To cite this document: Birgit Habermann, Ulrike Felt, Christian R. Vogl, Kassahun Bekele, Kindu Mekonnen, (2012),"Encounters and places: project negotiations in Galessa, Ethiopia", Multicultural Education & Technology Journal, Vol. 6 Iss: 4 pp. 218 - 234
Permanent link to this document:
http://dx.doi.org/10.1108/17504971211279491
www.emeraldinsight.com/1750-497X.htm

Encounters and places: project negotiations in Galessa, Ethiopia

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Abstract:

Purpose: Reflections on negotiation processes between farmers and scientists in research projects provide insights into issues of participation, power and equity. This case study illustrates how actors chose places to meet, negotiate and represent technologies.

Design/methodology/approach: The research involved semi-structured interviews and participant observation with farmers, scientists, government agricultural advisors (extensionists), policymakers, and staff of development organisations involved in a research for development project in Western Shewa, Ethiopia from 2009 to 2011. It combines theories from social studies of science as well as development studies.

Findings: Using blueprint approaches in research projects will not yield sustainable results. Participation must go beyond consultation or trying to educate farmers. Social relations are at the core of cooperation between farmers and scientists and require much more attention. Powerful choices on modes of representation and communication technologies as well as unilateral decisions on places have important implications for the way decisions are eventually made and by whom.

Originality/value: Our approach to studying research for development projects from social studies of science perspectives adds new insights into debates on participation and power in technology transfer and multicultural cooperation in rural development.

Keywords: Epistemologies, participation, communication technologies, ways of knowing, multicultural

Article Classification: Research paper

Acknowledgements:

This research has been funded by FWF (Austrian Science Fund) as part of the project 'Ways of Knowing – When Farmers and Scientists meet in Rural Development': P20685-G14. Sincere thanks also to the Ethiopian Institute of Agricultural Research and the African Highlands Initiative for enabling our work in consenting to this research and providing access to reports and the research site. The authors are also thankful for the detailed peer review by an anonymous colleague in the preparation for submission. Finally, we would like to acknowledge the contributions of all respondents, farmers of Galessa and researchers in the participating institutions for the time and trust given to us, and the knowledge so willingly shared for this research.

Introduction and theoretical framework

As early as 1935, Ludwik Fleck pointed to the fact that generation and stabilization of knowledge about the world is never the act of a single person, but deeply tied to what he aptly labels "thought collectives". These social groups, be they scientists gathering around a theme or actors who share specific preoccupations, are held together by a shared thought style. Appropriated through socialization into a group, a thought style leads to a quite specific way of seeing and understanding the world. Yet any person is always and simultaneously part of several such collectives which blend in the production of any kind of knowledge about the world (Fleck, 1935).

In our case a farmer can be a scientist, an extensionist[1] may be a farmer, and a scientist may also be a donor. This nicely ties into what Jasanoff (2004) has labelled the idiom of co-production, namely the fact that our choices regarding the way we live in this world are deeply intertwined with how we represent and know the world. Thus (scientific) knowledge can never be seen as a neutral reflection of reality; instead it incorporates social practices and norms, discourses, instruments, institutions (Jasanoff, 2004). Knowing is inseparable from cultural, economic and political processes (Scoones and Thompson, 1994), and "knowledge is socially and politically constructed, it requires a socially differentiated, politically astute analysis to comprehend" (Leach and Scoones, 2005:26). Decisions about agenda setting, problem definition, framing of research questions, design of research methods, time and place of the research are rarely cooperative ones (Stirling *et al*., 2007).

In our research we are looking at a case study in the Ethiopian Highlands. By looking at research interventions in a watershed area we try to understand how different aspects of social relations among (multicultural) scientists themselves, among scientists and farmers, as well as among farmers, scientists and extensionists, influence ways of knowing and learning cultures. We thus consider social relations, but also places, modes of representation and their inherent power structures as important factors regarding negotiations on ways of knowing.

Freire (1970) has introduced the notion of dialogue into education as a tool of empowerment. He wants to give tools to people to enable them to critically evaluate different forms of knowledge (Mejía, 2004). This empowerment in assessing ways of knowing critically, in deciding for themselves what and how to learn, is crucial for dialogic processes on knowing. However, power imbalances as well as different epistemic understandings influence this dialogue, especially when communication technologies come into play that are not accessible and familiar to all participants at equal levels. One example is the virtual space created by IT tools. Most scientists are operating in it on a daily basis. Opening it up to farmers in the Ethiopian Highlands would have interesting implications for their dialogue. And literacy is not a precondition for the use of the internet (Gomez, 2006), as can be seen when pre-school children make use of the internet with astonishing proficiency.

