swadisht and the farmers’ federation. The different actors shown in the figure are the most relevant for the organic basmati program; these will also be discussed in the following paragraphs.

Figure 3: Organizational structure of the organic basmati program

3.3 Structure of the LOPC

Together with the LOPC there is also the Centre for Organic Farming (COF), these two organizations are set up independently from each other but are now working closely together. The organizational structure of the LOPC/COF can be seen in Figure 4. The most important function in day-to-day business is the program manager/secretary. This function is held by S. Mohan who took over the function from R. Negi when the LOPC took over the organic basmati program from the DASP in 2004 (S. Mohan, Interview, October 1, 2010). The program manager is meant to be responsible for the activities of the different managers related to marketing, quality and technology. The most important managers in the analysis of the organic basmati program are the technical manager, the quality manager and the marketing manager. The technical manager is responsible for the development of packages of practices which are distributed among the farmers and will be explained further in the section on intermediaries. Furthermore the technical manager is supposed to be responsible for the field officers who report to the LOPC about the activities of the farmers (LOPC, 2004). The quality manager is responsible for the Internal Control System (ICS) which is an important part of the certification process of the organic farmers. Finally the marketing manager’s task should be the acquisition of firms to buy the organic produce of the farmers. At the moment this is Swadisht foods from Delhi for the produce of Kashnagar.
3.4 Structure of the federation

When the organic basmati program started in 2003 the organic farmers involved in this program were brought together in a federation. These federations were organized at the block level (as described in the introduction, Dehradun district had four blocks involved in the organic program and four federations were set up). This was during the DASP period when another program of DASP was the promotion of Self Help Groups (SHGs). SHGs are groups of around twenty people who put money in a shared account; this saved money can be used as a loan for group members who need to invest in something. The interest of the loan is also decided among the SHG. Since the members of the group know each other well there is a strong social control to pay back the loans. SHGs enable easier access to money for poor farmers (Fisher & Sriram, 2002). When the federations were set up DASP decided that the members of the federation should also be members of an SHG (R. Negi, Interview, November 22, 2010). This rule was abandoned in Kashnagar some years later when every organic farmer who wanted to join the program and sell their produce to Swadisht could join the federation (K. Sareen, Interview, October 28, 2010). The structure of the federation as described below is based on the federation of Kashnagar where I focused my research on. When the federation board in Kashnagar was elected there were 18 SHGs with 60-70 farmers present (K. Sareen, Interview, October 28, 2010). At that moment there was an election where Sareen became chairman of the federation because he was retired from the army and therefore had enough time to take the task of federation chairman. Furthermore he is able to pay for some small expenses himself and he lives near the Kashnagar mandi\(^2\) where the federation office is located which makes it easy for him to attend all meetings (Rawat 2, Interview, October 18, 2010). Several farmers describe the election of

\(^{2}\) Mandi is the local market
Sareen based in these aspects, this makes it seem more like a selection than an election. Sareen became chairman when the federation was set up in 2003 and continues to be the chairman until today. Besides a chairman the federation board consists of a treasurer, secretary, guardian, technical associates and regular members. These are all representatives of different villages (K. Karki, Interview, August 13, 2010). Each village that is active in the organic basmati program is supposed to send a representative for its village to become a member of the federation board. This representative is meant to represent its village by pointing out the problems that occur in the village to the board members and on the other hand to transfer the information shared during the meeting to the inhabitants of the village (K. Sareen, Interview, October 28, 2010). Within the federation board a representative of a village can have different functions such as treasurer or secretary but also guardian, who is responsible for sorting out conflicts between different federation members or technical associate who has the responsibility of explaining new technologies such as plant protection methods or new methods of fertilization to other farmers (Rawat, Interview, October 18, 2010).

The 27th of every month the federation has a meeting in the federation office and all representatives should attend this meeting. During the meeting the problems in the villages of the representatives and possible solutions in the field are meant to be discussed, as well as the prices for the new contract with Swadisht or the possibility of finding buyers for other organic products besides basmati etc. Often these meetings are also used by Swadisht or other firms and NGOs to give training and information to the farmers of the federation (K. Sareen, Interview, October 28, 2010).

There are also some other tasks for the federation board. It is the federation who signs the contract and Sareen together with some other board members will negotiate about the price for the basmati paddy with Swadisht before signing the contract. Besides that it is also the federation who will pay the farmers once they sold their paddy to Swadisht. Swadisht will directly pay the whole amount of money to the federation and according to the administration of the federation all farmers get their share. The seeds which were provided by Swadisht need to be paid in the end together with the biochemicals that the farmers bought in the federation office and were provided by the LOPC or Camson, a private biochemical company. These costs are deducted from the profit the farmers made by selling their produce (S. Singh, Interview, August 30, 2010).

### 3.5 Involvement of Swadisht

According to Swadisht they got involved in the organic basmati program because of research that was done in the basmati fields of Punjab and Haryana. Here Swadisht found out that many farmers were using a lot of chemicals which had a negative impact on their soil and made their land infertile on the long run. Swadisht claims that it was because of this research that they decided to experiment with organic basmati. They started to ask around whether farmers were already involved in organic basmati cultivation. That is how they came into contact with the LOPC in Dehradun (O. Jolly, Interview, November 2, 2010). Jolly mentioned that Swadisht has a preference for smallholders since their dependence on Swadisht is larger. The increased dependence on Swadisht would make the adoption of new techniques by smallholders easier (O. Jolly, Interview, November 2, 2010). When Swadisht visited the LOPC in 2005 there were three or four other companies interested in contracting the farmers’ federation and in the end Swadisht offered rs65
per quintal\(^3\) more than the farmers demanded and they got the contract (R. Vohra, Interview, November 8, 2010). According to S. Mohan, Swadisht was the only firm who agreed on the choice for Doon basmati and this was a reason to choose Swadisht as the buyer for Kashnagar block (S. Mohan, Interview, October 1, 2010).

Swadisht provides organic seeds to the federation office; here farmers can collect their seeds, for which they pay once they have sold their produce. Some farmers save their seeds so they can use them the next year, but in general farmers are advised by Swadisht to purchase new seeds every year since this will give the farmers the guarantee that they cultivate the varieties Swadisht will purchase (Deepti, Interview, August 4, 2010). During the first two years Swadisht provided Doon basmati seeds but since 2007 the majority of seeds were Taraori variety. Taraori has a longer grain compared to Doon and this is an advantage in the export market since basmati is often seen as a long grained rice variety and this means that Taraori sells better abroad compared to Doon with its shorter grains (O. Jolly, Interview, November 2, 2010). This does not mean that farmers cannot buy Doon basmati seeds anymore; according to Singh it is not possible to force farmers to grow a specific variety. Swadisht will still purchase Doon basmati from the farmers, but hopes that farmers have good experiences when cultivating Taraori and will continue with this. Also by increasing the amount of Taraori seeds and decreasing the amount of Doon basmati seeds farmers should get motivated to cultivate Taraori (O. Jolly, Interview, November 2, 2010). By increasing the amount of Taraori seeds available, it seems that Swadisht is not actively forcing farmers to grow Taraori but it does not give much choice to farmers either, in combination with the advice that farmers should buy new seeds every year, many farmers feel that they do not have a choice since they need the income from Swadisht. During the cultivation period Swadisht sends Verma, the field inspector, every other month to check the fields on diseases and give advice; he also gives training to the farmers. More on these trainings and Verma will come later.

When farmers finish harvesting, Swadisht will come to the federation office which is at the local mandi. Here Swadisht grades and buys the paddy. The paddy can have two grades, premium graded paddy is paddy that satisfies the requirements Swadisht set in the contract. When the paddy is not of this premium quality a second grade is there, this second grade is not specified in the contract but is decided on mutual understanding of a representative of the federation and Swadisht. Farmers will get a lower price for their paddy when it is labeled as second grade. More in this will be in the following section on intermediaries. In the beginning someone from Swadisht would check the fields personally before the purchasing started and advised farmers to dry or clean it better before coming to the mandi, but the number of farmers involved in the organic program increased too much, which made it impossible to continue with this service (O. Jolly, Interview, November 2, 2010).

### 3.6 Mediators and intermediaries LOPC

In this section the mediators and intermediaries used by the LOPC will be described. Mediators are humans that form a connection between the LOPC and the farmers, but they have their own goals as well and try to pursue these while doing their work for the LOPC. Intermediaries on the other hand are more static and do not have their own agenda, but are being used by the LOPC to achieve certain goals. I have separated the mediators and intermediaries of the LOPC and Swadisht from each other because I think the interest of the LOPC and Swadisht are not always similar and they might use their

\(^{3}\) 1 quintal is 100kg
mediators and intermediaries in a different manner. Despite that, there is some overlap between the LOPC and Swadisht.

3.6.1 Package of Practices
The LOPC uses different intermediaries to direct the farmers into certain practices. An important intermediary which is directly related to the practices of the farmers is the Package of Practices (PoP). When DASP started with the organic basmati program in 2002 they made the first package of practices which included information on how to make organic compost such as vermicompost pits, furthermore there was information available on the preparation of bio-pesticides using the leaves of neem trees and cow urine for example. When the organic basmati program was taken over by the LOPC they kept these packages of practices which were not specifically focused on basmati but which were useful for general organic cultivation. When Swadisht came with its PoP specifically for organic basmati cultivation the LOPC also developed crop specific PoPs (D. Vohra, Interview, November 8, 2010). The information for these PoPs were gathered by talking to farmers and by scientists from the training centre of the LOPC in Almora (D. Vohra, Interview, November 8, 2010). The PoP of the LOPC is printed on a flyer in Hindi so it can be easily distributed among farmers. In the PoP specifically for organic basmati the whole cultivation process is explained, from seed treatment until the storage of the paddy. Many practices related to plant protection are mentioned in the PoP of the LOPC, the main focus is on the use of products from the farm itself, just as DASP did. A difference with the PoP of DASP is the use of Trichoderma and Pseudomonas as plant protection method. How Trichoderma and Pseudomonas work can be found in box 1. In the PoP the use of Trichoderma and Pseudomonas in the cultivation cycle is explained. Trichoderma and Pseudomonas were introduced by the G.B. Pant University of Agriculture and Technology, usually called the Pantnagar University. Trichoderma and Pseudomonas were developed in their laboratories; it was already available in other states in India but not yet in Uttarakhand at that time (D. Vohra, Interview, November 8, 2010). The LOPC buys the Trichoderma and Pseudomonas from the University and sells it at a subsidized rate to the farmers.

3.6.2 Field officers
The organic basmati program is active in four blocks in Dehradun district as has already been mentioned before. The LOPC employs one field officer per block to keep in touch with the farmers and informs them about new programs. This field officer is an important mediator for the LOPC towards the farmers; in Kashnagar this is D. Vohra who was already active during the DASP period. At that time he was working for an NGO that was involved in the DASP program together with several other NGOs and government institutions. Vohra was the block level functionary for

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**Box 1: Trichoderma and Pseudomonas**

Trichoderma is a bio-pesticide based on a fungal and when it is used for seed preparation it will colonize the interior root of the plant and stimulate the nutrients transfer from the soil to the root, this will increase the plant growth (Azcón, Barea, César, & Vázquez, 2000). Trichoderma produces also enzymes which work as a biological control against bacterial and fungal diseases (Harman, 2006). Pseudomonas consists of different varieties; it is the P. Fluorescens group that is active as a bio-pesticide in agriculture and induces disease resistance in the host plant (Walsh, 2001). Trichoderma and Pseudomonas are active against several fungal and bacterial diseases such as blast diseases, bacterial leaf blight, brown spots and sheath blight (R. Gupta, Interview, October 4, 2010).
Kashnagar under DASP. When he heard about the organic basmati program he applied for the function of field officer for which he got accepted (R. Negi, Interview, November 12, 2010) (D. Vohra, Interview, November 8, 2010). When the DASP was taken over by the LOPC the main tasks of Vohra were to involve more farmers into the program and to give them training on how to cultivate organically, how to make pits, use compost etcetera. Furthermore he had to take care of the internal and external inspection and other certification related issues (D. Vohra, Interview, November 8, 2010). Since Vohra lives in Kashnagar and is involved in the program since the beginning he knows most of the farmers personally. He told me that right now he is not focusing on increasing the amount of farmers in the program anymore. He thinks that the farmers who are presently active as organic basmati farmer should increase their quality, this would be better for the program compared to increasing the amount of farmers registered (D. Vohra, Interview, November 8, 2010). This strategy seems to come from Vohra himself, although S. Mohan from the LOPC also mentioned that there is not much growth possible in Kashnagar (S. Mohan, Interview, October 1, 2010). Vohra is an important mediator for the LOPC because he has close contact with many farmers in Kashnagar who are involved in the organic basmati program. Through Vohra it is possible for the LOPC to give information to the farmers but also to hear from Vohra what the farmers are doing. How Vohra is doing this will be described in the observed situation.

3.6.3 Training programs
When DASP started the program it was also responsible for many training programs regarding organic cultivation. Many farmers who started with the organic program during the DASP period had their main training from DASP as well. R. Negi from DASP told me that there were different trainings where farmers learned how to make organic compost and bio-pesticides, but also when they should sow their seeds and do the harvesting, since Doon basmati needs to be sown and harvested during a different period compared to other basmati varieties. This has not so much to do with organic cultivation but with the variety that is used (R. Negi, Interview, November 12, 2010). When the LOPC took over the organic program the amount of trainings decreased. According to S. Mohan there is not enough money to continue training all farmers, besides that most of the farmers got an extensive training during the DASP period already. When new farmers join the organic program they get training in the beginning, after that they should get their information from the federation and the farmers who are involved in the program for a longer period (S. Mohan, Interview, October 1, 2010). Right now the LOPC has only one training centre which is the state centre for organic farming in Majkhali in Almora. The trainings given here are not only meant for farmers but also for government departments and NGOs who want to do something in the field of organic farming (LOPC, 2008). In this state centre for organic farming there are also scientists who make the package of practices and do experiments related to organic cultivation (LOPC, 2007). This means that the training programs from the LOPC are not of a direct influence on the farmers. But many NGOs and government organizations get their training from the LOPC training centre and in their turn train the farmers through other government and NGO programs. One example is the local government institute in Pooru, a village in Kashnagar block. This local government institute is set up by the Indian Council of Agricultural Research in New Delhi and falls under the jurisdiction of the G.B. Pant University of Agriculture and Technology in Pantnagar, but gets its training from the LOPC. The purpose of this local government institute is to transfer technology on grassroots level to the farmers (G.B. Pant University, 2011). The institute is not specialized in organic farming but it does have a training program that focuses on organic farmers only, there are quite some farmers in the
nearby villages of Pooru who go to the institute for their information. More on the effects of these trainings will be described later.

3.6.4 Subsidies and the availability of bio-pesticides
The LOPC stimulates the use of Trichoderma and Pseudomonas by supplying these products. According to the shopkeeper of the federation office the Trichoderma and Pseudomonas are sold at half the market price and he also sells them for this price, so no profit is made on these products (S. Singh, Interview, August 30, 2010). Also the field officer of Swadisht, Verma mentions during training that the LOPC will provide the necessary bio-pesticides (S. Verma, Interview, July 23, 2010). When farmers come to the federation office to collect the seeds they get a package of Trichoderma and Pseudomonas with it, almost automatically. The costs for these bio-pesticides are paid when the produce is sold. When the Trichoderma and Pseudomonas are not available in the federation office at the time of seed purchase some farmers buy the bio-chemicals from the local market while others do not use the products at all.

3.6.5 Certification process
The certification of the organic farmers is an important task of the LOPC. In this section the several steps of the certification process will be described and what the role of the LOPC is in them. The process starts with the diary which needs to be filled in by the farmers so it can be checked during the inspections. Secondly the LOPC needs to arrange an internal inspection which is used by the external inspection who can give the final certificate. This process of inspection is done every year and paid by the LOPC.

3.6.5.1 Diary
Already the DASP started with the farmers’ diary and when the LOPC took over the organic program the diary was also taken over. Before the cultivation season of basmati starts the farmers get a diary from Vohra. In this diary they have to fill in all information regarding the cultivation of their organic crops. It first starts with some general information, for instance the size and location of the total amount of land and the amount and type of cattle a farmer has. The purpose of the diary is that every farmer writes down the details of what he does in the field. Actions such as sowing the seeds or transplanting the seedlings are mentioned, but also activities such as the type and amount of compost that is used and which bio-pesticides are used and whether they are bought or made by the farmer, also the time and date of using these inputs is mentioned. The diary mentions the information the farmer has to provide, this information forms the basis of the internal control system (ICS). During the cultivation cycle Vohra is also able to check the diaries of the farmers. If there is a problem in the field the information from the diary can help to check what has happened.

3.6.5.2 Internal Control System (ICS)
The LOPC uses the principle of an ICS for the certification of the farmers. The definition of the ICS can be read in box 2. The ICS has been developed because of the high costs of certification for smallholders. Many producers of organic products are small farmers that have already some kind of internal support structure such as a federation; this made the International Federation of Organic Agriculture Movement (IFOAM) decide that there should be a possibility to certify these farmers as a group (IFOAM, 2003). This happened in 1996 and from then onwards different certification agencies started to have different requirements for the ICS which were not always compatible with each other, therefore IFOAM tried to make a consensus regarding the ICS in 2000 so all certification...
An Internal Control System is a documented quality assurance system that allows the external certification body to delegate the annual inspection of individual group members to an identified body/unit within the certified operator. As a consequence, the main task of the certification body is to evaluate the proper working of the ICS (IFOAM, 2003, p. 11).

The fact that the organic farmers are already organized in a federation makes it easier for the LOPC to set up this ICS. The farmers’ diary can be used for the map of the farms as well as field records of the farmers. The internal inspector is appointed by the LOPC, these are usually people who are already working for the LOPC as a master trainer and are given an extra training at the state training centre in Majkhali to qualify them as an internal inspector. The internal inspector visits once during the cultivation season of paddy to check all farmers who are a member of the federation. During this inspection the field and the farmers’ diary are checked and the farmers themselves will be questioned about their practices and knowledge of the program. These questions are often related to plant protection measures, such as the use of bio-chemicals and diseases present in the field. The combination of the information in the diary, the answers on the questions and the observation in the field forms the bases for the report of the internal inspector. This report is given to the external inspector. More on the actual procedure of the ICS in the field will be described in the observed practices of the certification process.

3.6.6 External inspection

The external inspection has to be done by an independent agency which is accredited by the Agriculture and Processed Food Products Export Development Authority (APEDA) from the government of India. With this accreditation the produce will be certified according to the National Program for Organic Production (NPOP). The certification agency should also be accredited by similar organizations abroad to meet the requirements of the US standard (NOP) or EU standards (EC 834/2007) (LOPC, 2007). From 2003 until 2006, the LOPC worked with the Institute for Market ecology (IMO) in Bangalore. The IMO is originally based in Switzerland and is accredited by all major export countries regarding organic certification. In 2006 the Uttarakhand State Organic Certification Agency (USOCA) in Dehradun got its accreditation from the government of India for NPOP and by the US and EU for their standards, from that year onwards the LOPC is working with the USOCA (LOPC, 2007). During the external inspection the USOCA will re-inspect some of the farms. The inspector has a list of farms he wants to visit based on the ICS reports and the guidelines of the NPOP. This list is based on the geographical area, which means that the inspector does not have to
go to each remote village to check a farm but can rather choose a few places where many farmers live near each other. Besides that there is a risk assessment based on the following points:

1. Parallel fields, where similar crops are cultivated in the same field organically and non-organically.
2. Split fields, where different crops are cultivated in the same field organically and non-organically.
3. Off farm seeds
4. Off farm inputs

When re-inspecting the farmers a sample should be taken which is based on the amount of farmers in the farmers group. With a group of 250-500 members a sample of 16-22 farmers should be visited according to the NPOP (NPOP, 2005) and priority should be given to the high risk farmers. In the end the external inspector has to evaluate the ICS and decide whether the ICS has been executed according to the guidelines, then the certification can be granted to the farmers of the federation.