Looking at negotiations on ways of knowing, we agree with Long (2001) that knowledge evolves dynamically in social processes between different actors. Epistemologies are constructed by the social realities of human beings and in turn construct these social realities. They are an integral part of the social worlds of farmers and scientists (Gieryn, 1995; Rival, 1998; Clarke, 2005), as well as relating to broader *technopolitical cultures* (Felt *et al*., 2009:4); thus any positioning towards technological innovations always relates to historical, cultural and political developments.

In such negotiations on ways of knowing, place becomes a central category. Place can provide attachment and identity, and is connected to inherent power structures depending on who wants to/can occupy which place for which purpose (Gieryn, 2000). Gieryn (2000) claims that place is not virtual. However, we suggest that the virtual aspect of place increasingly gains importance in science on a global level, as virtual communication and research tools become more and more widespread. Yet these technologies are only accessible to a limited group of people – those who have access to them to start with, and among those only those who have access to costly software such as GIS tools and/or powerful internet connections to download and use freeware.

In opposition to many other authors, Gieryn (2000) requests a succinct distinction between place and space. Space to him is a much more abstract concept, or "space filled up by people, practices, objects, and representations" (Gieryn, 2000:465).The debate around space and place takes place within many different disciplines, not only geography (e.g. David Harvey and Benno Werlen), and sociologists (e.g. Pierre Bourdieu and Henri Lefebvre). Most disciplines nowadays support the so-called "spatial turn" (Bachmann-Medick, 2006),

that emphasizes the social and cultural component of space. Thus, space is the result of social relations (Gieryn, 2000; Harvey, 2005), and space also has agency with an effect on social life (Werlen, 1993). In our work we prefer to talk about place rather than space. For us, the connection between place and space is constituted by interaction. The social construction of places changes by the agency of space (Werlen, 1993). Thus the dynamic nature of space and its impact on social life have a profound impact on the relation we have with places. Furthermore, social relations, modes of representation and place get (re)configured in specific ways through the creation of so-called interfaces. Interfaces are understood as settings where "different interests, relationships and modes of rationality and power" come into play (Long, 2001: 65). Interfaces shape and nourish personal relations; conflicts arise there or may be resolved; (hidden) transcripts (Scott, 1990) can be expressed, goods are exchanged, and promises are made and (not) kept (Long, 2001; Mosse, 2005). They may have existed before projects were created, or they may have emerged during or as a consequence of the projects. But interfaces are also settings in which powerful actors can shape the way alliances, coalitions and networks (can) emerge and thus impact on potential ways of knowing. It is precisely through these different ways of producing and distributing knowledge that power can be exercised (Foucault, 1980; Jasanoff, 2004) as well as through reinforcing or challenging specific socio-technical narratives.

In practice such interfaces come in the form of personal relations between particular individuals, field manuals for extensionists written by scientists, and meetings such as workshops. They are partly created through the use of communication technologies and influenced by different learning styles. Different modes of representation are often applied in order to transfer information from one group of actors to another, such as from scientists to extensionists, from extensionists to farmers. Equally, "participatory methods" are increasingly used for this purpose. However, the range of understandings of what "participation" means in practice is broad; it starts with information and consultation at the minimum level and extends to handing over decision-making to stakeholders at the maximum level (Chambers,1994; Cooke and Kothari, 2001; Oxley Green and Hunton-Clarke, 2003).

The use of communication technologies as outlined above is often rooted in the confusion of "public understanding of science […] with public acceptance of science and innovations" (Felt and Wynne, 2007:55). This leads to the basic assumption that public opposition to technologies can be resolved by simply providing more information (Felt and Wynne, 2007). As a consequence we most frequently encounter what Felt and Wynne (2007:55) have described as the "Public Education Model": science is separate from society, technosciences if well used are sources of progress, mistrust towards science "comes from public illiteracy, ignorance and superstition", and finally "Scientists, who hold the knowledge, have to instruct and educate the public". Yet research showed that people hold quite complex models of science and society relations and that it was distrust of the powerful institutions behind them that created public dissent rather than the risk of the technologies themselves (Wynne, 1991 in Felt and Wynne, 2007).

With our research we want to learn more about the role of social relations, places, modes of representation and the power relations inherent within them in the interactions of scientists with farmers. The object of our research is a case study in the Ethiopian Highlands where several overlapping research projects have taken place. Moments studied during these research projects were: the project inception phase in the field – how to engage with a place and its actors; a multicultural project inception workshop – how to represent research areas and how to negotiate about project planning in a multicultural environment; and finally a specific example – the relations between students and supervisors engaged in such research projects. Based on findings from these encounters we call for a balance in mutual perceptions of each other's ways of knowing, and for diversified epistemologies and learning cultures, creating space for more sustainable decision-making.

Background

A group of experts commissioned by the Ethiopian government selected Galessa as one of three model watersheds as part of the government's strategy on watershed management in the mid 1990s. In 1997 the Holetta Agricultural Research Centre (HARC)[2] became part of the Integrated Natural Resources Management (INRM) project (see below) of the African Highlands Initiative (AHI)[3]. The HARC scientists selected Galessa as a suitable place representing a watershed in the highland areas for this project and it is currently a mandated HARC research area. However, farmers and scientists interviewed for this research usually did not differentiate between the different projects taking place in the same area, but referred to them collectively as "the watershed

project". We therefore use the acronym GWP (Galessa Watershed Project) when not referring to a specific project but to the overall research activities in the area.

The GWP is situated in Dendi District, West Shewa Zone (Ethiopia) (Figure 1) in a high-altitude area of 2900–3200 m with bimodal rainfall patterns (Mekonnen, 2007). Agriculture is the main source of income in the area. The main language is Oromifa, although some understand and speak Amharic as well. Amharic is the official language of Ethiopia. Ethiopia is home to about 80 different languages. The ethnicities of Amhara and Oromo represent the largest part of the Ethiopian population with about one third of the total population each.

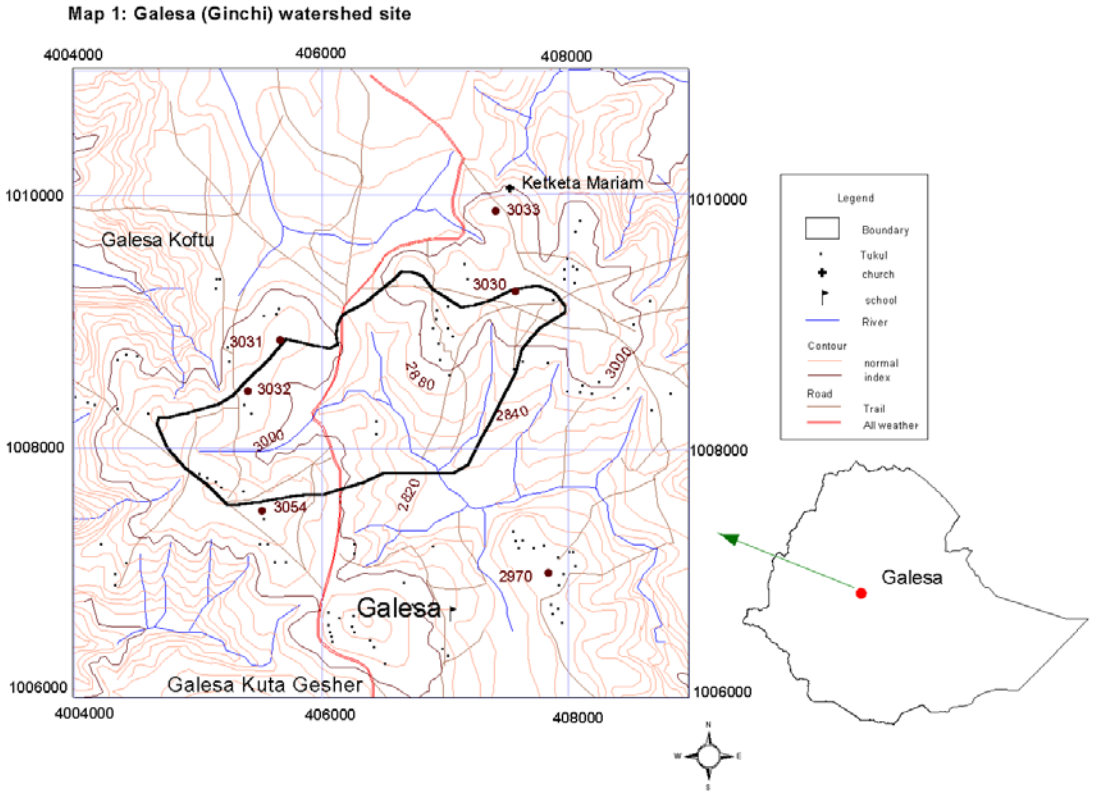

Figure1: Map of Galessa Watershed (produced by Demeke Niguse, HARC).