3.7 Mediators and intermediaries of Swadisht

Besides the LOPC, Swadisht also has some mediators and intermediaries that they can use to influence the practices of the farmers.

3.7.1 Package of Practices Swadisht

When Swadisht became the buyer of organic basmati in 2005 it developed a PoP for the farmers on its own. Swadisht had already done quite some research on basmati during the previous years and they decided to include this information together with the experiences of farmers in a new and more elaborate PoP (O. Jolly, Interview, November 2, 2010). According to Singh, the existing PoP of the LOPC was not good enough and the federation was not well organized (O. Jolly, Interview, November 2, 2010). At that time the LOPC had only a PoP which focused on organic cultivation in general and not crop specific (D. Vohra, Interview, November 8, 2010). When looking at the differences between the PoP of Swadisht and the one of the LOPC it seems that the PoP of Swadisht is more extensive regarding the general practices such as field preparation, nursery preparation and transplanting. For example the quotes related to seed preparation from both the PoP of the LOPC and Swadisht which can be found in box 3. It can be seen that Swadisht specifies quantities more and gives more information regarding the preparation of the seeds, for example the usage of salt to distinguish healthy from unhealthy seeds. The use of Pseudomonas is not mentioned in this quote of Swadisht, although they do recommend the use of Trichoderma for seed treatment in another part of the PoP (Swadisht, 2005).

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**Box 3: Package of Practices**

Swadisht

“Seed should be first soaked in the solution of 16 gram salt and 1 liter water so that damaged and diseased seeds can be separated and thrown out. After that, the rest of the seeds should be washed 2 times and soaked in water for 12 hours before treatment. After that the seeds should be stacked at flat land and covered with a wet sac for 24-36 hours” (Swadisht, 2005).

LOPC

“Seeds are dipped for 24 hours before sowing in the prepared nursery beds. After 24 hours dipping, the seeds are thoroughly mixed with pseudomonas (10 gm Pseudomonas for 1 kg of seeds) and this mixture is covered for 24-36 hours” (LOPC, 2006).
Similarities can be found in the different diseases that can occur in the field, both PoPs discuss the same diseases and insects but they do have different methods how to control them. While the PoP of the LOPC only focuses on solutions that can be found on the farm and the use of Trichoderma and Pseudomonas (LOPC, 2006), Swadisht is also offering solutions based on biopesticides that can be bought from the market such as the Camson products (Swadisht, 2005). Another interesting thing of the PoP of Swadisht is the ‘science-based’ approach. When reading the PoP it seems that most of the practices that are described are based on scientific research and not that much on the practice of farmers. In box 4 an example can be found of the PoP of Swadisht and the LOPC.

The description of the nursery preparation is very detailed, different measures are given to describe the size of the land or the amount of water that is necessary. When talking to farmers they will never give such precise estimates on how much land or water they use. Swadisht itself claims that it has based its PoP on the experiences of progressive farmers and not on scientific research. According to Singh the knowledge of the progressive farmers is not transferred to the other farmers and with the PoP this knowledge transfer will take place (O. Jolly, Interview, November 2, 2010). An important role regarding the distribution and checking of the PoP is the field inspector of Swadisht. Also Vohra could have played a role in distributing and promoting the PoP of either the LOPC or Swadisht.

3.7.2 Field inspector
Swadisht employs a field inspector who checks on the farmers several times during the cultivation cycle and gives them training and advice; this is the only mediator Swadisht uses towards the farmers. The field inspector of Swadisht is Verma, Verma is a retired agronomist from the Haryana Agriculture University with a specialization on the rice-wheat system (S. Verma, Interview, October 7, 2010). Verma got to know Swadisht through a friend of him who works at the Indian Agrarian Research Institute in New Delhi, during an annual workshop his friend told Verma about Gurnam Arora, the managing director of Swadisht. At that time Swadisht had started with contract farming in Punjab and Verma’s friend suggested him as an advisor for Swadisht. Verma then studied the effects of contract farming in Punjab in 2003-2004; this was already after his retirement. When Swadisht started contract farming in Dehradun district Verma started to work here. He had no experience on organic cultivation before he started with this project, but he did experiment with basmati in general (S. Verma, Interview, October 7, 2010).

Verma’s main task for Swadisht is to check the production process, upgrade the knowledge of the field officers of the LOPC regarding new methods of organic plant protection or new policies within Swadisht regarding purchasing for example; furthermore he solves problems of farmers related to Swadisht or the LOPC (S. Verma, Interview, October 7, 2010). When Verma comes to Kashnagar he makes an appointment with Vohra and Vohra will bring him to different farmers who have some
problem in the field. When Verma arrives at the farmer’s field he will look at the problem and tries to solve it. Besides field visits he also gives training to the farmers, this usually happens during a federation meeting in the federation office.

3.7.3 Training
When I attended a training of Verma in the federation office it was during or just after the transplanting period. The training was held in the federation office during the monthly federation meeting and approximately 15 farmers were present. These were not new farmers but members of the federation board. The intention of the training is to give farmers information about certain cultivation techniques, this example shows a training as intended by Swadisht. Verma concentrated mainly on the practices related to transplantation. He tells the farmers to spray Trichoderma and Pseudomonas during the nursery stage; this should be done as prevention even if there are no diseases present yet. Furthermore the spacing between the seeds are discussed, according to Verma the farmers should not use too many seeds in the nursery because the seeds need enough space to grow, when they are too close together the plant will become weak and will not survive. Also during transplanting the space between the seedlings is important, it will decrease lodging problems and the plant will become stronger and healthier if it has enough space to grow. Finally the use of water in the field is discussed. According to Verma, the farmers should not use too much water in their fields because it will make the stem of the plant weak. The stagnant water will also attract Hoppers which are hazardous for the plant and diseases such as sheath blast which causes powdered leaves (S. Verma, Interview, July 23, 2010). By explaining the possible problems in the field Verma tries to persuade farmers in using the techniques he explained during the training.

Another function of the training was the distribution of the PoP to the farmers. Swadisht has printed the PoP on a shining flyer in Hindi and these were again distributed among the farmers present in the federation office. The idea is that the representatives of the villages present during the training would give the flyers to the other farmers who were not there.

3.7.4 Seed availability
The availability of seeds is another intermediary Swadisht uses to influence the farmers. Swadisht is the supplier of organic basmati seeds for the farmers. Before the sowing season starts, Swadisht delivers the seeds at the federation office where the farmers can collect them. The seeds need to be paid after the farmer sold his produce. During the first few years Swadisht delivered only Doon basmati seeds but since 2007 the focus has gradually shifted from Doon basmati to Taraori seeds. As has already been mentioned, Taraori basmati has a longer grain which gives a higher profit for Swadisht on the export market (O. Jolly, Interview, November 2, 2010). Since 2009 Swadisht is also experimenting with a third variety called 386, it has the same grain length as Taraori but it should be more resistant against diseases. Another problem with Taraori and Doon is that they lodge easily which reduces the yields of the farmer, this is also something 386 should solve.

According to Swadisht it is not possible to force farmers to grow a certain variety, therefore they first start with a small amount of a new variety and if the farmers are satisfied they can grow it again the next year, but Swadisht will always buy Doon basmati as well (O. Jolly, Interview, November 2, 2010). The seed variety can have an influence on the cultivation practices of farmers. K. Karki for example is not happy with the Taraori seeds because he has to harvest them earlier compared to Doon basmati (K. Karki, Interview, August 13, 2010). Another often heard difference is the amount of bio-pesticides that is necessary, 386 and Taraori are facing more diseases compared to Doon basmati (Rawat 1, Interview, November 8, 2010).
3.7.5 International organic certification rules
For Swadisht it is important that the organic basmati is also certified according to the USA and EU certification rules. Changes in these rules makes Swadisht demand different practices of the farmers, an example is the cow urine rule in the USA. This states that cow urine cannot be used anymore in organic cultivation, this has a direct consequence for the organic farmers in Kashnagar who are using cow urine as one of the main ingredients for their bio-pesticides. In general the certification agencies follow the NPOP of India; the NPOP is also compatible with the NOP in the US and the European regulations. The NPOP mentions the possibility of certification transference, this means it is possible for different certification programs to recognize each other; this has happened between the Indian certification program and the European and Uniteds States’ certification programs. The rules against the use of cow urine in organic agriculture cannot be found back in any of the regulations of the US or EU.

3.7.6 Contract with federation
An important intermediary for Swadisht is the contract they have with the federations in Dehradun district. In this contract the three federations of Kashnagar, Sahaspur and Doiwalla form one farmers group; this is the first party in the contract. The second party is Swadisht and the LOPC is the third party and has the function of an independent witness. The terms and conditions of the agreement are described in this contract and many responsibilities are for the farmers themselves, such as the transportation of the produce to the procurement place and the losses they might face due to a natural disaster (Federation, Swadisht, LOPC, Contract, 2010). The contract also describes the quality grading practices of Swadisht. The highest quality standard is called grade A, this standard is described in the contract and given in box 5. The following quote is from the contract and describes the quality grading of Swadisht.

“2.2. The Second party will pay Rs. 400.00, Rs.400.00 and Rs 100.00 (depending on the conversion year of the farmer) above the market rates of Taraori basmati, type-3 (Doon basmati) respectively to farmers of first party.
2.3. The purchase of produce shall be done as per the given standards and which shall be grade A. For the convenience of farmers the rice below standards shall be purchased by the second party as grade B, this shall be done by the mutual understand of first party, second party and third party. Second party shall not be forced to purchase rice below standard of grade B (Federation, Swadisht, LOPC, Contract, 2010)”

The quote from the contract shows that farmers will get the maximum price when their paddy meets the quality standards set by Swadisht. When it is not the case Swadisht will also purchase grade B quality, in the contract the quality standards for grade B quality paddy is not mentioned. The quality of grade B paddy is decided among the three parties with mutual understanding during the procurement time. This means that the quality of the paddy is decided during the procurement and checked whether it meets the standards for grade A paddy, found in box 5 and in the contract.
this is not the case according to Swadisht it will consult with someone from the LOPC and the federation board to decide what the quality is and whether it can be seen as grade B. When the paddy is of grade B quality the farmer will get a lower price for its paddy which is also decided by Swadisht, the LOPC and the federation.

The prices of the basmati are based on the market prices; it is not mentioned in the contract how or where these market prices are decided.

3.7.7 Quality and grading

When Swadisht collects the paddy from the farmers in Kashnagar grading will take place. The contract between Swadisht and the federation already mentions that there are two grades, grade A and grade B produce. The quality standards of grade A are known because they are described in the contract, the quality standards of grade B on the other hand are not known to the farmers and is said to be decided in mutual understanding. According to Jolly from Swadisht different samples of basmati are taken from its factory and with the help of these samples the quality of the paddy is decided together with federation board and someone from the LOPC (O. Jolly, Interview, November 2, 2010). Often the paddy is not clean enough, which means that too much dirt or small particles are still there which increases the weight of the paddy. Swadisht then has to reject this produce or rate it grade B. Other problems are broken seeds or seeds which are colored (O. Jolly, Interview, November 2, 2010). Farmers usually have another idea about the grading procedure which I will describe in the observed situations.

3.8 Summary of the Intended Situation

There are quite some similarities between the mediators and intermediaries that are used by the LOPC and Swadisht. For instance the PoPs and the field officers have the same function for both organizations. There are differences between the importance of the intermediaries, for the LOPC the certification process is most important because without a certificate the farmers cannot sell their produce to Swadisht and no profit will be made. Therefore the certification process is the most powerful intermediary for the LOPC. For Swadisht on the other hand, the contract with the federation is a forceful intermediary that can control the practices of farmers. These are all intermediaries without the ability to change the process. On the contrary, mediators like Vohra and Verma are not only field officers who are executing the demands of the LOPC and Swadisht; they have their own ideas and goals as well.

In which manner the LOPC and Swadisht are trying to make the intermediaries work in the right manner which should lead to farmers who are using the ‘correct’ practices, will be described in the next chapter. The certification process that plays an important role as an intermediary for the LOPC is also mentioned in more detail in the following chapter.
4.0 Observed practices

The previous chapter described the intended situation of the different actors involved in the organic basmati program in Kashnagar. The intended situation was not always similar to the situation I observed in the field; therefore this chapter will focus on the observed situation so a comparison can be made. First the roles of the LOPC, federation and Swadisht are described, this will be followed by an analysis of the practices of two farmers with a focus on plant protection practices and how they were or were not influenced by the different intermediaries of the LOPC and Swadisht. Finally a detailed description of the observed certification practices will be given and the chapter will be closed by a discussion about the differences between the intended and observed situation.

4.1 The LOPC

In the previous chapter the structure of the LOPC has been explained. The LOPC is the third party in the contract between the farmers’ federation and Swadisht and its main role is to promote organic cultivation in the state of Uttarakhand. The main differences in the observed situation regarding the LOPC are mainly focusing on two actors, namely the senior LOPC officials and D. Vohra. Therefore I will concentrate on these in the next two paragraphs.

4.1.1 Senior LOPC officials

Within the LOPC, the senior LOPC officials play an important role, first of all there is a different version of the origin of the organic basmati program compared to R. Negi. As described in the annual report of the LOPC in 2003-2004 the organic basmati program started as the bio-villages program during the DASP. These bio-villages were a success and impact studies showed that the farmers’ acceptance towards organic cultivation was high; this made the government decide to strengthen the organic program and to set up the Center for Organic Farming (COF). During that period the LOPC was also set up and soon the COF and LOPC were anchored to each other. The COF was responsible for providing technical and marketing support to farmers and the LOPC took care of the certification and training of the farmers (LOPC, 2004). Some of the present LOPC officials were involved in the bio-village program of the DASP during this period and according to them, they were the ones who thought of focusing on Doon basmati. The organic program needed to concentrate on a specific commodity to make it a success, because only then a buyer could be attracted and the farmers would be convinced to cultivate organically since it would become profitable. Doon basmati would be an option since it is a product that originates from the region and could be a good export product (P. Sharma, Interview, October 1, 2010).

One of these senior LOPC officials has interests in a bio-composting company called Organic Corp. Organic Corp is based on biodynamic farming. One of the main products of Organic Corp is the BDP502-507 which can be used to make heap compost. Heap compost is a compost technique where raw materials that cannot be used in any other way, for example leaves that are fallen from trees or husk that is left after harvesting, can be used to make compost. The BDP502-507 claims that it speeds up the process of making heap compost. According to an influential organic farmer called Rawat, the BDP502-507 does not work at all. He made heap compost with and without the use of the biodynamic preparation and did not notice a difference, while the costs for BDP are quite high compared to the low costs of making regular heap compost (Rawat 1, Interview, November 8, 2010). Rawat feels that this LOPC official is taking advantage of his position in the LOPC to persuade farmers
to use his products from Organic Corp although they are expensive (Rawat 1, Interview, November 8, 2010).

“Organic farming should be about low input costs, if you have to buy all these expensive products in order to cultivate organically you can better go to the market and buy the cheap chemicals” (Rawat 1, Interview, November 8, 2010). This example shows that some LOPC officials have more interests than only the LOPC.

4.1.2 D. Vohra
Vohra as field officer of the LOPC in Kashnagar has an important task in both informing the farmers and the LOPC about new developments. Officially Vohra is working for the LOPC but in practice it seems that he is also critical about the LOPC sometimes and chooses the side of the farmers when there is a conflict. For instance when there was a conflict between the federation and S. Mohan of the LOPC about the rates of the basmati. In December 2004 the organic basmati program was taken over by the LOPC. The amount of farmers that joined the program had increased considerably compared to the DASP period. Furthermore the previous year the organic farmers got a very high price for their produce, rs25/kg. Then in 2004 the LOPC was not able to pay rs25/kg because of the increased amount of organic farmers and S. Mohan tried to find a commercial buyer. He found Rapunzel, a German based company and they offered rs17/kg. This caused high dissatisfaction with the organic farmers, especially since the farmers already approached S. Mohan on beforehand to talk about the rates of the basmati and she refused to talk to them. Vohra was especially critical about this part because he felt that Mohan behaved very rude towards the farmers and that he was too much protected by high government officials so no other government official dared to say something about it to him (D. Vohra, Interview, November 8, 2010).

On the other hand Vohra can also be critical about the federation when they make the wrong decisions in his eyes. Vohra has his own opinion about certain things, for example he does not agree with the federation when they decide that the rates for organic wheat are too low and therefore do not sign an agreement with a firm that wants to buy the wheat. According to Vohra it would benefit the small farmers when they can sell their organic wheat, even if the price is not that high at least there would be a market. On the other hand, when the internal inspector comes to check the fields Vohra is also annoyed when the inspector does not greet the farmers and just start questioning them. So although Vohra is working for the LOPC it seems that he is mostly concerned with the farmers. He thinks that he has put so much effort and time in his relationships with all these farmers that he does not want this to be destroyed by some misbehavior of an inspector or other external people (D. Vohra, Interview, November 8, 2010). A reason for this concern might be that Vohra is mainly working with these farmers; he is also living in Kashnagar which means that he has more contact with the farmers than with S. Mohan for example.

4.2 Federation
The federation plays an important role as the representative of the organic basmati farmers and in their relation with Swadisht and the LOPC. The actual role of Sareen, the chairman of the federation and the federation board are sometimes different compared to the intended situation.

4.2.1 Federation chairman
Sareen became chairman when the federation was set up in 2003 and many farmers, including him said that he was chosen because he had the time and means to become chairman. But R. Negi said
that Sareen was only chosen because he was the village pradhan\(^4\) of Badamwala, one of the larger villages in Kashnagar block, therefore he was already influential. Furthermore Sareen’s wife was the chairperson of a federation of SHGs put in place by DASP, including more than 200 SHGs which made her an influential woman too (R. Negi, Interview, November 22, 2010). While I was doing my research in Kashnagar it seemed as if many farmers were not that satisfied with Sareen anymore, he was accused of corruption by several farmers. One of these farmers was I. Pal who left the program because of the corruption in the federation board and Swadisht.

According to I. Pal there is a deal between Sareen and Swadisht where Sareen is making sure farmers will agree with a low price, in return Sareen is keeping a part of the profit himself (I. Pal, Interview, November 14, 2010). Also Vohra is talking about different strategies of Swadisht to keep the rates low, one of them is to give a good rate to farmers who are expected to complain. These are mainly farmers from the federation board. Since many small farmers do not know what the market rate is, Sareen starts to spread rumors that he expects the market rate for basmati to be low this year. During one meeting Swadisht and a representative of the federation, usually Sareen with someone else, will decide what the final market rate will be. This happens a few weeks before the actual purchasing of the basmati (D. Vohra, Interview, November 8, 2010). In 2009 there was one farmer called L. Grover, who was aware of the actual market rate of basmati and started to complain towards Sareen and threatened to go to some consumer forum if the rate was not changed (L. Grover, Interview, November 11, 2010). According to Vohra it was then Sareen who went to Swadisht and told them which farmers were creating trouble and at the time of purchasing Swadisht would tell these farmers that their basmati is not meeting the quality standards and their premium would be low (D. Vohra, Interview, November 8, 2010).