The population is around 900 people (Admassu *et al.*, 2008). Most people living in and around the watershed originate from the same families and are related. The area seems densely populated, with each of the villages having at least 25–30 households. Social life connects those villages. Farmers interviewed for this research were either working for the GWP, collaborating closely with the GWP (e.g. in farmer research groups) or were selected for their specific knowledge and expertise in relation to tree and soil management, which was the thematic focus of the PhD study of the first author. Some farmers were then selected as a reference group.

The scientists interviewed for this research were partly from the Ethiopian Institute of Agricultural Research (EIAR)[4] and some of its member organizations, and partly from the University of Natural Resources and Life Sciences, BOKU Vienna[5]. They were either working for the GWP at some point or were familiar with the area for other reasons, or they were partners or supervisors of the former. All of them had work experience in multicultural cooperation.

The largest project that took place in Galessa was the INRM project. It was implemented by HARC, the AHI, the Dendi *Woreda* (district) Office of Agriculture and Rural Development (Dendi WOARD) and farmers, and ran from 1997 until 2007. Furthermore, BOKU was involved in some of the research activities through the supervision of an Ethiopian PhD student in forestry and a small project that enabled the PhD student to do some additional research in Galessa Watershed and three other *Kebeles* (lowest administrational unit in Ethiopia, sub-unit of a district) from 2004 until 2007. The PhD student was also project coordinator of the INRM site at Galessa before starting his PhD studies.

The INRM project aimed at contributing towards food security by improving natural resource management and agricultural productivity. The main donor of AHI for this project was the International Development Research Centre-Canada (IDRC). The INRM project went through four phases, but the first stage (1995–1997) was geographically scattered and did not involve Galessa; the second phase (1999–2000) was looking at improving income through farm diversification, intensification, soil conservation and fertility improvement as well as integrated pest management; the third phase (2002–2004) focused more on social issues and process documentation and used participatory and interdisciplinary approaches; and the fourth and final phase (2005–2007) focused on scaling up[6] technologies and knowledge, strengthening local institutions and bylaws (Admassu *et al.*, 2008).

The phases of the project between 1995 and 2007 also reflect the paradigm change within AHI during this time. At the outset AHI's approach was top-down, and then moved gradually into bottom-up and participatory research. AHI is cooperating internationally with the Consultative Group of International Agricultural Research (CGIAR). On a national level it cooperates with the national agricultural research systems.

The output of those four project phases of the INRM project consisted of detailed resource characterization of farming systems, livestock production systems and others. Furthermore, on-farm research was carried out on potato and barley varieties and multipurpose tree species introduction amongst others. Capacity building incorporated training for farmers, scientists and development agents, as well as cross-site visits, field days and workshops. (Admassu *et al.*, 2008)

In 2009 a follow-up project of the INRM project began. It aimed at up-scaling the lessons from Galessa Watershed to other watershed sites. The inception workshop of this new project was also part of our research, because all previous partner institutions and farmers from Galessa Watershed were invited to the workshop.

Methods

The research took place as part of a project funded by the Austrian Science Fund (FWF). This project ultimately wanted to find out more about ways of knowing in farmer–scientist cooperation and was designed by the first author. Thus this paper addresses only a fraction of the entire research findings resulting from this work.

In Galessa Watershed 40 farmers were interviewed on different occasions in two villages inside and one village outside the project area. The villages have about 30 households each. The interviews and provided the opportunity to arrive at an understanding of the social relations in the GWP; to observe the places where the GWP happens; and to learn about the power relations inherent within the villages as well as between the farmers and the scientists and extensionists. Furthermore, for triangulation participatory mapping, seasonal calendars and village walks were carried out. This research was done by the first author jointly with an HARC staff member between October 2009 and December 2010. The first author was undertaking part of her PhD research for this study and the HARC staff member was interpreting for her and assisting with collecting background information. This was necessary because the first author did not speak Oromifa, the language of the farmers and local administrative bodies. Therefore two officials and one development agent of the Dendi WOARD were also interviewed together. These interviews served to capture the perspective of extensionists on the GWP experience, the social relations between scientists, farmers and extensionists, and their experiences with modes of representation and power relations inherent in the project.