Officially the federation board, including the chairman will be chosen by election every five years. Although many farmers do not agree with Sareen, he is still the chairman of the federation. Vohra said that he told the farmers to re-elect Sareen because else it would become an election battle between the farmers from Uttarakhand and the farmers who were originally from Himachal Pradesh. Sareen is originally from Himachal Pradesh and Kashnagar lies just on the border of Uttarakhand and Himachal Pradesh, many farmers from Kashnagar are therefore originally from Himachal. Vohra is afraid that the elections will therefore be based on origin instead of quality (D. Vohra, Interview, November 8, 2010). Another often heard reason from farmers is that they do not think something will change with another chairman. In the end every chairman will turn out to be corrupt according to many farmers.

Finally Sareen also gains when Camson products are sold. Camson approached Sareen to sell their products through the federation office. Although both Camson as well as Sareen are denying that Sareen gets a commission, it seems that Sareen is benefitting from the deal with Camson. Some farmers were forced to buy the Camson products when they came to purchase the seeds by Sareen or Bist the treasurer of the federation. Also the shopkeeper is employed by Sareen and is advising the Camson products to farmers. Sareen is also promoting the use of Camson by visiting farmers and writing a PoP where Camson products are mentioned.

The role of Sareen as federation chairman is therefore not as clear as might seem from the intended situation. Sareen has several deals with firms and he benefits from the power he has as chairman of the federation.

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\(^4\) Pradhan means ‘chief’ or ‘leader’ in Hindi, in this case he was the head of the village council of Enfield.
4.2.2 Federation board
Not only the federation chairman, also the federation board does not work exactly as intended, which is being a representation of all villages involved in the organic program and passing through information. First of all the federation board should consist of representatives of all villages who are active in the organic basmati program. At the moment there are eighteen board members according to the minutes in the federation office. But during federation meetings and by talking to several of these board members it appears that there are approximately ten farmers actually active in the federation board. From these ten members there are many from the same village such as Ambadi and Laxmipur, this means many villages are not represented by the federation board. Especially the villages which are further away from the federation office in Kashnagar are often not represented and therefore receive less information about new programs et cetera.

4.3 Swadisht
In the previous sections Swadisht is already mentioned when observed situations were described, for example Swadisht’s relation with the chairman of the federation and what methods they use during the procurement of paddy. Another example is the training Verma gives to the farmers for Swadisht. During one of these trainings Verma did not only explain to the farmers what kind of techniques they had to use for transplanting but also that farmers were not allowed to use cow urine anymore. Cow urine is not allowed in the USA as a substance in organic products. Swadisht therefore does not allow farmers to use cow urine if they are organic for more than three years, because the produce of these farmers will be exported to the USA (S. Verma, Interview, July 23, 2010). The training is therefore not only to give information about cultivation practices but also to inform farmers about the new rules of Swadisht. According to Verma the produce of the farmers will be cross checked and if cow urine is used this will be found out (S. Verma, Interview, July 23, 2010). Although the people at the office of Swadisht said that they would not check all the produce on cow urine after all.

One of the other intermediaries Swadisht uses are the PoPs which are printed on a nice flyer and should reach all farmers of the organic basmati program. But during the training only active and rich farmers were present, mainly members of the federation board. These farmers are collecting the flyers but these usually do not reach the poorer farmers at all.

Finally there are different versions on how Swadisht became involved in the organic basmati program. One of them is of the LOPC and Swadisht, who both state that the LOPC had sent different letters to firms and at the same time Swadisht was looking for organic farmers and this was how they met. On the other hand, members of the federation board such as R. Mohan have a different version. He states that after 2004 when the LOPC took over the organic basmati program from the DASP the prices decreased. Many farmers were very dissatisfied with this and they formed a group in order to search for a better buyer. Together with six other farmers Mohan went to different basmati markets in Delhi and Haryana in order to find a buyer; it was there where they found Swadisht who was willing to buy the produce from the farmers in Kashnagar (R. Mohan, Interview, July 27, 2010). Not only Mohan but also Rawat and Sareen are claiming that they found Swadisht as a buyer for the organic basmati.

4.4 Practices Rawats
In Laxmipur, a village near the main crossroad towards Kashnagar and Dehradun is the farm of the Rawats, they own 60 beegha of land (4.5 Ha) which means they are one of the larger farmers in
Kashnagar where the average landholding of the organic farmers is 1.6 Ha (LOPC, 2009). The Rawats are often called ‘progressive’ farmers by the LOPC and during the DASP period because of several reasons. First of all, they joined the organic program right from the beginning during the DASP period and converted their whole land into organic at once which is something most farmers do not want to do because of the high risks and low production during the first years of organic cultivation. Secondly, the Rawats are experimenting a lot with different techniques regarding organic cultivation such as the System of Rice Intensification (SRI) and different methods of composting and plant protection. Information about SRI can be found in box 6. Besides their progressive farming methods they are also active in the federation board and in several other boards and NGOs across the state, dealing with organic farming. In practice the brother have divided the tasks, Rawat 1 the elder of the two stays on the farm and takes care of the day to day businesses there. Rawat 2 on the other hand is mainly focusing on the outside businesses (Rawat, Interview, October 18, 2010). These outside businesses are the federation board, where he is a technical associate and therefore advises farmers about different techniques. But he is also a member of the LOPC; apparently the LOPC has chosen five farmers in Uttarakhand to give them advice on how to convince farmers to join the organic program and to give them updates on the situation in the field (Rawat 2, Interview, October 18, 2010). Furthermore Rawat 2 is active for a local government institute in Kashnagar, when students from agricultural universities come to this local government institute they will visit the farm of Rawat and he will inform the local government institute which diseases occur in his field so research can be done on this. The same thing he is also doing for an NGO that is also the previous employer of Vohra the field officer. This NGO was active during the DASP period and Rawat is having an advisory role there as well. Finally he is involved in a program of the agriculture department that runs farmer schools. Rawat 2 is responsible for the organic part; the agriculture department selects teams who are sent to the farm of Rawat where they get training on organic cultivation (Rawat 2, Interview, October 18, 2010). Rawat 2 retired from the army already at the age of 35, he says that he wanted to do something for society and that this is the reason why he is involved in all these programs and projects (Rawat 2, Interview, October 18, 2010). His function in the army gives him some financial benefits since army personnel get an allowance from the Indian government. The other functions he has are not all paid, although he does ask some fee from NGO’s when they come for training to his farm (Rawat 2, Interview, October 18, 2010). Besides being progressive farmers the Rawats belong to the highest caste in the caste system in India, the Brahmans. This already gives them a higher social status in their community but their

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**System of Rice Intensification**

The SRI method is developed by a French priest in the 80’s in Madagascar. This has been taken over by an NGO and since then it has spread over the world as a method of rice cultivation where the yields are higher and less water is necessary (Kediyal & Dimri, 2009). The following six practices are important when following the SRI (Kediyal & Dimri, 2009).

- Transplanting should be done with seedlings of 8-15 days old.
- Single seedlings should be transplanted.
- There should be enough space between the plants, at least 25x25cm in square crop geometry.
- Weeds can be controlled by a mechanical hand weeder.
- The soil moisture should be optimized instead of flood irrigation.
- Organic compost or manure should be used to enrich the soil.

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**Box 6: SRI methods**

The SRI method is developed by a French priest in the 80’s in Madagascar. This has been taken over by an NGO and since then it has spread over the world as a method of rice cultivation where the yields are higher and less water is necessary (Kediyal & Dimri, 2009). The following six practices are important when following the SRI (Kediyal & Dimri, 2009).

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- Organic compost or manure should be used to enrich the soil.
family also used to be the pradhan of the Gram Panchayat of Laxmipur. Although they are not at the present, it still gives them extra social status among the villagers.

4.4.1 Plant protection practices

By focusing on the practices it is possible to understand the agency of the farmers and their ability to change things. The intermediaries that are being used by the LOPC and Swadisht to persuade farmers into certain practices can be ignored, changed or rejected by the farmers themselves. There are different ways of looking at these practices. I will start with an analysis of the plant protection practices as I observed them and as they have been told to me by the Rawats, mainly Rawat 1. These practices will be compared with the intermediaries that were described in the intended situation and the differences will be explained. The next part will focus on the fine grained details of a small set of practices when they are done. The texture and anchorage of these practices will be described here.

The Rawats are cultivating several varieties of basmati such as Doon, Taraori and 386. All three of them can be sold to Swadisht, 386 is an experiment of Swadisht that started in 2009. Before 2009 the Rawats were cultivating Kasturi, this is locally considered a basmati variety but is not acknowledged internationally as such and it is therefore not possible to sell this to Swadisht. This was not a problem for Rawat because they had some local buyers who would buy their Kasturi. Rawat 1 is thinking to switch to Kasturi again next year because he does not want to be dependent on Swadisht alone (Rawat 1, Interview, July 16, 2010). The availability of seeds that Swadisht uses as an intermediary to let farmers grow the basmati varieties that Swadisht prefers to buy is not working with the Rawats. They have several other buyers and are not totally dependent on Swadisht for their income. This means that the Rawats have the power to resist other intermediaries of Swadisht as well; this will be discussed further later on.

Rawat 1 described to me how the nursery at his farm is made. He is using a different technique compared to many other farmers which is called ‘solarization’. The nursery is covered with plastic sheets which traps the heat of the sun under the sheets. This heat will kill all germs and pests that were present in the soil and cause a clean and healthy environment for the seedlings. After 30-40 days Rawat removes the sheets and ploughs the nursery once before sowing the seeds. After sowing, the soil is kept moist by sprinkling water after which the nursery is covered with vermicompost. On top of the vermicompost a layer of green plants such as barley and grasses used as fodder together with husk is added, this keeps the vermicompost and soil moist. Rawat removes the green layer after 5-10 days and by that time the seeds are grown out of the vermicompost (Rawat 1, Interview, July 16, 2010). The water that is used to keep the soil moist in the nursery stage is not from the canal but from the tap. Since many diseases travel through the canal it is safer to use tap water to avoid diseases in the vulnerable seedlings in the nursery (Rawat 1, Interview, July 16, 2010). This method of nursery preparation where the plastic sheets as well as the tap water are used to protect the seedlings from pests and diseases is different from the methods described in the PoP of both the LOPC and Swadisht. The PoP of Swadisht describes the following practices regarding the nursery preparation;

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5 Although I say that Rawat 1 is using certain practices, this does not mean he is actually doing the work himself. Usually several laborers work for him in the field and Rawat 1 is only giving the orders.
6 The PoP of the LOPC is quite similar to that of Swadisht when describing the general practices such as nursery preparation, transplantation and field preparation.
“Basmati rice needs a nursery of about 20m$^2$ per kg of seeds. Before the nursery is ploughed a mixture of 200kg cow dung should be made for 200m$^2$ nursery. When the nursery is ploughed 3-4 times the beds of 1.5-2 meter wide can be prepared. The nursery beds need to be filled with water up to 3-5 centimeters so the nursery becomes muddy. When the mud is settled at the bottom the sprouted seeds can be sown over the clean water. After spreading the seeds the nursery should be kept wet for 5-6 days, this can be done by watering the nursery every evening. It is important that there is water in the nursery during daytime. 10-12 days after sowing a mixture of 50 gram zinc sulphate together with 1 liter of vermiwash in 10 liter of water should be sprayed on 200m$^2$ to avoid yellow leaves. One day before transplanting the nursery should be watered so the seedlings can be easily uprooted” (Swadisht, 2005, p. 1).

Although some parts of the method that is described in the PoP are very common among other organic farmers for example R. Mohan and K. Karki are using this technique of the wet nursery as described in the PoP (K. Karki, Interview, August 13, 2010) (R. Mohan, Interview, July 27, 2010), Rawat choose to use another method because he thinks that this will improve the health of his plants. After 20-22 days the seedlings will be transplanted into another field. This process of transplantation will be described in much detail in the next part about the practices of Rawat. After the seedlings are transplanted the plants need to be checked for diseases and it is in this stage that different methods of plant protection are used. Rawat 1 uses a special mixture for his SRI-field with several ingredients prepared on his own farm, which has to be sprayed every ten days. But only a small part of his land is used for the SRI method, most of the land is cultivated with regular methods of organic cultivation and then other plant protection methods are used. According to Rawat the most important ingredients against pests are cow urine and neem leaves. The neem leaves need to be crushed and mixed with the cow urine, this solution should be kept for a long time so the neem can decompose in the cow urine$^7$. When this process is finished the spray can be used in the field as a prevention method. There are a few stages of growth when the cow urine and neem mixture should be used, first in the nursery stage, then during transplanting, furthermore when the tillers have sprouted and finally during the flowering stage of the basmati (Rawat, Interview, July 16, 2010). Rawat 1 told me that he did not face any serious disease the last few years. This year he heard that his non-organic neighbors had many problems with blast diseases. Blast disease is a fungus which appears often in rice fields. Also the farmers in Kashnagar complain that blast is one of the main causes for a low production since it hinders the fruit to fully ripen. Therefore Rawat sprayed a mixture of cow urine, turmeric and water as a preventive measure over his field because blast diseases travel mainly through air and water so he was afraid that it would affect his field as well (Rawat 1, Interview, November 8, 2010). Rawat mainly uses home-made preparations as preventive measures for diseases. In the PoP of Swadisht the solution against blast diseases is quite different, namely;

“In case of leaf blast, leaf rot and leaf rust, a mixture of 500 gram Pseudomonas, 500 gram Tricoderma and 100-125 liter water should be sprayed over one acre land. This spray should be repeated at a 15 days interval. Furthermore the mixture of 2 gram turmeric and 1 liter water (100-

$^7$ Dev Prakash Rawat did not specify how long this solution should be kept exactly, only that the leaves needed to be decomposeD.
125 liter of water for one acre) is found quite effective for blast disease. It should be sprayed at a 15 days interval. Instead of Trichoderma and Pseudomonas a mixture of 330 ml Calmonas and 330 ml Calderma can be used, whereas the powdered forms of these products are found more effective by farmers” (Swadisht, 2005, p. 5).

The use of turmeric is also mentioned here but the use of cow urine is avoided. Also the emphasis is on products that can be bought from the market instead of home-made solutions. The PoP of the LOPC has a similar solution for blast diseases as Swadisht, although they do not mention the use of the Camson products, Calmonas and Calderma (LOPC, 2006).

These two examples of plant protection methods during the nursery stage and after transplantation show that the Rawats are not following the PoP exactly as has been described by the LOPC and Swadisht. A reason for this is that the Rawats are trying many of the techniques that are given to them but in the end only chooses the ones which are working for them. Since they are both educated in agriculture they are able to adjust or think of new methods to solve problems such as pests or diseases. According to the Rawats the ‘best practices’ described in the PoP are not always working the best (Rawat 1, Interview, July 16, 2010). But there are also other mediators and intermediaries Swadisht and the LOPC use to convince farmers to use the practices they describe in the PoP. An example is Vohra, the field officer of the LOPC. Vohra visits the farm of the Rawats often and they are on good terms together, still Vohra is not trying to change the practices of the Rawats. When talking to Vohra it seems that he is more in favor of the practices the Rawats are using, compared to the practices that are promoted by the LOPC or Swadisht. D. Vohra believes that the input costs should be minimized and this can only happen when farmers are using their own products. Therefore he promotes these practices among the farmers himself as well. Vohra is using his position as a mediator here to promote his own ideas and not the LOPC’s. This good relationship between Vohra and the Rawats has its effect on other intermediaries of the LOPC. The certification process for instance is very important for the LOPC to persuade farmers into certain practices. But it is Vohra who leads the different inspectors to the different farmers and since the Rawats are totally organic they do not belong to the risk group of farmers who are partly organic or have non-organic neighbors. For Vohra this is a reason not to bring all the inspectors to the farm of the Rawats. Besides that, even if the Rawats are using chemicals it is impossible to find out on so much land without any neighboring fields with which you can compare since the inspectors do not check soil samples of the field (D. Vohra, Interview, November 8, 2010). A third reason why the Rawats do not need to adjust to the demands of the LOPC is because of their power as a member of different boards and organizations. The Rawats have such a large reputation in Dehradun district as progressive organic farmers that it would probably be almost unthinkable that they would be accused of using chemical pesticides in their fields. These memberships often generate publicity for the Rawats in newspapers etc. This can generate good publicity for the LOPC and their organic program as well but it would be negative when the Rawats are turning against them. This network of the Rawats is described in detail in chapter 5.

The same is happening with a mediator of Swadisht. Verma the field inspector of Swadisht and the Rawats have a good relationship as well, even though the Rawats are not always cultivating the varieties Swadisht wants and even though they are still using cow urine for example. Rawat 2 is always present when Verma gives a training in the federation office and often he agrees with the
information Verma is giving, but Rawat 2 decides himself what he thinks is useful and what not (Rawat 2, Interview, October 27, 2010).

It seems that the mediators and intermediaries of the LOPC and Swadisht are not working for the Rawats. The non-human intermediaries such as the PoP and the certification and training are only followed by the Rawats when they think it is appropriate. This means that some practices and prescriptions are just ignored or actively rejected, such as the use of cow urine which is forbidden by Swadisht. The human mediators on the other hand seem to support Rawat. Vohra is a good friend and he usually agrees more with Rawat than with the LOPC and I think that Verma takes the reputation of the brother into account when he visits them. Verma or Swadisht would never be too strict on the Rawats because of their influence among other farmers and organizations in the district.

4.4.2 Practices when doing and talking

During my visits to the Rawats I have spoken a lot with Rawat 1, but in the mean time there were also laborers working in the field. For the practices related to transplanting I would like to give a fine grained image where not only the practices as told by Rawat 1, but also the practices as I have seen them in the field and the relations between them are described. Therefore I will use the terms texture and anchorage which were explained in the theoretical chapter.
4.4.2.1 Texture
On the 16th of July the seedlings that were sown in the nursery on the 28th of June are being transplanted. Between sowing the seeds and transplanting the seedlings there are approximately 20 days (Rawat 1, Interview, July 16, 2010). When the field is ploughed and the green manure is decomposed in the soil the transplantation can start. There is a certain order of events that happen when the seedlings are transplanted. These activities can vary a bit, but in general the following activities take place which are illustrated with the pictures of figure 5.

1. Two to three women are sitting in the nursery and pull the seedlings out of the soil, when they have a bundle of seedlings they wrap a piece of weed or another straw around the bundle and put it in an empty spot in the nursery. This pile of bundles grows slowly while the women are pulling out the seedlings. This is all done by hand. From these women there is usually one elder woman who is the ‘supervisor’. The nursery is situated between the farm and the main field, this way Rawat has a good overview on the nursery. The female laborers get rs60/day for their work and are Rajput Banjare, a nomadic caste which settled for the last couple of years in Laxmipur.

2. A male laborer will collect a few of these bundles of seedlings and walks with them to the canal which flows between the nursery and the field where the transplanting is going on. Here he washes the seedlings carefully with the water from the canal to remove all dirt. According to Rawat this is done to remove possible diseases that might be present in the soil of the nursery, so these will not be transferred to the main field. The male laborers are getting rs100/day because their work is considered physical heavier according to Rawat.

3. At the same time these men who are cleaning the seedlings are also paying attention to the women who are doing the actual transplanting. When they run out of seedlings one of the men will walk through the field to bring new bundles which he lays on the ground so the women can easily grab them when necessary. Sometimes bundles are thrown through the air so the women can catch them.

4. The transplanting itself is done by seven women who are standing in a row. The women are standing in the water because the field is flooded with water up to their ankles. The women start at the front of the field and they move backwards while they are pulling seedlings out of the bundle and put them in the soil. The space between the seedlings is the width of a hand according to Rawat, although the women themselves do not seem to be using any strict measure and just put the seedlings in the soil, probably based on their
experience. The women have their own space next to each other, when one row is completed they move back until the bundle in their hand is finished and they have to grab a new bundle of seedlings.

5. In this group of seven women there are two elder women who are in charge of the younger ones. This can be seen because the elder women work faster and they give comments to the younger ones when they are not working hard enough. When Rawat asks something to these women, the elder ones will always answer. All women cover their face when Rawat comes near; they said that they prefer not to talk to him.

There are a few non-humans present in the practices related to transplanting such as the soil, water and the canal but the most important non-human would be the seedling itself. If the seedling does not grow in the nursery, it will affect the practices immediately because Rawat might decide to transplant later or do something else to make sure only healthy seedlings are going to be transplanted. A second important non-human which is not mentioned in the activities described earlier is the canal. In order to start with transplanting, water is needed to flood the field. In Rawat’s case, he receives water from the canal that runs through his village and has branches into his field. Usually there is no shortage of water since this canal is connected with the Yamuna River, which is a large river in Uttarakhand. Rawat has the means to pay for the water that floods his field, but if there was no canal this would mean that Rawat was dependent on the rain and this could affect the practices regarding transplanting. The same would happen if there was not enough water in the canal because of a low water level in the Yamuna.

Another interesting aspect in the transplanting practices is the cleaning of the seedlings. This is the activity that is only done by male laborers, Rawat is doing this work himself as well sometimes because it should be done carefully without destroying the roots of the plant while at the same time cleaning the roots from possible dirt and diseases (Rawat 1, Interview, August 11, 2010). When I asked Rawat why women could not do this work he did not explain this but he did say that he did not trust women to sow seeds because it might not be done careful enough, maybe this is also a reason why he does not want women to clean the seedlings. This also defines the position of men and women working in the field. The women are working when they are seated or bent over in the nursery or in the field, while the men only have to bend down for a short period to wash the seedlings in the canal, the rest of the time they walk around to collect and bring the seedlings from the nursery to the field. This way the men have a better overview over the whole situation and are apparently in charge of the more ‘responsible’ work that cannot be done by women. Although the men are not supervising the women by making comments, they do watch them work by just standing on the side. Here the men are mobile while the women are immobile.

4.4.2.2 Anchorage
Within this texture of practices there are some practices that anchor others. Constitutive rules can be used to identify the anchoring practices. In the case of practices related to transplanting, a constitutive rule might be the payment of wages to the laborers when they have finished their work. Because of this constitutive rule, the laborers are willing to work since they are sure that they will get paid in the end. From the many practices that are present during transplantation, the practice of working laborers is anchoring all the other practices. Without laborers, transplantation work cannot be done and all other practices would not happen.
Another constitutive rule is that laborers from Bihar are coming to Kashnagar during the transplanting period to find work, since there is a shortage of laborers. This leads to the anchoring practice of hiring laborers since Bihari laborers are using different techniques when transplanting. The Rawats have therefore chosen to employ laborers throughout the year, this means that they do not face any problems with shortage of laborers and do not have to hire Bihari laborers. The laborers working for the Rawats full-time are only female laborers who are also working with the cattle or do some household activities. The male laborers are hired separately every year. Usually this does not cause any problems for Rawat since there are some neighbors who are allowed to use a piece of land of Rawat for their nursery or use cow urine of Rawat for their field and in return come and work on his land when necessary.

4.5 Practices Deepti

The second farmer on which I would like to focus is Deepti; she belongs to the Dhobi caste in India, which is considered one of the lower castes. She lives in Jhaman Kata which is quite far from the main road to Kashnagar but still belongs to Kashnagar block. Deepti owns 3 beega of land and has 10 beega under contract. At the moment Deepti is cultivating organic basmati on 5 beega of land, which means that she uses 2 beega of the land under contract for the basmati program. The other 8 beega is used for other paddy varieties and some herbs and flower cultivation in order to pay the rent to the owner of the land (Deepti, Interview, August 4, 2010).

In 2003 Deepti came into contact with Sareen, the chairman of the federation and Vohra the field officer of the LOPC. At that time she was member of a Self Help Group (SHG) that was formed by the DASP in 2001. When Vohra and Sareen came to her house they explained the principles of organic farming to the whole SHG, but Deepti was the only one who actually agreed to join the program, all the other women thought it would not be beneficial (Deepti, Interview, August 4, 2010). But Deepti explained that she was already using mainly cow dung as a fertilizer because she has enough cattle and not that much land. Therefore it was easy to make the transfer from non-organic to organic cultivation. But she has a lower production with organic cultivation compared to non-organic and she also loses money because she has to hire laborers for weeding purposes instead of using a weedicide (Deepti, Interview, August 4, 2010). In 2003 she converted 5 beega of land into organic and during this period she got training about organic cultivation methods in the federation office. During this training she learned how to make a vermicompost pit, which she also made, and what products can and cannot be used when cultivating organically (Deepti, Interview, August 4, 2010).

Deepti is an illiterate farmer; together with the fact that she does not have much land and lives far from the main road and federation office this means that she is not so much involved in the federation decisions as for example Rawat. She told me herself that she has the feeling that Rawat or Sareen only inform her about a meeting when some external NGO or representative visits the federation office in order to show how many people they have in the federation or in case of Rawat, when he has visitors at his farm and wants to show how many people he can gather. In the end she

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8 3 beegha is approximately 2250m$^2$ and 10 beegha is 7500m$^2$, this means that together she has less than 1 hectare of land to cultivate.

9 It is quite common for farmers to have land under contract. In this case it means that Deepti works on the land of someone else and when the crops are harvested she has to give a share of the produce to the owner of the land. This is done according to an agreement and means that when she has a good year she will have more for herself, but in case of a bad season she might even have to give produce from her own land to the owner of the land under contract.
does not see any benefits from the programs that are mentioned during such a meeting (Deepti, Interview, October 21, 2010). Although she did not mention any specific programs there was an example other farmers mentioned who complained about the same thing. For example Panu and Meena Devi, they were informed about a basil program during a federation meeting. The basil cultivation should be very profitable and when they asked about it afterwards they heard that the basil seeds were already distributed among other farmers, mainly federation board members (S. Devi, Interview, August 6, 2010). This situation has the consequence that Deepti has the feeling that she is not supported within the organic basmati program. When there is a problem, such as diseases in the field, there is no one who takes the trouble to come and help while on the other hand she always has to come to certain meetings when the federation board needs a high attendance (Deepti, Interview, October 21, 2010).

4.5.1 Plant protection practices
In this section I will first look at the plant protection practices as they have been told to me by Deepti. These will be compared with the intermediaries of Swadisht and the LOPC. Did Deepti follow, change or reject them? This will be followed by the analysis of the fine grained practices of weeding where the texture and anchorage of these practices are analyzed.

Deepti is cultivating 386 on 3 beegha of land and Taraori on the other 2 beegha. 386 is an experiment of Swadisht and she was told that the cultivation methods would be the same, the only difference is a decreased chance of lodging problems compared with Taraori or Doon basmati. She collects the seeds for these varieties at the federation office. Verma has told her that she cannot save her own seeds because they might change the variety (Deepti, Interview, August 4, 2010). This is why Deepti is afraid that if she uses her own seeds Swadisht will not purchase her produce once it is harvested. Here a combination of intermediaries is used by Swadisht, first the field inspector tells Deepti what she cannot do and at the same time the availability of seeds on credit controls which varieties Deepti will cultivate.

At the moment the seedlings are transplanted and the paddy starts to grow, different diseases can occur. This year Deepti faced many diseases such as blast, leaf curl and empty grains (Deepti, Interview, November 11, 2010). She used some methods to control the diseases, first she called Rawat for information and he gave her some bio-pesticide that should be mixed with brown sugar and sprayed in the field\(^\text{10}\). When the diseases did not go away, her husband went to the federation office to collect some bio-pesticide there. At the federation office he was advised to buy Calphomil and Calmonas\(^\text{11}\) from Camson and the shopkeeper told him how to use these products. She mixed the two packets with 100 liter of water, according to the instructions of the shopkeeper. Then she used a spraying machine that she borrowed from a neighbor to spray it on the field. She sprayed before the fruiting stage after the rain in October because before that it would not be useful since the rain would flush away all the pesticides immediately. She wanted to spray a second time but then the spraying machine was broken and she was not able to borrow a new one. So even though she sprayed the Calphomil and Calmonas once, the diseases were still present in her field (Deepti, Interview, November 11, 2010).

\(^{10}\) She did not have the packing anymore so it is not clear which product it was exactly.

\(^{11}\) She did not remember the name of these products but in the administration of the federation office it was written that she bought Calphomil and Calmonas.
The practices that Deepti used to control the diseases in her field did not work according to her because many diseases were still present just before harvesting. When looking at the intermediaries she did follow the description as have been advised by Swadisht in their PoP. Swadisht advises to use Calmonas against blast diseases when Trichoderma is not present (Swadisht, 2005). This might indicate that Deepti is following the PoP. When I asked Deepti about the PoP she did not have them and explained that she could not read them anyway. Therefore the human mediators played an important role. Vohra visits her sometimes and gives advice on which products she should use and Sareen is also an important source of information for Deepti when there is some problem in the field, this is not only based on his knowledge on the topic, since Deepti often complained that Sareen did not give the advise she needed. The other reason for Deepti to call Sareen is her dependence on him economically, she borrowed a large sum of money from his wife and she is not able to pay this back. This dependency has been used by Sareen several times to control the practices of Deepti, for example when she wanted to cultivate flowers for a firm and Sareen stopped this because he did not benefit from the agreement. He threatened by telling her that she still had to pay off her debt and that this would not be possible of she cultivated flowers instead of basmati (Deepti, Interview, October 21, 2010).

This would mean that the human mediators first try to persuade Deepti into certain practices such as Verma who tells her that she has to use the seeds from the federation and Sareen who tells her which bio-pesticides she has to use. After this the non-human intermediaries start playing a role such as the availability of seeds or bio-pesticides in the federation office. Without the contact with human intermediaries she might have saved her seeds and used different types of bio-pesticides instead of following the PoPs.

4.5.2 Practices when doing and talking
On the fourth of August Deepti hired laborers to do the weeding in the basmati fields. When weeding the field there are several activities that can be described to get a fine grained idea of these weeding practices, namely;

1. Three to five women are hired to do the weeding, they stay together when they are working. The laborers are getting rs100 per day for their work according to Deepti.
2. A sickle is used to cut off the weeds.
3. When there is doubt whether the plant is a weed or paddy the women tick with their sickle to the plant to let it move this makes it easier to see whether it is a group of plant and therefore paddy, or single plants and therefore weed.
4. When someone has a bundle of weed in her hand she puts it away on an empty spot, all bundles are collected there. These weeds can be used as fodder for the cattle.
5. The women move from left to right and slowly from the front to the back when weeding.
6. When the field is free from weeds the field demarcations are weeded as well.
7. Deepti herself is working together with the laborers; also other family members are helping, such as the mother in law of Deepti, while working she is in charge of the coordination between the laborers.
There are a few non-humans present in the practices related to weeding; first of all there is the sickle the women are using to cut the weeds. Secondly the weeds together with the paddy are also non-humans. In the texture of these practices the sickle is an important actor because without the sickle it would be more difficult to uproot the weeds. Besides that the sickle is also used to get the roots of the weeds out of the soil. This means that if there was no sickle the practices of weeding would look different, it would probably take more time because it has to be done by hand and the weeds would come back earlier since the roots cannot be taken out.

When describing the texture of certain practices the term “connectedness in action” is mentioned by Gherardi (Gherardi, 2006). This connectedness in action can be seen when the laborers are checking the difference between the weeds and the paddy. There is a large similarity between the paddy and the weed, they usually have the same length and color so it is easy to mix up the weeds for paddy or the other way around. According to the laborers who were working the field the difference can be distinguished by looking at the groups. Paddy always grows in a small group together because several seedlings are usually transplanted at the same time. Weeds on the other hand are generally single plants, although they can grow close to each other. When a laborer doubts whether the plant is paddy or weed she ticks with her sickle on the stem of the plant, this way it is easier to see if the plant is really a group of paddy or just weed growing close together. Depending on the observation of the laborer she will either cut the plant when it is weed or leave it when it is paddy. The first practice therefore connects the other.

4.5.2.1 Anchorage
The constitutive rule of paying wages to the laborers and the following anchoring practice of hiring laborers as described at the practices of the Rawats is relevant for weeding as well. But there is also another important constitutive rule that should be mentioned. This is the rule of organic cultivation which states that no chemicals can be used. One of the largest consequences of this rule is related to weeding. Non-organic farmers use weedicides to protect their plant from weeds, but in organic farming the weeding needs to be done by hand. This means that the constitutive rule related to organic cultivation leads to the practice of not using any chemicals. This anchors the weeding practices as they are executed by Deepti, namely hiring and paying laborers for weeding purposes by hand. Deepti and many other organic farmers were saying that weeding is one of the largest consequences of organic farming, it takes more time and costs more money compared to non-organic weedicides.

4.6 Certification process
The process of organic certification has been described in the first part on the intended situation. It consists of three steps, first there is the use of diaries by farmers themselves which are checked in step two during the internal inspection (ICS) and finally in step three the ICS is controlled by an external agency who will give the organic certification that can be used by farmers to sell organic basmati to Swadishrt. Here I would like to describe the observed situation regarding the different steps in the certification process. Again I will start with the diary then the ICS and finally the external inspection.
4.6.1 Use of diaries in practice
At the beginning of each cultivation season all registered organic farmers from the LOPC are getting a diary. In this diary the different practices regarding plant protection, fertilizers etc are to be filled in, besides that there is also a general part with information about the location and size of the farm, amount of cattle et cetera. This information can be used during the inspection since one of the demands of an ICS is good documentation (IFOAM, 2003). Everywhere I went I saw that the farmers were in the possession of such a diary but it was clear that not all farmers were filling in these diaries by themselves. For example Panu Devi, when I asked her how much land she owned she had to get her diary to get the information. Further in the conversation we were talking about the use of bio-pesticides and she was talking about some white powder that she used to treat the seeds before sowing. In the diary it was mentioned that she uses Trichoderma, although she did not know the name of the product herself (S. Devi, Interview, August 6, 2010). This occurred more often during different conversations with farmers. When asked who was filling in the diary it seemed that it was often Vohra, the field officer who did this. During the interview with S. Mohan, the program manager of the LOPC, it became clear that he was also aware of the fact that Vohra filled in the diaries of the farmers. He said that since this year there was a message on the cover of the diary which said that the diary should be in possession of the farmer at all times. This measure was taken because even Sareen, the chairman of the federation could not show his diary to the inspector because Vohra had it (S. Mohan, Interview, October 1, 2010).

The diary is not only something the external agencies demand in order to approve of the ICS but it is also an intermediary of the LOPC to be able to control which practices are used by the farmers. Both these functions of the diary are lost when Vohra instead of the farmers fill in the diary. The inspector does not get a real representation of what the farmer has used in his field and on the other hand the diary does not function anymore as an intermediary for the LOPC since the farmer does not describes its own practices. The LOPC is aware of this and tries to implement measures to change this situation, such as the one where the farmer has to keep the diary with him at all times. With this measure the LOPC thinks it can stimulate farmers to fill in the diary themselves since Vohra cannot collect them, fill them in and bring them back, although in practice Vohra will keep filling in the diaries but then at the farmers house. At the same time Vohra is also a mediator for the LOPC, this might mean that Vohra is using the diary for other purposes for example making sure that the right things are described in the diary so the farmers get their organic certification. Vohra knows exactly what the inspector finds important and what kind of questions are going to be asked. For example when a farmer does not really know what kind of products he has used, like the case with Deepti described before, Vohra can fill in the right names and logical amounts that could have been used. When the inspection is done the inspector will find a diary which mentions logical inputs, while if nothing was written there the inspector might have become suspicious and start questioning the farmer more extensively. In this case the diary is not used anymore as an intermediary from the LOPC towards the farmers, but as an intermediary from the LOPC (Vohra) to control the practices of the inspection.

4.6.2 Internal inspection in practice
The internal inspection is done by an inspector who is appointed by the LOPC. The inspector that was working during my visit had this job for several years already and knew the farmers in Kashnagar a bit. The inspector is joined by Vohra who will show him around and brings him to the farmers’ houses. The inspections in Kashnagar took place in only four days, which means that approximately
fifty farmers had to be visited each day in order to check all 250 farmers from Kashnagar block. It was during the second day of the inspection that I joined and the previous day they were not able to visit many farmers so there was some rush.

With this background information I would like to describe the different aspects of the inspection that I observed and the possible texture and anchorage in these activities.

The following activities took place during a regular inspection;

1. The inspector enters the farm together with Vohra and asks for the registered farmer he has on his list, when the farmer is not at home the inspector will ask the questions to his wife or another family member that is present.

2. The inspector searches for his own form about the farmer and starts checking the general information such as his name and phone number. At the same time the farmer is also asked to get his diary.

3. Sometimes the farmer does not understand what the inspector means with the diary and Vohra has to explain what it is and how it looks like. By that time the farmer usually understands what the diary is and gives it to the inspector.

4. When this is done the inspector starts asking questions to the farmer, the order of the questions varies largely among the different visits. Sometimes it starts with some general information about the amount of land and cattle and sometimes he immediately starts asking questions about the kind of compost that is used or which bio-pesticides the farmers sprayed and if it worked against diseases.

5. The farmer has to show the packing of the products he has used, such as the packing of trichoderma etc.

6. Besides practical information, the knowledge of the farmer regarding the organic program is also tested using questions like; why do you think we have this inspection? Or what are the main principles of organic farming and what are the benefits?

7. The information the farmer gives is immediately checked with the information in the diary and is also noted in the form of the inspector.

8. A question that is always asked is how much compost a farmer can obtain from his pit; this causes confusion sometimes since the farmer often does not know how much compost he uses per $m^2$. Here Vohra usually helps by asking the farmer how many buckets of compost he has used in the field, maybe twenty? At that moment the farmer explains that many more buckets were used, or less depending on the situation. With this help of Vohra the farmers can answer the question and the inspector can fill in his form.

9. When the inspector thinks all the answers correspond with the information in the diary he has two options, or he checks the field quickly and makes a little round on the farm or he leaves and continues his visits to other farmers. At the beginning of the day, more fields were visited compared with later on the day.

10. When the inspector feels that something is not correct he will check the field. I observed that a reason for this feeling can be the information in the diary that not corresponds with the information the farmer is giving, another reason might be the lack of compost that is available in the pits or just a feeling based on the language of the farmer. At one occasion the inspector thought it was strange that the farmer was talking about ‘medicines’ when talking about bio-pesticides because this is a word that is commonly used for non-organic pesticides and according to the inspector is not used for organic farming. Although he did
mention his suspicion to us he did not tell the farmer about it and did not start a more thorough checking.

11. Before checking the field the farmer is also asked a couple of times whether he has used some chemicals, in this situation the inspector raises his voice and starts accusing the farmer of cheating in the organic program. When the farmer keeps on denying this the inspector goes to the field.

12. The field is checked by the inspector; he walks through the field and checks the colors of the leaves and the soil. He says that when the leaves are too dark green or the soil has many cracks and bursts he suspects the farmer of using chemicals. Another reason can be that he finds some empty package of chemical pesticides or fertilizers.

13. In one occasion the farmer asked if a soil sample can be taken in order to prove that he did not use any chemicals, the inspector replies that this might be possible but in the end never takes the soil sample.