During the same time period the first author did research on the perspective of scientists, development organizations[7] and governmental organizations on the case study. She observed a project workshop and field day[8] (when referring to these findings, the first author is therefore called "the observer") in order to understand

modes of representation and places in the GWP. She interviewed 20 scientists as well as staff of development and Austrian[9] and Ethiopian government organizations in relation to GWP to learn more about power and social relations between those actors. Scientists involved in the case study were also interviewed regarding their relationship with their supervisors/students and their experiences while studying abroad.

The part of the research that took place outside of the actual watershed was done by the first author without HARC scientists. The HARC scientists' direct involvement as actors in the case study could have created a conflict of interest. To check on bias in the research with farmers in Galessa Watershed an additional translator was hired for triangulation towards the end of data collection.

Observations were documented with video, photographs, observation notes and a reflective diary. Interviews in local languages (Oromifa and Amharic) were translated into English. The interviews were either recorded and fully transcribed, or recorded by note-taking.

Places, social relations and modes of representation as articulation of power relations in the GWP

In this section we present the nature of encounters in the GWP as a case study, and the example of multicultural student–supervisor relationships in the context of the GWP. The student–supervisor relationship takes students to another country into another epistemological setting and learning culture, and sometimes takes the supervisor to the student's country and the project site. Thus it will allow us to show how place, social relations and representational modes are intertwined and how power relations get enacted in multiple often invisible ways.

Engaging the farmers

At the beginning of the INRM project AHI introduced new communication technologies to the HARC, AHI and EIAR scientists participating in the INRM project. They then contacted the Galessa Watershed farmers and consulted them in village meetings and individual interviews about their problems and preferences for the new project's sites and its specific activities. This communication technology is also documented in Admassu *et al.* (2008); however, we decided to discuss it in detail with several participating scientists.

> They [the scientists] first asked the communities their problems, and we said our first priority is water; also there is a tree planting problem. After that these people who came from Holetta Research Centre promised to solve this water problem as well as to plant these seedlings. Therefore the people agreed. (Farmer, 9.5.2010)

First, a list of 48 different problems was collected – the place for this was in the villages of the watershed in an attempt to relocate power at the farmers' level. According to a scientist, this list was then condensed by the scientists working for the INRM project (INRM scientists[10]) at the research centre. Thus they were again taking the final decision away from the farmers: the INRM scientists decided if some of the problems were referring to the same or similar issues, and which ones were the most relevant (Scientist, 2.11.2009).

The highest priority problems mentioned by the farmers were water supply and tree seedlings. So the INRM scientists developed springs to improve the water supply for people and livestock and started a community nursery. By addressing the lack of water and tree seedlings out of the long list of farmers' needs, the scientists gained an entry point to working with the farmers. During the interviews, Galessa Watershed farmers expressed satisfaction with the progress made so far. But they also emphasized that there were still expectations to be fulfilled by the HARC scientists, such as up-scaling technologies within and beyond the watershed. However, the perception of the scale of place differs between the farmers and the scientists. The farmers meant making the new technologies accessible to their relatives in the villages just outside their watershed, or their neighbours within the watershed, rather than taking them to new project areas, as was planned by the new AHI project. Place is a local concept for the farmers; however for the scientists it reflects quantity (that is, large areas, many different locations).

For the farmers of Galessa Watershed the incentives to cooperate were benefits such as the spring development, introduction of improved crop varieties and the tree nursery. Most of the innovations introduced by the project provide benefits to the whole community rather than individuals. This is in line with traditional Oromo culture, which is based on a system of egalitarian collectivism and solidarity (Levine, 1974). Thus the initial communication technologies used were very much aligned with traditional Oromo expectations about decision-

making processes – the community has to decide. When the INRM scientists introduced themselves to the community with a consultation process rather than a hierarchical decision, they were responding well to the experiences of the farmers in Galessa Watershed with indigenous social institutions, where similar procedures are common. However, on the ladder of participation this would be "participation by consultation" (Pretty and Shah, 1994) or "consultation/consensus building" (UNDP, 1997).