14. Before leaving the inspector put his signature in the diary and the farmer has to sign the form of the inspector as well. Then the inspector writes the name and number of the farmer on the diary and a picture is taken of the registered farmer with the diary in his hand. This is done for the administration and to prove that the ICS has actually been done.

15. On his way to another farmer the inspector discusses the inspection with Vohra. Especially when there is some accusation on the use of chemicals the inspector wants to know Vohra’s opinion. At this moment Vohra keeps telling the inspector that it is his own decision and that he is not going to give his opinion.

When looking at the different activities during an inspection it can be seen that different non-humans play an important role. First of all there is the form that is used by the inspector, this form gives the inspector a certain authority since he is writing on it all the time and you can see that the farmers become a bit nervous when they see the inspector like that. On the other hand the form is also used as a guideline for the questions the inspector asks. Secondly there is the diary of the farmer, this diary is mainly used by the inspector as an extra check on the answers of the farmers, and this can also be said about the packaging of the bio-chemicals and fertilizers the farmer has to show. The packing and the diary together should confirm or show discrepancies between the farmers’ answers and reality. It shows that these non-humans play an important role in the opinion of the inspector, since the non-humans ‘never lie’. But as has been described before, the diary is not filled in by the farmer but by Vohra, which makes it not the source of information the inspector thinks it is.

Two other important non-humans are the paddy and the soil sample, the color of the paddy is used to decide whether a farmer has used chemicals, this is not a very objective measure because the color of the paddy can also differ because of other reasons. So the color of the plant affects the opinion of the inspector. A soil sample could give an objective measure on the use of chemicals, but is not used. According to Vohra because it is too expensive to analyze, on the other hand it might also disagree with the findings of the inspector which might be a reason for the inspector not to use this non-human.

The texture of the internal inspection as described is anchored by certain practices. Again the anchoring practices are related with the constitutive rules connected with the ICS. The ICS is based on the checks and rules described by IFOAM. The internal inspector is following these rules which
state for instance that the documentation of the farmer should be checked. One of the anchoring practices during the internal inspection is therefore checking the farmers’ diary. Based on this information the inspector will question the farmers further or check the field.

Another constitutive rule that is influencing the practices of inspection is the time the LOPC is giving the inspectors. In practice this means that the inspector needs to visit around 50 farmers a day and the visits become shorter at the end of the day in order to reach this target. This is directly influencing the practices of the inspector since he has less time to check the diaries, farms and fields thoroughly.

4.6.3 External Inspection in practice

During the external inspection A. Hussain of USOCA, the certification agency in Dehradun, came to Kashnagar to meet Vohra. The inspector already made a risk assessment where he focused mainly on the presence of off farm seeds and off farm inputs (A. Hussain, Interview, October 19, 2010). Based on these risks most of the LOPC farmers are eligible for inspection since almost everyone uses off farm seeds from Swadisht and also the inputs are mainly off farm since most farmers are using Trichoderma and Pseudomonas, bought in the federation office.

I would like to highlight only a few interesting aspects of the external inspection that I observed. In general the external inspection follows the same structure as the internal inspection where the inspector visits the farm and asks several questions. But there were a few differences as well; first of all, the external inspector only visits a select group of farmers. Based on his risk assessment, the external inspector decides which villages he wants to visit, for example Ambadi is a village where many organic farmers live and these farmers are all using off farm inputs and seeds. The inspector then decides that he wants to visit this village because the risk farmers are living close together which is easier for the inspection. It is Vohra who then decides which farmers from that village are inspected exactly. During the two days that I joined the external inspector we visited mainly farmers who are active in the federation board. Despite this the inspector seemed to behave quite objective in his questions and visits, he did not make it easier for the farmers who are more powerful. Especially when we visited Sareen the chairman of the federation, the inspector was extra critical in his questions because in his opinion the chairman should be well aware of the program and should be an example for the other farmers. This was a different attitude compared with the internal inspector who was extra nice to Sareen, perhaps because the internal inspector visits Kashnagar every year, while the external inspector changes each year.

During the visits of the external inspector there was again no objective measure to see whether a farmer had used chemicals. The inspector acknowledged this himself when he told me that it is not possible to see from the soil or the plant the difference between an organic and a non-organic field. The only way to check this is to take a soil sample, but this is so expensive that in practice it is never done. During one visit the inspector found an empty can with a chemical fertilizer near an organic field and this resulted in an accusation towards the farmer that he had used chemicals. The farmer denied but the inspector took the can with him. From this situation, it did not become clear what the direct consequences for this farmer would be, the inspector could not tell me what he would do with this finding and taken into account the other visits where he hardly took a look at the field it does not seem likely that he will deny the organic certificate for all farmers of Kashnagar based on this one finding.
From the external inspection it can be seen that the official rules for certification are not always followed exactly. The inspector has his own ideas on how to deal with the situation which means that some farms are inspected very thoroughly and some hardly at all. Despite these differences it does not seem the case that powerful farmers are treated differently compared to non-powerful farmers. With an exception of Sareen who was questioned extra by the external inspector. A problem is that you cannot see from the plants or the soil whether a farmer has used any chemicals, of course no farmer will ever write in his diary (or Vohra) that he has used chemicals so the only method is to check whether there are not empty cans of packing’s of chemicals lying around in the field or farm.

4.7 Discussion of the Observed Situation
From the descriptions of the intended and observed situations regarding the important actors in the organic basmati program and the intermediaries that are used can be concluded that there is a large difference between the two. First of all the intermediaries that are used can be separated in human and non-human intermediaries and mediators. They all have some intended goal, but there seems to be a difference in how much influence the human and non-humans have on the practices of the farmers. The two farmers that have been discussed differ greatly, the Rawats are influential, rich and literate farmers while Deepti is not that influential and economically dependent on the federation chairman. When looking at the effectiveness of the intermediaries among these two farmers there are some interesting aspects. As described, the Rawats have the influence to change the intermediaries, the non-human intermediaries are used when they feel that it is useful, but when this is not the case the intermediary will be ignored or rejected, as has happened with the use of cow urine that is prohibited by Swadisht. The problem with non-human intermediaries is that they can only be influential once the rejection of them has some consequence. In the Uttarakhand Organic Basmati Program, these consequences or the observation of it can only be verbally reported by humans. For example the certification process as an intermediary for the LOPC is only significant when a human inspector says whether the certification is granted, then the consequences of the intermediary become clear. The two important humans who are functioning as mediators for the LOPC and Swadisht are Vohra and Verma. Mediators can change things themselves and use their position for their own benefits or they can be enrolled by other actors instead of the LOPC or Swadisht. This is the case with Vohra for example, who is enrolled by the Rawats. Vohra is already a friend and he is from the same area as the Rawats. This means that Vohra is aware of the power and influence of the farmers in the area because of their caste and history as village pradhan’s. But also within the organic basmati program, the Rawats are influential as one of the first farmers who joined and active in many other boards and organizations in the region. Verma is not from Kashnagar but he is working for Swadisht for some years already and is also aware of the status of the Rawats. In practices this means that the Rawats can easily enroll these mediators by showing their knowledge about organic farming and their influence in many other organizations. Because of this the chances are small that Vohra or Verma will ever take measures against the Rawats when they do not accept the non-human intermediaries such as the PoP or the seeds that are available et cetera. Even though the Rawats are deviating from the PoP and adjust it where they think necessary, they do have a higher production and face fewer diseases compared to farmers who are following these rules.
Deepti on the other hand is a small farmer who is not that influential and powerful as the Rawats. She follows the non-human intermediaries more often but this is usually the case because a human has told her to do so, she cannot read the PoP for example. This means that the mediators are relatively more influential compared to the non-humans intermediaries in Deepti’s case. Even though Deepti is following the PoP, she is facing many diseases in her paddy which causes a low production. This is the opposite of the Rawats, she is not adjusting or rejecting the ‘best practices’ of the LOPC and Swadisht, but still she is not getting the best basmati.

Deepti is driven by her indebtedness with Sareen, the chairman of the federation. Even if she does not agree with certain things, for example the ban on the use of cow urine, she will follow it because she is scared her produce will be rejected and she will not earn enough money to support her family and pay off her debts.

This means that from a farmer’s perspective it seems that the humans are more important as mediator because they can give importance to the non-human intermediaries. But these humans are again more influenced by the status and power of the farmers which becomes clear in the examples of the Rawats and Deepti.

A second process that has been described in detail is the certification of the farmers. Both the internal as the external inspector were using human and non-human intermediaries to base their decisions on. Contrary to the situation with the intermediaries and their influence on the farmers, the non-humans played an important role in the practices of the inspectors. Here the non-humans had to confirm or reject what the humans, usually the farmers, were saying. This is opposite to the previous situation where the humans had to confirm the importance of the non-humans.
5.0 Translation

5.1 Introduction
The goal of this research was to examine how contract farming, as a new development policy, shapes farmers’ practices. In order to understand how the agricultural practices discussed in the previous chapter were shaped by the farmers’ past practices, technology and the local and non-local social relations of contract farming, actor-network theory (ANT) will be used. This is based on the four moments of translation as described in the theoretical framework.

In this chapter I will go back to the two farmers that have been mentioned in the previous chapter, the Rawats and Deepti. Based on my interviews and observations during the six months I spent in Kashnagar, I will use the four moments of translation and unravel the actor-networks of these two farmers and the effects of contract farming on them. Examples of plant protection will again be used to illustrate the arguments. Then the same analysis will be done on the LOPC in order to put the two farmers into a broader perspective, which leads to a conclusion on disjuncture between the agency and practices of different farmers: some mediators and others intermediaries.

5.2 Rawats
In the previous chapter an introduction has already been given on the Rawats. The Rawats have been involved in the organic basmati program since the start and through education, family knowledge and experimentation they have become very successful in organic basmati cultivation. For example the use of the System of Rice Intensification (SRI) is characteristic for the Rawats and their willingness to use new cultivation methods. The main goal of the Rawats is to keep control over their farm and their practices. When Rawat 2 is talking about improvements of the organic basmati program he says “local crops should be promoted suited to regional conditions and there should be no pressure on farmers to cultivate one specific crop” (Rawat, Interview, October 18, 2010). Similar statements were made by the Rawats at other times as well, where they indicate that they do not want to be forced into cultivating certain crops or using certain practices. In order to maintain their control, they need to become an actor-network, geared toward this goal. A successful actor-network is able to speak in name of the other actors such as the basmati plant or the LOPC and can therefore adjust their goals. As already mentioned, the Rawats have gained considerable knowledge on the cultivation of organic basmati, but in order to achieve their goal they need to use this knowledge to create a good basmati production process and the possibility to demonstrate their success to others. The actors that need to be present in the actor-network have their initial goals and interests. These can change during the process of enrolment but at this moment the Rawats think these actors have the following goals. The LOPC for instance is actively promoting certain practices through Package of Practices (PoP) and Vohra, their field officer. This is done with the assumption that the production of organic basmati will improve in quality and quantity when farmers are following these practices. The LOPC’s main concern is having a successful organic basmati program for the world to see. Vohra’s goals are different from the LOPC’s; his primary goal is to have a good relationship with the farmers in Kashnagar where he is also living. This good relationship means that farmers trust Vohra in his advice and decisions, for Vohra it is only possible to do his work when farmers are accepting his
advice. One way to maintain the good relationship is to promote practices that are low-cost and which will benefit the farmers to achieve good yields at low investment.

Swadisht, the buyer of the basmati rice, has a similar strategy as the LOPC in promoting practices to achieve a high quality output of basmati, where prescribed practices play an important role. Besides the quality of basmati, Swadisht is also interested in buying this basmati for the lowest possible price during the procurement stage. On the other hand, Swadisht needs the organic basmati farmers for their production of rice, without the organic basmati the new product line of Swadisht with organic articles cannot be exported and Swadisht needs to search for other organic farmers’ groups. This means that the third goal of Swadisht is to keep the farmers in the program in order to have a continuous supply of organic basmati.

The fourth relevant actor in the actor-network of the Rawats are the other organic basmati farmers present in the federation of Kashnagar. These farmers want to benefit from the knowledge of the Rawats when they have a problem in the field. Another important aspect is the possibility for other farmers to obtain cow urine and in some cases, being allowed to use the nursery of the Rawats to sow their seeds and use seedlings to transplant in their own fields. Furthermore, the farmers can benefit from the possible programs that the NGOs are discussing. Thus, there are several reasons for other farmers to maintain such a relationship with the Rawats that makes these advantages possible.

Finally, there is the basmati plant itself. The basmati plant’s main goal is to survive and be free from pests and diseases. It is important for the Rawats to have the basmati plant in their network since it is an important source of income and when the basmati cultivation is doing well the other actors in their network might be more willing to cooperate because they see the successes of the Rawats and trust their knowledge on organic basmati cultivation.

So by involving these different actors in their actor-network, the Rawats are hoping to maintain the freedom to experiment with their practices and have a profitable business.

5.2.1 Problematization

As has been mentioned, the Rawats want to create an actor-network which gives them the control over their farm. The fact that the Rawats have a contract with Swadisht and are aligned with the LOPC can decrease their freedom because they have to follow the practices prescribed by the LOPC and Swadisht; this might change when the organic basmati production is of the high quality that Swadisht demands in its contract. Of course the basmati production should also be profitable. In order to achieve this they need to answer the following question:

How can I achieve a high quality organic basmati production, while retaining full control over my production process?

Besides the question, there are also several actors that need to be taken into account in order to make an actor-network. Rawat 1 was mentioning that “the seeds are coming from the buyer Swadisht, they provide mainly Taraori seeds. These seeds are first checked by the board to see whether they are organic, therefore farmers will never use any seeds without the permission of the board (LOPC)” (Rawat 1, Interview, July 16, 2010). In this quote, Rawat 1 acknowledges the importance of the LOPC and Swadisht, in this case for obtaining seeds. Thus the following actors are likely to play an important role in the translation of the Rawats;
1. The LOPC and its certification agency who wants farmers to follow their practices to have a successful organic basmati program that can be shown to the world.

2. Swadisht, wants farmers to follow recommended practices to obtain high quality basmati and no problems during the procurement of paddy.

3. Vohra who believes that organic cultivation should be about on-farm pesticides and wants to maintain the good relationship he has with the Kashnagar farmers.

4. Other organic farmers in Kashnagar who want to benefit from the knowledge and possibilities at Rawat’s farm.

5. The basmati plant, it wants to grow and survive the attacks of pests and diseases.

The Rawats need to position themselves in such a manner that they become indispensable for the other actors. This can be achieved by creating an Obligatory Passage Point (OPP) that all actors need to pass before they can reach their own goals (Callon, 1986). An OPP can be created by defining a problem that all actors want to be solved before they can reach their own goals. The Rawats pose this problem as how to produce high quality organic basmati. The Rawats are able to solve this problem and therefore all other actors need to pass them.

In figure 6 based on Callon (1986), a visualization of this process can be found where the different actors and their goals are mentioned with in between the possible obstacles or problems that hinder these actors to reach their goal. When the Rawats are able to cultivate high quality basmati, all actors can reach their goals.

![Figure 6: OPP Rawats](image)

**5.2.2 Interessement**

The Rawats can only integrate the actors or entities into their plan when the actors’ goals are being achieved. At the same time all actors’ goals are being re-formed and re-adjusted in this process. The Rawats can achieve the integration of other actors into their plan when by using different devices of interessement. It is possible that some actors are already engaged by other external programs or actors; this means that the Rawats need to disassociate them from their previous alliances and try to interest these actors in their own plans. This can mean that entities need to be persuaded or even
with force convinced that an alignment with the Rawats is necessary. An example that will be further explained in the next paragraph is the basmati plant. The basmati plant can have an association with certain pests that always attacks it. By using a device of interessement, for instance a plastic sheet on the nursery, a barrier is made between the basmati and its attacker, the pest. By disassociating the basmati plant from its previous association it is possible to make a new alliance with the basmati, in this case cultivating a healthy basmati plant. The different material and discursive devices of interessement separates an actor from its previous associations by coming in between the actor and others it is associated with, both cooperatively and competitively.

One of the most important actors for the Rawats is the basmati. Although one of the most important problems with organic cultivation are neighboring farmers who are using chemicals in their fields, this problem does not exist for the Rawats since their fields are not directly connected with any neighbors. Besides that, in contrast with many other farmers, the Rawats are cultivating three basmati varieties organically. These are Doon basmati, Taraori and 386 from which Taraori and 386 are the preferred varieties by Swadisht. Doon basmati is not sold to Swadisht by the Rawats, but to other private buyers. Of course, all these varieties need to be protected against pests and diseases in order to get a high quality basmati production. When I first visited the farm of the Rawats, they were transplanting the seedlings from the nursery to the field. At that moment some devices of interessement were already brought into action in order to make a barrier between the different basmati varieties and the pests and diseases that were attacking them. For example, the use of Trichoderma and Pseudomonas during the seed treatment and the use of plastic sheets on the nursery to kill pests (Rawat 1, Interview, July 16, 2010). According to Rawat 1 there is a difference between the basmati varieties. Doon basmati for example faces fewer diseases compared to Taraori, while 386 gives most problems. This is primarily caused by the origin of the variety, Doon basmati is originally from Dehradun district, while Taraori and 386 are from Haryana and Punjab. In order to get healthy Doon basmati it is important to create a barrier between the Doon basmati and the possible pests that were present in 386 or Taraori. By not using the same plot of land that was used to grow 386 the previous year, the Rawats are using this practice as a device of interessement to disentangle the Doon basmati from a possible threat from diseases affecting other basmati varieties and instead enter an alliance with the Rawats to stay healthy (Rawat 1, Interview, November 8, 2010). Instead of artifacts or conversations, the device of interessement in this case is a practice. Practices can be useful devices of interessement because they can place a barrier between an actor and its previous associations as well.

In order to make an alliance with the three basmati varieties, different strategies and devices of interessement are used. Doon basmati is cultivated according to the System of Rice Intensification. Besides the difference in cultivation techniques such as the spacing between the seedlings and the method of weeding, there are also other plant protection solutions. A special mixture is made for the Doon basmati in the SRI field, containing 5 liter of cow urine, 1 liter milk, 1kg curd, 500gram cow’s fat and 250gram honey (Rawat, Interview, July 17, 2010). This mixture together with the cultivation techniques can be seen as a device of interessement that separates the Doon basmati from its previous associations with pests, diseases and weeds. By placing these devices of interessement the Rawats try to interest the Doon basmati to grow well and stay healthy. Furthermore extra attention is given to the SRI field by the Rawats, Rawat 1 is often checking the field himself and order his laborers to pay attention. By checking the field more regularly, possible diseases can be found and bio-pesticides can be used in an early stage. This practice can be seen as a
second device of interessement to disassociate the Doon basmati from the other basmati varieties and their possible problems and make an extra alliance with Doon basmati to make the SRI method a success.

For the other two basmati varieties, regular plant protection techniques are used, such as the mixture of cow urine and neem leaves. This year Rawat 1 also wants to use turmeric mixed with water as an experiment against leaf blast (Rawat, Interview, July 17, 2010).

Once an alliance with the basmati plant has been made, negotiations are still necessary to keep the basmati healthy. This continuous process is described in the section about the enrolment of actors.

The other farmers in the organic basmati program are an interesting actor as well. As described in the introduction, many farmers in Kashnagar are visiting Rawat’s farm in order to gain information or inputs for their fields. The Rawats on the other hand need these farmers to come to their farm when some external NGO or government institute brings a visit. By mobilizing farmers, the Rawats try to become necessary for these organizations for promoting their new programs. As a return the Rawats hope to get the publicity they need for their farm in order to convince other actors like the LOPC and Swadisht of their importance. Because Rawat 2 spends most of its time networking in the region he has become a familiar face for many organizations. Due to this networking, NGOs and government institutes come to the Rawats when they want to execute a program. This can then create the necessary publicity in newspapers or on the local television. The Rawats are using their knowledge and assets as devices of interessement. By giving farmers information when they have a problem in the field or by giving cow urine or the possibility for farmers to use the nursery of the Rawats for their own seedlings, the Rawats try to disentangle the farmers from their previous alliances. For instance, the information sources farmers normally use such as direct neighbors can be cut off by the devices of interessement used by the Rawats. The possibility to get valuable information and free inputs may disentangle farmers from other information sources and possibly form an alliance with the Rawats and join the meetings on their farm.

The publicity that is generated for the Rawats by being active in NGOs and being able to mobilize farmers is used as a device of interessement towards the LOPC. The Rawats try to disentangle the LOPC from their own policies that focuses on the process based on controlling practices through the PoP, field officer and the certification inspectors, and entangle them in a new alliance with the Rawats, where the LOPC focuses on the end product and not on the process. The publicity the Rawats have generated can be a good device of interessement because it places a barrier between the policies of the LOPC itself and a focus on the end product. This happens since the outside world can see the successes of the organic basmati program, based on the high quality organic basmati that the Rawats produce. For example, Rawat 2 was in the newspaper showing the SRI technique they are using in their field and the high quality basmati they produce with it. At the same time Rawat 2 is mentioning the LOPC as the organization which is promoting this high quality organic basmati. This publicity is positive for the LOPC since it promotes its program; on the other hand the Rawats are also promoting a technique that is not prescribed by the LOPC. Here a barrier is placed between the policy of the LOPC to focus on the practices and the actual end product, high quality basmati.

An important mediator for the LOPC is Vohra. Vohra works as a field officer in Kashnagar and has good contact with most of the farmers. The Rawats are already involved in the organic basmati
program since it was set up together with Vohra who was employed by DASP. This means that Vohra and the Rawats have a long history together and have become good friends over the years. Vohra’s official task is to implement the policy of the LOPC and inform the LOPC about the problems farmers have. For the Rawats it is interesting to make an alliance with Vohra since he has to make sure farmers are actually following the practices written in the PoP of the LOPC. Furthermore it is also Vohra who is accompanying Verma from Swadisht and the different inspectors for the certification. Due to this long history together, the Rawats are aware what the needs and preferences of Vohra are, therefore the Rawats are able to use the correct devices of interessement. Vohra for example, started with the organic basmati program during the DASP period where he learned the importance of on-farm inputs. He still believes that these techniques are essential for organic farming and will benefit the farmers because it means lower input costs. The Rawats are using their conversations with Vohra as a device of interessement. By telling him about their new experiments and practices and the successes they made with them, Vohra is being disentangled from his alliance with the LOPC and its packages and protocols. These conversations work as a discursive barrier between the LOPC and Vohra, making an alliance between the Rawats and Vohra possible. The Rawats know that Vohra needs a success story in Kashnagar to show to the visitor such as the LOPC, state officers and academics, and they are willing to be this success story with their new techniques and high quality basmati. In return, Vohra does not focus on the PoP but lets the Rawats have complete freedom in their practices. Furthermore, the Rawats are using their on-farm inputs as a device of interessement as well. As mentioned before, Vohra is positive towards the use of on-farm inputs and the Rawats are aware of that. The on-farm inputs are used to disentangle Vohra from the off-farm inputs mentioned in the PoP and entangle him in the on-farm practices and experiments of the Rawats.

Besides the LOPC, Swadisht also has its PoP and wants farmers to follow certain practices. Again the Rawats need to make an alliance with Swadisht so they can use their own practices without getting any problems. The Rawats need a device of interessement that will create a barrier between the PoP and Swadisht. Only then Swadisht can be entangled in an alliance with the Rawats where the products and not the processes are most important. For the Rawats the conversations with Verma, the field inspector of Swadisht, forms an important device of interessement. Furthermore the images of their good quality, disease free basmati fields are a device of interessement as well. Although the Rawats are not as closely related to Verma as they are with Vohra, they know Verma for a few years already. By showing their successes to him, the Rawats want to disentangle Verma from the rules of Swadisht and entangle him in an alliance with them.

Furthermore, the Rawats are very influential in their neighborhood, because of their caste and status as has been noted in the previous chapter and because of their ability to enroll many small farmers in the organic basmati program. The Rawats approached different farmers in the neighborhood to inform them about the organic program and offer them seedlings of their own farm to start organic farming. These farmers also got training at Rawat’s farm about organic cultivation techniques. The influence of the Rawats becomes clear through the words of K. Singh; “since the start in 2006 I am facing more problems related to blast diseases and a lack of support from the federation. My family does not see the use of the organic program, but I cannot step out at once because of the social pressure in my village (Laxmiapur)” (K. Singh, Interview, August 25, 2010). Often small farmers are giving their produce to the Rawats and they will bring it to the local market where it is sold to Swadisht. This means that the Rawats are not only selling their own produce but also that of many small neighboring farmers (D. Pandey, Interview, 31 August 2010). Their influence among smaller
farmers is the second device of interessement used by the Rawats. This device of interessement is placed between Swadisht and their threat of forcing the package of practices towards the farmers. When Swadisht will do this, the Rawats are able to withdraw a large amount of organic basmati from all the small farmers. This should convince Swadisht to make an alliance with the Rawats to keep control over their farm.

5.2.3 Enrolment
The actual goal of the Rawats is to keep control over their farm and make a profit, this can only be established when they can make an alliance with the actors described above. Although different devices of interessement are put into place, this does not automatically mean that the actors are enrolled and the alliance is made. The Rawats have defined different roles for the actors and only when the interessement is immediately successful, an alliance is established and the actor agrees with this role. But usually more negotiations need to take place before the actor is enrolled in the actor-network of the Rawats (Callon, 1986). When an actor does not immediately agrees with the role the Rawats have given him, mutual re-adjustments are necessary. Through the negotiations the Rawats try to coordinate the roles defined for different actors.

The organic basmati plant was interested by the Rawats through different bio-pesticides depending on which variety was cultivated. During the six months of my research in Kashnagar several things happened which made it necessary for the Rawats to re-negotiate with the basmati and try again different devices of interessement to make an alliance. The first problem was not a pest or disease that attacked the basmati, but the weather conditions. The monsoon in July and August is an important period for farmers; it gives water and especially for farmers who are not connected to the canal, the monsoon is vital for their production. But in 2010 season, the monsoon did not stop at the end of August but continued until the end of September and caused heavy floods in Uttarakhand, also in Kashnagar. The continuous rain had a few consequences for the basmati cultivation in case of the Rawats. First of all, the regular moments of using bio-pesticides are in September, this was not possible since the rain would flush away all pesticides immediately. Secondly the rain destroyed the flowers of the basmati which had a negative effect on the amount of grains in the plant. The weather condition is not something the Rawats can influence and there was not much they could do to make the basmati increase its production again. This means that the Rawats were not able to disassociate the basmati plants from their association with the rain and the threats and opportunities that came with it.

A few weeks later there was an outbreak of blast disease in the neighboring non-organic fields. Since leaf blast travels through air, Rawat 1 needed to react immediately with a spray of turmeric and cow urine in order to prevent the basmati becoming ill (Rawat 1, Interview, November 15, 2010). This negotiation was successful and the blast disease did not reach the basmati field of the Rawats. Finally in October when the grains started to ripen, a large storm with heavy rain, wind and hail appeared. Due to this storm the basmati started to lodge and the grains fell on the ground on top of each other. This means that the grains which are covered by the rest are not able to ripen anymore and this decreased the production again. The lodging mainly happened with the 386 variety and to a lesser extent with Doon basmati (see figures A and B). Again the basmati continued to have their relation with the rain, instead of an alliance with the Rawats, especially the 386 variety.

It seems here as if the negotiations and interessement with Doon basmati were more successful compared to the negotiations with 386 basmati. It needs to be taken into account that different
cultivation techniques were used for the two varieties, Doon basmati was cultivated according to the SRI technique while regular cultivation techniques were used for 386. The Rawats were already having more faith in the Doon basmati as they told me “hybrid varieties are causing more diseases than local varieties because they are made in a lab, local varieties have a better resistance against the diseases in that area. When comparing Taraori with Doon basmati, Taraori faces more diseases because it is not from this region but from Punjab/Haryana. 386 faces even more diseases, this variety is originally from Punjab” (Rawat 1, Interview, November 8, 2010). For the Rawats it is important that a new technique such as the SRI method succeeds since they need to show their experimental successes. With Doon basmati this was the case and the Rawats were able to disassociate Doon basmati almost completely from its previous alliances with regular cultivation techniques and make an association between the Doon basmati plant and the SRI technique. The Doon basmati almost agreed with its role as a healthy and successful basmati variety, which the Rawats defined for it. The Rawats needed to re-adjust their goals as well, since the Doon basmati was still entangled in an association with the storm and rain. The Rawats were not able to break this association completely and need to accept that in their relation with the Doon basmati. With 386 on the other hand, the Rawats were not able to disassociate it from its previous alliances with the conditions in Punjab where it grows well and associate it with their conditions in Kashnagar. Therefore 386 started to lodge when a storm arrived and was not enrolled in the actor-network of the Rawats.

In figure A the lodging of basmati variety 386 can be seen. Next to it in figure B the field with Doon basmati according to the SRI method is shown and lesser lodging has occurred there.

The interessement of the other organic farmers in the federation was quite successful for the Rawats. I spoke to several farmers who were attending meetings at Rawat’s farm, so it seems as if the device of interessement worked and the farmers were entangled in an alliance with the Rawats. But there was also some discontent among farmers because they could not profit from programs some NGOs were promoting. It is therefore important for the Rawats to re-adjust some of the roles they have given to the farmers, from just people who are attending the meetings, to farmers who are also able to benefit from the programs that are discussed during these meetings. But it is to the farmers to actually agree with this re-adjustment of the roles the Rawats have defined for them. At the moment this re-adjustment has not happened yet and the current enrolment might change into dissidence when farmers are not willing to re-adjust. In that case the Rawats need to re-negotiate again with these farmers. This process of enrolment is never stable or permanent but needs constant work and negotiations.
The Rawats were able to get the publicity they wanted from the NGOs, I have seen Rawat 2 in the newspaper twice in the period I was in India, showcasing his new agricultural experiments.

In order to enroll the LOPC, the Rawats needed to re-adjust the role of the LOPC and the LOPC needs to agree with this role. One of the goals of the LOPC was to prescribe practices to the farmers and control the process of basmati cultivation in order to get the farmers to cultivate high quality organic basmati. The Rawats wanted the LOPC to stop looking at the process; instead it should concentrate on the end product, good quality basmati. A negotiation process needed to take place where the Rawats used their publicity to show the LOPC that they were a success story with their own techniques and with a high quality basmati production. On the other hand, the Rawats also needed to comply with the LOPC in some matters. The process of enrolment is not one where the Rawats were able to change the role of the LOPC; instead it is a mutual re-adjustment where both the LOPC and the Rawats need to give in. The enrolment took place when the LOPC was talking about the Rawats as successful farmers while the Rawats were able to continue with their experimental practices.

An alliance with Vohra was successfully made; this is illustrated by the following quote where Vohra is explaining to me what he thinks about bio-pesticides; ‘I tell the farmers that everything is available at home, like garlic, turmeric, neem leaves and cow urine. Before the use of chemicals there was traditional farming based on organic methods, we are just reviving these traditional methods’ (D. Vohra, Interview, November 9, 2010). This quote is quite similar to the ideas of the Rawats regarding organic farming and their use of bio-pesticides. Because of Vohra’s history and the appropriate devices of interessement used by the Rawats it was easier for them to enroll Vohra successfully. Another goal of Vohra was to create a success story within the organic basmati program; the Rawats were able to give him this. As a consequence, Vohra won several prizes for being the most successful field officer in recruiting new farmers in the organic basmati program.

Finally some re-adjustments were necessary in the goals of Swadisht as well. Similar to the LOPC, Swadisht also wants to control the process of the farmers by prescribing practices which should lead to a high quality basmati production. The Rawats want to negotiate a different goal for Swadisht where not the process but the end product is most important. The Rawats hope to achieve this by continuously delivering high quality basmati which should result in a decreased attention of Swadisht on the process. Furthermore the relation with Verma is of importance. The Rawats try to use Vohra as an intermediary who can convince Verma of the positive effects of the experiments of the Rawats. But Swadisht has to agree with this new role as well and therefore some adjustments of the Rawats were necessary, the Rawats should not complain during the process of procurement of paddy or be critical about the price. These negotiations turned out to be successful and the Rawats were able to use cow urine in their fields while this was explicitly prohibited by Swadisht. Furthermore, Swadisht wants to use the Taraori seeds of the Rawats as input for the other farmers next year, which means that the Rawats receive and extra premium of rs200/quintal from Swadisht for their produce. This happened because Swadisht was very satisfied with the quality of the basmati of the Rawats and in return the Rawats are able to become even more profitable than they were before.
5.2.4 Mobilization

The Rawats have successfully enrolled different actors in their actor-network. When the actor-network is complete the Rawats should be able to speak as the spokesperson of this actor-network. But often the actors that are enrolled are only representatives of a larger group. For example the basmati plants that were entangled in an alliance with the Rawats, were not all the basmati plants growing in the field. Only when all the other basmati plants are willing to make an alliance with the Rawats is the mobilization is completely successful.

The Rawats tried to enroll the basmati in their fields. As described, a part of the basmati did exactly what the Rawats wanted during the enrolment; this was mainly the Doon basmati. Other basmati varieties on the other hand, did not always form an alliance with the Rawats, for example 386 which lodged when there was a storm. For the Rawats, the basmati plants that reacted to their negotiations became the representatives for all the basmati in their field. When the Rawats wanted to prove the effectiveness of their techniques they would show the basmati that was responding to these techniques, again usually the Doon basmati. This means that a part of the basmati was not mobilized by the Rawats; 386 had the agency to lodge and created dissidence towards the mobilization of the Rawats. On the other hand, the Rawats are still speaking for the basmati that was not included in the alliance. For example when the 386 started to lodge Rawat 1 told me that the main problem is the fact that 386 is not a local variety but imported from Punjab, this means that it does not grow as well in Uttarakhand compared to Doon basmati and often faces diseases or other problems (Rawat 1, Interview, November 8, 2010). By saying this, the Rawats are still speaking in name of the dissident basmati plants. They are explaining why the basmati does not respond well to their devices of interessement and why their negotiations with 386 did not succeed.

Other actors in the actor-network of the Rawats are single entities, such as Vohra, the LOPC and Swadisht. There is not a large unknown group that needs to be represented by these actors. The enrolment of these actors was successful and the Rawats are now able to speak in the name of the different actors. They are speaking in the name of the basmati when they say that they have a high quality basmati. When the Rawats are in the newspaper showing their new techniques they are also speaking in the name of the LOPC by mentioning they are part of the organic basmati program and showing how their new techniques are helping to obtain high quality organic basmati. By showing these techniques, people know that the Rawats are not following the practices prescribed by the LOPC and are still able to grow high quality basmati with the approval of the LOPC. Through this message the Rawats are saying that the LOPC is mainly concerned with the end product and that they have the freedom to experiment with new techniques. The high quality basmati is also helping the Rawats to speak in name of Swadisht, since high quality basmati is found important by Swadisht as is confirmed by the fact that Swadisht is willing to use the seeds of the Rawats as input for the other farmers.

Finally the Rawats are able to speak in name of the other farmers in the organic basmati program by defining what farmers find important. Here the Rawats only talk on behalf of a representation of farmers from which they know the problems. But by doing this they want to be representatives for all other organic farmers when they are talking about certain problems in the field. As Rawat 1 was saying, “One of the main problems for organic farmers are their non-organic neighbors. Organic farmers with non-organic neighbors are facing more diseases such as blast diseases” (Rawat 1, Interview, November 15, 2010). This quote shows that Rawat 1
is mentioning problems in name of other farmers. It appears now as if all organic farmers with non-organic neighbors are facing these problems while this is not necessarily the case.

But there are differences between the actors in the actor-network of the Rawats. The LOPC and Swadisht for example are having their own agency outside the actor-network of the Rawats and have translated their own actor-networks. This means that the LOPC and Swadisht have the possibility to break the alliance and start a translation to exclude the Rawats, by enrolling other actors for their cause. Thus, the enrolment and mobilization of the different actors by the Rawats is fragile, it is working now because the actors agree with it. But when they decide to make another alliance, for example by refusing to focus on the high quality alone and start to focus on the process more, as they do in many other farmers’ cases, the actor-network of the Rawats will be threatened and there is a possibility of dissidence. The basmati on Rawat’s farm on the other hand has a much smaller agency outside the network, it can refuse to cooperate within the network and show dissidence like 386 did. It can even form an association with the rain and storm, or with the blast diseases of neighboring fields, but this will not be beneficial for the health or growth of the basmati plant. Therefore the chances are smaller that the basmati will form a new alliance outside the actor-network of the Rawats.
5.3 Deepti
Deepti’s situation is quite the opposite from the Rawats. She owns only a small plot of land and she has some land under contract. Unlike the Rawats, Deepti does not have the means and opportunities to experiment with her cultivation techniques because the risk would be too high. For Deepti the most important factor is to secure her livelihood and she cannot afford losses in her production. A reason for Deepti’s problems is her indebtedness to local moneylenders and to the wife of Sareen, the chairman of the organic farmers’ federation. In part, Deepti came in this position because she adopted a handicapped child that needs a lot of healthcare which is expensive. Furthermore she does not have the education and family knowledge like the Rawats to be aware of the possible problems that can occur in organic basmati cultivation and how to solve these. On the other hand, she does have knowledge on the cultivation of paddy in a non-organic way, since she has been using chemicals in her field for a long period of time. Vohra, the Rawats, Verma and Sareen are her main sources of information, when she faces a problem she tries to contact one of these actors for advice. Sometimes Vohra comes and visit her by himself to see how she is doing. It is in this situation that I met Deepti several times over a four month period.

5.3.1 Problematization
As I already mentioned, Deepti’s main goal is to secure her livelihood. A good organic basmati production would increase her income and therefore improve her livelihood. But in order to get this good basmati production, the plants need to stay healthy and this asks for effective plant protection methods. Unlike the Rawats, Deepti’s priority is not to maintain freedom over her practices, but to secure her livelihood and to acquire knowledge about effective plant protection methods. She needs to create an actor-network and try to answer the following question;

How can I achieve a high quality and profitable basmati production in order to secure my livelihood?

In order to reach this she needs to interest and enroll certain actors and try to position herself as the obligatory passage point (OPP) in the actor-network. The following actors are important for Deepti;

1. **The basmati plant** who wants to grow and survive pest attacks and diseases.
2. **Sareen and other influential federation members**, the federation chairman who wants to get the loans of his wife repaid together with other influential farmers that want to keep control over the basmati program.
3. **The LOPC and its certification agency**, who wants farmers to follow the prescribed practices to have a successful organic basmati program.
4. **Swadisht** wants a high quality basmati by prescribing certain practices.
5. **Vohra** wants farmers to listen to his advice and have a good relationship with the farmers in Kashnagar.

A visualization of the OPP of Deepti can be found in figure 7 based on (Callon, 1986). Here the different actors and their possible obstacles and problems together with their goals can be seen. Deepti tries to position her question of how to produce high quality basmati as an OPP for all other actors. When this is successful, all actors will reach their goals if Deepti can cultivate high quality basmati.
Deepthi would like to make an alliance with different actors in order to reach her goal of a profitable basmati production. Therefore she needs to disassociate the relevant actors from previous alliances and make an association with them. The first step is interessement and Deepthi is putting certain devices of interessement in place in order to interest the actors in her actor-network.

First of all there is the basmati plant that needs to be protected from pests and diseases. Deepthi’s field is surrounded by fields of non-organic farmers, so it is easy for pests to travel from one field to the other through water or by wind. The first device of interessement used by Deepthi was to position her organic basmati field on the highest spot of land so water with chemicals from neighboring fields would not flow into her organic basmati field. The second device of interessement was a bio-pesticide she got from the Rawats which she mixed with brown sugar and used during the transplantation of the seedlings. The two devices of interessement were used to place a barrier between possible threats such as pests and diseases, and the basmati plant. By disentangling the basmati from the pests and diseases, Deepthi wants to make an alliance with the basmati to stay healthy and grow well.

Sareen is an important source of information for Deepthi and she wants to interest him into sharing information with her. She uses her ability to follow his orders as a device of interessement to interest Sareen. For example when Sareen wants Deepthi to come to the federation office because an external NGO or firm visits the federation, she will come. As a return she hopes to interest him to help her with her problems as well. Deepthi is using her submission to the orders of Sareen as a barrier between Sareen and possible alliances with other farmers. By listening to his orders she hopes to disentangle Sareen from his other alliances and make an alliance with Sareen. Another factor that plays an important role in the relationship between Deepthi and Sareen is that Deepthi borrowed a large sum of money from Sareen’s wife. She negotiated with Sareen that she will use all the profit she makes from the organic basmati cultivation to repay the loans. Deepthi is trying to get
between Sareen and other actors by using this device of interessement. When this is successful she hopes to obtain relevant information since a higher production for Deepti will also increase the income of Sareen since all her profit flows directly to Sareen.

The devices of interessement used for the other influential federation members are somewhat similar to those for Sareen. Deepti is willing to come to meetings when these farmers want to show their ability to assemble a large group of people. In return she hopes to interest these federation bosses to give her information about plant protection methods.

The LOPC and its inspectors together with the organic certification agency play a role in the actor-network of Deepti as well. To interest the LOPC and its inspectors, she follows the PoP and advice given by Vohra and the practices she learned during training. An example of a device of interessement used by Deepti that was also used for the basmati plants is the location of her organic field. Her organic field is on the highest spot so no water with chemicals from neighboring fields can flow into hers. With this practice Deepti wants to entangle the LOPC and its certification inspectors. Deepti’s goal is to make an alliance with the LOPC so it would approve of her organic cultivation methods and give her the certification she needs to sell her basmati profitable.

In the end it is Swadisht who needs to buy the organic basmati from Deepti. It is therefore important for her to know the demands of Swadisht so she will get the maximum profit out of her basmati production. She hopes to interest Swadisht through Verma, their field officer. By following the practices of Swadisht exactly she hopes to obtain more information that will lead to a higher production and profit. For example when Verma told the farmers that it was not allowed to use cow urine anymore, she stopped using it in her field, even though the easy access to cow urine was one of the reasons she started with the organic program in the first place. Deepti uses her willingness to follow the guidelines of Swadisht to interest them in sharing more knowledge and make her basmati cultivation more profitable.

Finally Deepti wants to include Vohra in her network since he represents the LOPC and was one of the people who convinced her to join the organic basmati program. She needs Vohra for his knowledge on organic cultivation and on practical matters related to the sale of the basmati and how to fill in her diary. By listening to Vohra and following his advice Deepti hopes to come in between Vohra and his associations with other farmers which compete with Deepti for his time. Through this device of interessement Deepti hopes to make an alliance with Vohra to gain information about organic plant protection methods.

5.3.3 Enrolment
When the devices of interessement that Deepti put into place are successful they will lead to enrolment, but often more negotiations are necessary to create an alliance because the devices of interessement were not successful. This means that Deepti was unable to place effective barriers to separate the actors from their previous alliance. In case of Deepti, many re-negotiations were necessary, for instance with the basmati plants.

Deepti cultivated two organic basmati varieties, Taraori and 386, which were both prescribed by Swadisht. She tried to protect her plants by using the bio-pesticide she got from the Rawats, but already in August the first diseases started to appear. On Sareen’s advice, her husband bought Calphomil and Calmonas from the federation office where he got the instructions on how to use them. Deepti then sprayed these bio-pesticides exactly according to the instructions, but it was not successful to place a barrier between the diseases and her basmati plant. Furthermore, due to the heavy rains of the monsoon that continued until September, she was not able to spray the bio-
pesticides for a second time since it would be flushed away by the rain. She was therefore not able to disassociate the basmati plant from its association with the rain. When the grains started to grow in October Deepti found out that most of the plants were without any grains and therefore her production turned out to be very low this year. Even though Deepti put her devices of interessement between the basmati and their other alliances, she was not able to have successful negotiations with the basmati to entangle it in her actor-network, the basmati plants did not agree with its role as a healthy and profitable plant.

In first instance Deepti thought she made a successful alliance with Sareen, he gave her the advice she needed about methods to protect her plants by using Camson products. Unfortunately the products Sareen suggested did not work and Deepti was not able to increase her basmati production. Trying to enroll Sareen in another way Deepti re-paid a part of the loan and she hoped to convince Sareen to come to her farm and check the fields and help her in solving the problems with diseases and pests in the basmati. Deepti wants Sareen to have the role of supplier of information for her but her negotiations did not succeed and Sareen did not take the trouble to visit Deepti or help her in any other manner.

Similar situations occurred with the other influential farmers and with Swadisht and Vohra. Even though Deepti had put her devices of interessement in place, these actors were not willing to help Deepti with her problems. For instance when Verma was in Kashnagar, Deepti asked Vohra if he could come to her fields with Verma so they could discuss the problems she faced. Vohra told her that Verma was too busy visiting other farmers and that they were not able to come. The same happened when Deepti called Rawat 2 for help, even though he promised to come he never did (Deepti, Interview, September 3, 2010). The actors were not willing to accept the role Deepti defined for them. Deepti wants Swadisht, Vohra and the other influential farmers to be source of information, but her devices of interessement were not effective enough to enroll these actors in her actor-network. A possible explanation is that other farmers have more effective devices of interessement compared to Deepti.

5.3.4 Mobilization

When enrolment is successful Deepti would be able to speak in the name of different actors and be able to create a profitable business in cultivating organic basmati. But in this case, Deepti did not manage to create an actor-network and make alliances with the different actors. At the end of the cultivation period, during harvesting, it became clear that the produce of Deepti was very low and she would not earn enough money to pay back the interest on the loan she had with the wife of Sareen. The basmati did not listen to her negotiations and did not react to the bio-pesticides Deepti used in the field and the other actors did not help her access information regarding plant protection. It can be concludes that Deepti was not able to mobilize her actor-network in a similar manner as the Rawats did. But this does not mean that Deepti has no voice at all. She is aware of the fact that she is getting no help from farmers in the federation or Vohra. Furthermore she also sees that many diseases are attacking her basmati which decreases her production. Compliance turns out to be useless for Deepti and she has her voice of frustration which she often expressed. “I am not getting any information from the federation; Sareen does not take the trouble to come to my field to see what the problem is. He just gives me something and that is not always the right solution for my problems. Because of this lack of information and involvement I am not happy with the organic program and I am considering to go back to non-organic cultivation” (Deepti, Interview, August 4, 2010).
5.4 Local Organic Promotion Council
The LOPC has been described extensively in the previous chapters. It is an organization that was set up after the World Bank funded Diversified Agriculture Support Project (DASP) ended in 2004. The LOPC is connected to the government of Uttarakhand and it is the third party in the contract between the farmers’ federation and Swadisht. Furthermore, the LOPC is responsible for the organic certification of the farmers.

5.4.1 Problematization
To place the two farmers described earlier into perspective, it is interesting to analyze the Actor-Network formation of the LOPC as well. When the DASP was taken over by the LOPC the main goals of the LOPC were similar to DASP namely; to promote the cultivation of organic Doon basmati (R. Negi, Interview, November 12, 2010) and improve the livelihoods of farmers (World Bank, 1998). In order to achieve these goals the LOPC needed to set up a successful organic basmati program where farmers cultivate certified organic basmati and can sell this for a premium. Since my focus in this research has been on plant protection practices together with the fact that this is also one of the LOPC goals the main question of the LOPC is the following;

*How can we effectively promote organic plant protection practices?*

To create an actor-network the LOPC needs to interest and enroll several actors to answer the question. Focusing on Kashnagar once again, these are the following;

1. **The organic basmati farmers** who want a profitable basmati production to improve their livelihoods and improve their farm-ecology.
2. **Vohra** who wants to maintain his good relationship with the farmers in Kashnagar on the one hand, but also needs the income of the LOPC.
3. **Swadisht** that wants to enter the organic basmati export market to earn money.
4. **Doon basmati** that wants to survive in Dehradun district.

When the LOPC is able to effectively promote organic plant protection practices, the farmers should be able to cultivate high quality basmati which they can sell for a premium to Swadisht D.Vohra will be able to keep his good relationship with the farmers when they have no problems in cultivating high quality basmati and he will keep his job as field officer. Swadisht can buy large quantities, high quality certified organic basmati when the farmers are following the plant protection practices of the LOPC. Finally, Doon basmati has the opportunity to survive in a region where it was almost extinct.

The LOPC tries to become the OPP for all the other actors by making their questions of effectively promoting plant protection practices relevant for all actors. This can be seen in figure 8, again based on Callon (1986).
5.4.2 Interessement

The first step for the LOPC is to interest the different actors to disentangle themselves from previous and alternate alliances and at the same time start an alliance with the LOPC. To achieve this, the LOPC can use different devices of interessement to come between the actor and its other possible alliances.

The organic basmati program’s most important actors are the farmers. The farmers are willing to cultivate organic basmati when they are able to gain profit out of it or can regenerate their land and farm-ecology. The LOPC’s main concern is that the farmers are using the ‘correct’ organic plant protection practices. The LOPC has several devices of interessement to disentangle farmers from their previous alliances, for instance the organic certification process. Farmers need to comply with the organic certification rules in order to get the certificate and be able to sell their produce for a premium. The LOPC tells farmers that when they follow the practices prescribed in the PoP, they will comply with the rules of the certification agency. The PoP is therefore also a device of interessement used by the LOPC to place a barrier between the farmers’ entanglement with old practices and actors. Finally, the LOPC is using their promise that Swadisht will buy the basmati as a device of interessement towards the farmers. By finding a buyer and creating a market for the organic basmati, the LOPC comes between the farmers and their alliance with local buyers who do not demand any specifications regarding the practices. The price premium negotiated with Swadisht by the LOPC will create a barrier between the farmers and their previous practices. The LOPC hopes to entangle the farmers into the prescribed practices so they can profit from the organic premium.

The second actor that the LOPC wants to align is Vohra. Although Vohra is working for the LOPC, he has been active in the program from the very beginning when DASP was still in charge. The LOPC has changed its focus regarding the package of practices compared to DASP who was only focusing on...
on-farm inputs while the LOPC is also promoting off-farm inputs such as Trichoderma and Pseudomonas. The LOPC is aware of the fact that Vohra is positive towards on-farm inputs, but it is also the LOPC who is paying Vohra’s salary. The LOPC is using the fact that they pay Vohra for his work as a device of interessement to disentangle him from his alliance with the practices promoted during the DASP period and entangle him into the LOPC’s practices.

The LOPC also needs Swadisht to be a part of their actor-network. In order to keep the farmers in the organic basmati program, a buyer is needed who is willing to pay a premium for the organic basmati. The LOPC has two devices of interessement that it uses to make an alliance with Swadisht and at the same time attempts to disentangle Swadisht from their other alliances. First of all, the LOPC is using the well structured organization of the farmers’ federation as a device of interessement to come in between Swadisht and other possible (organic) farmers with whom Swadisht could make an alliance. For Swadisht, it is easier to have a contract with a federation instead of different contracts with individual farmers. Secondly, the LOPC is using the certification as a device of interessement. The LOPC is responsible for the certification process and is paying for the final certificate. The LOPC hopes that this prevents Swadisht from searching for other suppliers of organic basmati where Swadisht needs to pay for the certification process of farmers separately.

Finally Doon basmati forms an important actor for the LOPC. One of the main goals of the LOPC was to revive Doon basmati in Dehradun district since the fear existed that it would go extinct. As has been described in the introduction of chapter 3, Doon basmati is part of the identity of the people in Dehradun district, as R. Negi described it (R. Negi, Interview, November 11, 2010). Although Doon basmati has a short grain length, it has a very nice aroma and the grains will grow to a regular length once they have been boiled. Since Dehradun became the capital of Uttarakhand, there has been a rapid urbanization and this left little space for the cultivation of Doon basmati. To make the organic basmati program a success, the LOPC wants to revive Doon basmati, but it has to grow well. By promoting the cultivation of Doon basmati among many farmers in Dehradun district, the LOPC hopes to entangle the Doon basmati in an alliance. The PoP made by the LOPC for Doon basmati should work as a device of interessement between the Doon basmati and different pests. This is a difficult device of interessement because the LOPC is dependent on the farmers whether they use the PoP correctly.

5.4.3 Enrolment

Before an alliance is successfully made the actors need to agree with the roles the LOPC has defined for them. The LOPC tried to define two different roles for the farmers; the first role is the compliant farmer who agrees with the plant protection practices as promoted by the LOPC. The second role is a successful farmer who cultivates high quality organic basmati. For the LOPC, the second role will follow from the first, but in practice it seems to be different. There are farmers who are not willing to disassociate themselves from their previous organic practices and do not follow the plant protection practices prescribed by the LOPC. The LOPC was not able to make an alliance with these farmers based on the prescribed practices, but is also not re-negotiating with the farmers about the plant protection practices, probably because there is also a large representation of farmers who are following the practices of the LOPC. Another reason for the lack of re-negotiations is the fact that many of these non-compliant farmers are also the successful farmers in the program and this comply with the second role defined by the LOPC. On the other hand there are farmers who are following the practices of the LOPC, but are not successful and instead see a decrease in income and
It can be concluded that the roles the LOPC defined for the farmers are not fully adopted by all farmers in the program. The devices of interessement were not always successful in making all farmers follow the plant protection practices of the LOPC and become successful farmers. It should be noted that for some farmers the devices of interessement did work and they became successful organic farmers.

Vohra’s role was to promote the plant protection practices of the LOPC towards all farmers. The LOPC tried to entangle Vohra in an alliance by paying his salary. Again it seems that this entanglement has not been completely successful. Vohra is promoting the practices of the LOPC towards some farmers, but on the other hand he is also allowing farmers to use different practices and is even agreeing with them, as was showed in the Actor-Network of the Rawats. Furthermore, Vohra often complained about his low salary and is considering another job (D. Vohra, Interview, November 8, 2010). The LOPC tried to re-negotiate with Vohra by giving him a prize for being the most successful field officer. But Vohra reacted that he cannot live from this prize unless it means a higher salary which is not the case (D. Vohra, Interview, November 8, 2010). It can be concluded that also with Vohra, the LOPC was not able to define his role and entangle him fully in their actor-network.

Finally, the LOPC defined Swadisht’s role as the firm that is able to pay a premium to the farmers for their organic produce. This should lead to a higher farmers’ participation and therefore a successful organic basmati program. It seems that the LOPC was successful in disassociating Swadisht from alliances with other organic farmers and make an alliance with the LOPC. Swadisht is giving a premium to the farmers, but it also has a large influence on the practices of farmers. One of the most far-reaching changes is the promotion of Taraori and 386 varieties instead of Doon basmati. One of the goals of the LOPC was the promotion and protection of Doon basmati in Dehradun region. This development shows that the LOPC finds the alliance with Swadisht as a buyer of the basmati at the moment more important than their previous goal of promoting Doon basmati. S. Mohan, the program manager of the LOPC said the following; “I do not agree with Swadisht in selling Taraori, the variety is too long, attracts more diseases and is not from this region. At this moment it is more important to have a buyer, but as soon as we can find a buyer for Doon basmati we will get rid of Swadisht” (S. Mohan, Interview, October 1, 2010).

This development, where Swadisht is promoting other basmati varieties is also endangering the enrolment of Doon basmati in the actor-network of the LOPC. The LOPC defined the role of Doon basmati as a basmati variety that would be saved from extinction, through the organic basmati program. Although Doon basmati is growing well in the region, many farmers are satisfied with Doon basmati since it does not face many diseases. The promotion of Taraori and 386 by Swadisht has made farmers decide to grow these varieties instead of Doon basmati. This means that the LOPC was not able to define the role of Doon basmati and enroll them completely in their actor-network.

5.4.4 Mobilization

When the enrolment is successful the LOPC should be able to speak in name of all actors in the actor-network when they are talking about organic plant protection practices.

In case of the organic basmati farmers, it seems that this is not the case. The LOPC is able to speak in name of some farmers when they are mentioning their plant protection practices, these farmers are used by the LOPC as a representation of all farmers. But here something strange happens; the LOPC is also mentioning their successful farmers, while these are not always the farmers who are
following the plant protection practices of the LOPC. So while the LOPC promotes certain plant protection practices as a method to become a successful organic basmati farmer, they are admitting that these practices are not the only way to become successful when they are talking about successful farmers who were not using these practices.

The mobilization of Vohra seems to be partially successful as well, although Vohra is promoting the practices of the LOPC to some farmers, he is also promoting other plant protection practices. Therefore the LOPC was not able to make a complete alliance with Vohra.

The alliance with Swadisht is also partially successful. An alliance with Swadisht is made where the role of Swadisht is defined as a buyer who pays a premium to the farmers. Swadisht also agrees with the plant protection practices to such an extent that they are following the rules of the organic certification agencies. But Swadisht is at the same time also promoting its own plant protection practices together with new basmati varieties. Therefore the LOPC is not able to speak totally in name of Swadisht when they are talking about plant protection methods.

5.5 Discussion: Mediator or Intermediary

Contract farming is one step in the total commodity chain of organic basmati and this chapter showed the effects of contract farming on the shaping of two farmers’ practices. Whereas one farmer was able to create his own actor-network, the other farmer got enrolled in the actor-network of others. Both farmers play their role in the actor-network of the LOPC, but there is a difference between the two. This difference can be explained by the terms mediator and intermediary that are used by Latour (2005). The difference between an intermediary and a mediator is the ability to transform the input (Latour, 2005). An intermediary will not change or transform the input; this means that knowing the input is enough to know what the output will be. A mediator on the other hand transforms, translates or changes the input into something else (Latour, 2005). Another important aspect of mediators is that they can be transformed into intermediaries. This is exceptional, to make a faithful intermediary of a mediator means that a mediator is giving up the ability to transform the outcome. When such a change takes place it is probable that many other mediators need to get mobilized in order to make it happen (Latour, 2005). For instance Deepti, before she started with the organic basmati program she was a mediator in her network. She did not face that many diseases and was not highly indebted; therefore she could choose her own practices and sell her non-organic paddy and other crops profitably. To make an intermediary out of her, many mediators were necessary. Vohra, Sareen, other influential farmers, Verma and many more tried to make her compliant towards the rules and practices of organic farming. As will be mentioned later on, this succeeded but many mediators were mobilized to make it happen.

It is interesting to use the term intermediary and mediator when describing the roles of the Rawats and Deepti in the LOPC’s actor-network and thus their role in contract farming. Both Deepti as the Rawats have a relation with the LOPC and Swadisht, and their basmati plants. The LOPC (and Swadisht) want the farmers to use certain practices and to cultivate high quality organic basmati. But there is a difference between the two farmers. The Rawats can be seen as mediators since they are not transporting the orders and practices that are prescribed to them, but transform and change them. The Rawats are able to change the output by negotiating with Swadisht and the LOPC. They manage to mobilize these actors in their actor-network. A good example is the ability of the Rawats to get the LOPC to focus on only one of their goals, namely high quality basmati, and not on the process and the practices that lead to this high quality basmati. The Rawats are able to do this since
they provide the necessary positive publicity the LOPC needs to run a successful program. At the same time, they are also able to control the basmati production and cultivate high quality basmati. This means that the Rawats can change the process of contract farming because they are a mediator.

Deepti on the other hand is not a mediator but an intermediary; she is executing the orders and practices that are given to her by the LOPC and Swadisht, but also by others such as Sareen and other influential farmers. On the other hand, she is not able to successfully cultivate her basmati plants. Therefore there are no transformations or changes in the practices and she will not influence the process of contract farming. But Deepti was not an intermediary automatically, many mediators needed to be mobilized to make an intermediary out of Deepti. Sareen, Swadisht and the LOPC were all needed to enroll Deepti and make her follow the practices. Through different devices of interessement Deepti was enrolled in the actor-network of Sareen, Swadisht and the LOPC as an intermediary, this will only last as long as Deepti can be kept interested. When Deepti decides to quit the organic program for example, she stops being an intermediary in the organic basmati program.

5.6 Conclusion: difference in translation
The creation of an actor-network is not always successful as can be seen in case of Deepti and to a lesser extent the LOPC. The LOPC for instance, was not able to successfully create its own actor-network where everyone was following their plant protection practices. The Rawats and Deepti have a different role in the actor-network of the LOPC. The Rawats were able to change the focus of the LOPC from the process to the end product. Furthermore, the Rawats were capable of growing high quality basmati and to be a member of the federation board and therefore have a voice in the decisions that are made here. So although the Rawats were not complying with the LOPC, they were included in the successes of the basmati program. Deepti on the other hand, was compliant to the rules and practices of the LOPC and got enrolled in their actor-network. But this did not result in a successful basmati production. Deepti did not manage to get included in the successes of the organic basmati program, but instead got enrolled by other actors in their actor-networks, such as Sareen. Sareen has two goals he wants to achieve by creating his actor-network and involving Deepti. First of all he wants to be influential among the organic basmati farmers. As the chairman of the federation, Sareen is already quite influential, but this does not automatically mean that all farmers are listening to him. Through his wife who is offering loans, Sareen can increase his control over the farmers. In case of Deepti, Sareen uses her indebtedness to control her practices and her decisions. For instance when Deepti wanted to cultivate flowers, Sareen called her and told her that she could not do this because she would not be able to pay off her debts, instead she should cultivate organic basmati. By using the loan as a device of interessement, Sareen was attempted to force an alliance with Deepti and include her in his actor-network. The second goal of Sareen is promoting the use of Camson products. Through Sareen, Camson is able to sell its products in the federation office and the shopkeeper has the assignment to promote these products among the farmers who are searching for a bio-pesticide. Besides that, Sareen is also actively approaching farmers, promoting the Camson products. This is profitable for Sareen since he gets a provision from Camson for products he sells. When Deepti came to Sareen for advice for her problems in the field, he told her to use Camson products which she did. For Deepti the products did not work, but Sareen managed to enroll Deepti in his actor-network and reached his goal of promoting Camson products and receiving the provision.
Other influential farmers tried to enroll Deepti in their actor-network as well. They need farmers like Deepti to come to their meetings when NGOs or government officials are there, to show their ability to mobilize a large group of people. These farmers are using their knowledge and ability to help Deepti as a device of interessement to enroll Deepti in their actor-network. The enrolment is successful since Deepti is joining the meetings while hoping to get some profit out of it. The latter is usually not the case and here it becomes clear that influential farmers are able to enroll Deepti but Deepti is not able to enroll them to achieve her goals of cultivating organic basmati profitably.

Finally, Swadisht tries to create an actor-network where farmers are following their PoP and cultivate high quality basmati. Through Verma, Swadisht visits the farmers and tells them which practices they can and cannot use. As a device of interessement, Swadisht is using the prospect of a high premium for organic basmati and on the other hand the fear of a low price when the practices are not followed. In case of Deepti, these devices of interessement work well and she is enrolled in the actor-network of Swadisht. Deepti is using the practices as prescribed by Verma, for instance the varieties of seeds than can be used. Verma has told Deepti that she can only use the seeds sold at the federation office since her own saved seeds might be of inferior quality or the wrong variety. Also when Verma prohibited the use of cow urine as a bio-pesticide, Deepti decided to follow this. Although Swadisht is able to speak in name of Deepti and there is an alliance between the two, Deepti is not having the high quality or quantity produce which Swadisht promised when she started to follow the practices. Therefore Deepti is included in the actor-network of Swadisht, but on the other hand is excluded from the profits it should bring.
6.0 Conclusion

This thesis is about the effects of contract farming on the farmers’ practices. I wanted to provide a better insight in the shaping of farmers’ practices through ethnographic research, including interviews and observations. With this information the effects of contract farming on these practices should become clear. How the farmers’ practices were shaped was the most important question and by using the Actor-Network Theory (ANT) more information is available on this process. In this final chapter I want to summarize my findings and discuss the theory and methodology that has been used. This chapter will end with some policy implications regarding contract farming.

6.1 Summary of findings

The analysis of the farmers’ practices started with an overview of the intended situation of the organic basmati program. The different intermediaries that were used to execute the policies of the LOPC and Swadisht and thereby influencing the farmers’ practices were described here. When looking at the analysis of the observed situation, the differences with the intended situation are clear. Even in a local setting where the LOPC tries to implement certain policies in the field through mediators such as Vohra, there are already differences between the intended policies and the practices. An explanation for these differences is the use of intermediaries in the intended situation. For instance Vohra, the LOPC tried to use him as an intermediary in the organic basmati program. In the intended situation, Vohra would only deliver information of the LOPC to the farmers and execute the policies of the LOPC. In the observed situation it became clear that Vohra is more than an intermediary. He acts as a mediator with its own goals and relations, such as his preference for on-farm inputs which are not promoted by the LOPC in their Package of Practices (PoP). This is in line with Mosse’s theory that there is little understanding of the ‘black box’ between policy descriptions and the effects on implementation (Mosse, 2004).

The detailed analysis of a small set of practices, using the concepts of texture and anchorage provided information on the relation between and the effects of the mediators and intermediaries on the practices, for instance a rule of organic cultivation that no chemicals can be used for weeding and the increased use of laborers for weeding purposes. The effects of organic basmati cultivation under contract on the local ecology and labor became clear as well.

There was a decrease in basmati cultivation in the region. Due to the organic basmati program, more farmers started to grow basmati again. When cultivating organically the use of chemicals is prohibited, furthermore the role of animals on the farm becomes larger since cow urine and cow dung play an important role as bio-fertilizers and pesticides. Due to a focus on on-farm inputs in organic cultivation, especially during the DASP period, other plants became more important in the farmers’ practices. For instance the use of neem leaves, turmeric and garlic as bio-pesticides. Organic farming affected the local ecology in such a manner that farmers became more aware of the possibilities of on-farm inputs. This change in the local ecology due to the increased cultivation of organic basmati with a focus on cattle and on-farm inputs can be a positive development since it can increase the soil quality in the long term because no chemicals are used anymore. But this development is not similar for all farmers, since there are still farmers cultivating non-organically. Especially for organic farmers with non-organic neighbors, the effects of organic cultivation on the soil quality might be low since chemicals can flow into their fields, for example when it rains. Many
farmers are also complaining about the decrease in yields with organic farming and the loss in income since the price premium paid by Swadisht does not cover this loss completely. Organic cultivation under contract had direct impact on the use of labor in the fields as well. The texture of weeding practices showed that more laborers are needed since all weeding is done by hand. Furthermore the laborers needed to learn new techniques regarding organic cultivation. There have been several instances where farmers got problems during the procurement of organic basmati because his laborers used the wrong practices. The farmer needs to understand the practices of organic cultivation very well before he or she can teach the laborers how to proceed. When a farmer took the time and efforts to teach the laborers the exact practices of organic cultivation, the bargaining power of the laborers increased. The farmer will need these high qualified laborers in his field, else he has to search for new laborers and start educating them again since it is very important for farmers that the organic practices are exactly followed, else the farmer will not receive its organic certificate and therefore the organic premium. Only when all laborers in the neighborhood are known with the organic practices the bargaining power will decrease.

From this analysis it can be concluded that the local ecology and use of labor is affected by the changing practices under contract farming. The effects of the mediators and intermediaries of the LOPC and Swadisht on the farmers’ practices differ greatly among farmers. To understand these differences an analysis is done on the effects of past practices, technologies and other relations on the shaping of farmers’ practices.

6.1.2 Shaping of farmers’ practices
The second analysis was meant to give more insight in the shaping of farmers’ practices which should result in an answer on the main research question, how are the farmers’ practices shaped by contract farming? For this research, two different farmers’ strategies and activities in forming alliances and creating an actor-network in order to control the practices were followed. The analysis shows that new technologies or practices are not adopted automatically or uniformly, but that it is a process that differs greatly among farmers in the sense that farmers are using different devices of interessement to create their actor-network and with different successes. By focusing on the process, the analysis showed how, rather than whether, new technologies and practices are variably and creatively adopted by farmers on their fields.

The farmers in Kashnagar studied in this research did not cultivate organic basmati before the LOPC/DASP came into the scene. Even though the original idea of DASP was to ‘go back’ to ‘original’ traditional organic cultivation, most of the farmers in Kashnagar had never cultivated organically before. New cultivation techniques needed to be learned by the farmers from DASP/LOPC and later Swadisht. This means that contract farming and in this case, organic farming, had an influence on the knowledge autonomy of the farmers. The knowledge for successful organic cultivation was concentrated with the LOPC/DASP and farmers needed to enter into an alliance with the LOPC to access this information. Creativity and the adoption of new technologies play a role in forming the alliances, in this case the Rawats were able to learn the organic cultivation technologies fast from DASP and use their creativity successfully in enrolling the basmati plant into their actor-network. Therefore the Rawats were only dependent on DASP for a short period of time. Once they learned the organic cultivation practices, the Rawats used their creativity and information from NGOs like the People Science Institute (PSI) to expand their cultivation techniques.
This knowledge autonomy gave the Rawats the opportunity to use other technologies that were not prescribed by the LOPC, as devices of interessement to enroll the basmati plant and cultivate high quality basmati. Deepti on the other hand was not able to make a successful alliance and converted more to the package of practices of the LOPC and Swadisht. But still she is not able to enroll the basmati plant in her actor-network in order to grow healthy and high quality basmati.

The same can be said about the local and non-local social relationships regarding contract farming. The Rawats were able to enroll local actors such as other organic basmati farmers or the basmati plants into their actor-network. Also non-local relationships, for instance with Swadisht, were successfully made by the Rawats. By enrolling these actors the Rawats were able to reach their goals. Deepti on the other hand did not manage to enroll these actors and instead got enrolled by others into a compliant farmer that listens to the advice of Vohra, Sareen and other influential farmers.

This leads to an interesting conclusion; the Rawats are rejecting or changing the standards and rules imposed by the contract, Swadisht and the LOPC. Despite this non-compliance, the Rawats are the most successful organic basmati farmers in Kashnagar and are gaining the benefits of the program such as a high premium on their produce and since this year the opportunity to supply seeds to Swadisht. Deepti on the other hand is compliant to all rules and standards that are given to her by Swadisht, the LOPC or the federation. Although she is compliant, she is not gaining the profits from the organic basmati program. Her organic basmati yields are low and not of a good quality, this means that she does not receive the highest premium when selling it to Swadisht.

This case study can help to understand the actual process of contract farming ‘on the ground’ and the differences between Deepti as intermediary and the Rawats as mediator between the LOPC and the basmati plant. Deepti cannot influence the output of the process of adopting new practices for organic basmati cultivation. The devices of interessement and the enrolment in case of Deepti did not work and therefore she became an intermediary, rather than a mediator in this new situation of organic basmati cultivation under contract. She has little agency to reshape the practices given to her by the LOPC and on the other hand is not able to enroll the basmati plants in her actor-network to make them grow well. How this has happened can be shown, but it is not clear why her devices of interessement did not work and why the enrolment did not succeed. Then there are the Rawats who act as mediators between the LOPC and the basmati plants. They are able to reach their goal of cultivating basmati in a profitable manner and influence the roles of the actors involved. Their devices of interessement worked, just as their enrolment of other actors succeeded. The Rawats were able to use distinctive devices of interessement, for instance the plastic sheets used to create a barrier between the pests and the basmati plants is something only the Rawats used. But this still does not explain why their devices of interessement and the enrolment of actors succeeded while those of Deepti failed to work.
6.2 Discussion
The combination of social practice theory and Actor-Network Theory (ANT) was useful to understand the shaping of farmers’ practices. The practice theories of Gherardi and Swidler gave more insights in the relations between practices and the different human and non-human actors that were involved. With this information it was possible to use the ANT and analyze the actor-network of two farmers and the translations that were necessary to come to these practices. Although these analyses were useful, there were some limitations. First of all, the choice of the two farmers that were followed in this report. These were the two extremes of a whole range of farmers engaged in the organic basmati program. Most of the farmers are not as influential as the Rawats or as compliant as Deepti. But because of the ethnographic fieldwork it is possible to draw some conclusions from the extensive information of two extremes. First it shows that contract farming has no all-encompassing and uniform effect on all small and mid-sized farmers. There are already large differences between farmers with the same contract and in the same region, let alone the differences among farmers in different countries, with different contracts etc. Besides the difference among farmers, it can even be said that contract farming can have the exact opposite effect on farmers than expected. As already noted earlier, the compliant farmer did not benefit at all from the contract while the non-compliant farmer was able to sell his basmati with a profit. Another important outcome is the insight that implementing contract farming and changing the practices of farmers is not something that happens overnight. It is an ongoing process of entanglement and disentanglement where the LOPC needs to make alliances with farmers to implement the program, while farmers are making their own alliances to keep control over their farm and increase their livelihoods. This process is again repeated by the basmati plant that wants to survive and Swadisht that wants to enter the export market for organic basmati, and this list can be extended endlessly and the goals of the different actors can be competing with each other. Furthermore there is the continuous possibility that actors are being interested into another actor-network again, which means that new negotiations are necessary and new devices of interessement have to be put into place, else the alliance gets broken.

A second point of reflection is the limitation of the Actor-Network Theory in a non-historical study as this. The analysis based on the ANT was helpful to understand the processes of translation between the different actors and how farmers’ practices are shaped. What it does not explain is why Deepti was not able to use her devices of interessement successfully, while the Rawats did. Factors such as caste or gender are not taken into account in this analysis, while they might be an explanation for the inability of Deepti to create a successful actor-network. If ANT is used from a more historical-cultural perspective, possible explanations may come up. A downside of this method would be the lack of field observations; this formed an important part of the research and could only be done, within the boundaries of one MSc thesis, with a non-historical focus. The use of the term anchorage and its constitutive rules could have been a solution to this problem. A constitutive rule such as the contract between the firm and the farmers, or the rules of organic cultivation, may explain the broader context. But again two problems arise, firstly in this research the constitutive rules are only used to explain practices within the farm and not the context in which this farm is working. No cultural context is taken into account here when using the term anchorage and its constitutive rules. Secondly, even when the contract is used as a constitutive rule to explain the context of the situation the farmers are living, it needs to be localized for every individual. In line with ANT, each network makes its own context and it is therefore not possible to use one constitutive rule, such as the
contract, to explain the creation of the actor-network. This means that the importance of the contract changes with every actor, and can therefore not explain why one farmer in successful in creating an actor-network and the other is not.

It could have been useful to ask more explicitly to the farmers, what they consider as the constitutive rule within their practices. Then the importance of certain rules on the context of that specific farmer would have become clearer.

This brings about the conclusion that this research can be a valuable addition to the literature on contract farming because it gives a better insight in the effects of contract farming ‘on the ground’ and on the practices of farmers, including the role of non-humans like the basmati plant. There have been studies on the differences between policy goals and its outcomes. This study is different since it does not look at the goals and outcome, but at the intended and observed situation. The difference between the intended and the observed situation can be seen as a process. Mosse (2004) has written about this process, but he neglected the role of non-humans in his research. The combination of a process approach and the inclusion of non-humans in the process make this thesis novel in the development literature. Finally, this research showed that the implementation of contract farming is a process of multiple translations and not something that happens automatically. But to understand why some farmers are and some farmers are not able to create a successful actor-network, a more historical perspective is needed.

6.3 Policy implications
Contract farming is attempting to shape the agricultural practices of farmers by imposing new standards and practices. But farmers are not automatically compliant to these new practices, this is a process of interessemment, enrolment and mobilization where the past practices and technologies of farmers together with their social relations play an important role. Furthermore, the effects of contract farming on farmers’ practices differ greatly among farmers, this makes it difficult to make specific policy recommendations regarding contract farming policy. But I would like to derive some policy implications that can be taken from this research on the effects of contract farming on practices and which should be taken into account when thinking about new policies, specifically related to contract farming.

As this research has shown, the cultivation of organic basmati under contract has been primarily beneficial for the richer farmers involved. These farmers, like the Rawats, are able to experiment with different techniques. They have the means to take risks and still be able to survive when there is some loss in yields. Most importantly, these richer farmers are often also more influential in the program and are therefore able to use their contacts and connections to make alliances and create a successful actor-network. Smaller farmers on the other hand, do not have the means to experiment and are forced to comply with the practices given by the firm, even when these practices are not beneficial for their crop production. The opportunities are smaller for these farmers to create a successful actor-network and be included in the benefits that the program of contract farming can bring. The fact that small farmers have to use the prescribed practices even though they are not working in their fields says something about the use of Package of Practices (PoP). The Rawats were able to change the prescribed practices into something that suited the conditions on the farm. But
the PoP, developed by scientists outside the farm, cannot be implemented in every situation, as the case of Deepti showed. This means that ex-situ developed practices and technologies, described as one of the positive aspects of contract farming where farmers get access to new knowledge and information regarding cultivation techniques, does not work when farmers cannot transform these practices and make them suitable in the local, socio-ecological and technical situation of their own farm.

This seems to indicate that contract farming as a development policy to improve the livelihoods of farmers does not work if it is to help smallholders. An implication of this policy is that especially the poorer farmers who would benefit the most from an increase in income, fail to benefit. While the richer and more influential farmers, who are already better off, only become richer since they are able to use their connections more effectively in this new market.

The ability of effectively using connections also means that these richer farmers become the examples for the whole program. As became clear in the example of the Rawats, they generated a lot of publicity for the organic basmati program. Also S. Mohan, the program manager of the LOPC is often found in newspapers, showing the successes of the LOPC or giving her opinion on organic agriculture, under contract. These developments make the organic basmati program a success in the public opinion and among policy makers. This means that the success of the program is more based on publicity than on the actual improvement of livelihoods of the farmers. Farmers like Deepti, who are not heard in these stories and are often forgotten, while these are exactly the farmers who are meant to be reached with the benefits of contract farming and organic cultivation.
7.0 Bibliography


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## 8.0 List of interviews

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7. R. Gupta (4-10-2010)
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9. O. Jolly (2-11-2010)
10. K. Karki (13-8-2010)
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15. I. Pal (14-11-2010)
16. D. Pandey (31-8-2010)
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