Meeting at a workshop

In 2007 the INRM project finished, but the GWP continues as part of the research mandate of HARC. Due to the success of the INRM project in terms of the outputs achieved, AHI decided to launch a follow-up project in 2009 that aims at scalingup the lessons learned in Galessa Watershed to other areas. The inception workshop of a new project phase of the cooperation between HARC and AHI took place in Addis Ababa in October 2009. Its main focus was"to enhance the productivity of farmers through scaling up of functional technologies and practices but also by working with them in participatory manners" (Alemu, 2009:4).The objectives were to (1)publicize the project initiatives to various stakeholders; and (2) to inventorizeand document the sustainable landmanagement experiences of the research and development partners (Alemu, 2009).

The workshop provided an opportunity for development organizations and scientists to present their work. The presentations were about the work done in Galessa and similar areas, and the most important challenges with regards to up-scaling and putting research into practice. The participants were scientists from a number of Ethiopian research organizations, universities, NGOs, CGIAR, visitors from Uganda and Tanzania, and government officials, as well as both male and female farmers from two *Woreda*s. However, it was not clear to the observer how the farmers had been selected and which role was allocated to them in such an institutional setting.
Addis Ababa was selected as a place for the workshop, and the venue was the conference hall of EIAR. This was the HARC scientists' choice. EIAR is located on a small but beautiful campus with flowering trees, lush green grass and decorative garden plants. The contrast in terms of location to the social world of the farmers, where every square metre of land is used for agricultural production, could hardly have been greater. It takes farmers and extensionists away from their own social worlds into the centre of the scientists' laboratory, the venue being the place where the national elite of agricultural research meet. While it is familiar terrain for scientists, who used the coffee and lunch breaks for lively chats in the corridors, the farmers kept to themselves. The scientists interviewed after the workshop all reported that they had had no or almost no communication with the farmers during the workshop. The workshop, although full of interesting events and presentations, thus failed in bringing *different* stakeholders together to negotiate, exchange knowledge, views and expectations.

The observer perceived a contradiction in the actual set-up of the workshop: on the one hand the organizing scientists invited a large and multicultural variety of stakeholders in order to be inclusive; on the other hand the organizers planned and implemented the workshop as a scientific event not considering different learning cultures. PowerPoint was used to present the introduction, methods, results and discussion, but also to show images to convey more implicit yet powerful messages. The main language was Amharic, but presentations were written in English – yet the farmers' language is Oromifa. The workshop did not provide a place for farmers to make their presentations except for the summary of their group work, and it failed to provide space for equal engagement and joint decision-making.

On different epistemologies in student–supervisor relationships

The case study under investigation also points at the role of universities in global, multicultural cooperation and partnership. The principal scientist working for the project on a long-term basis did his doctorate in forestry within the framework of the GWP. While he himself was an Amharic-speaking Ethiopian, his supervisor was Austrian. The doctoral student received a scholarship and a place at an Austrian university for his studies. This is a common arrangement yet it warrants critical analysis of the role of social relations, place, and power relations inherent in such relationships. It is also important to consider how epistemologies and learning styles are negotiated between the supervisor and the student, and how this may influence further cooperation with farmers; the agenda of a student studying for a limited period of time, funded by a scholarship, may not have much in

common with the agenda of farmers who expect long-term commitments (but immediate benefits) from such cooperations.

The external supervisor in such arrangements is acting in an environment out of his own context and may not even have the chance to visit the country or the study site of the supervised students. In the case of the main researcher in Galessa, his supervisor had visited Ethiopia on many occasions, including Galessa. Other respondents reported that their supervisors had not even been to Africa let alone to their study sites in Ethiopia. Thus the student and the supervisor have a very different degree of familiarity with the places where the research happens.

Supervisors' motivations to engage in such relationships range from chance to deliberate choices in response to an interest in learning more about different ecosystems.

> Well, there is scientists' curiosity on learning new things, on things you have not seen before, you haven't done before, and so it's an expansion of your own knowledge which you can then use in teaching classes. The other is getting people from other cultures, other countries involved in a fairly intense exchange of ideas. This also, is personal gain on both sides. (Scientist, 8.5.2009)

It seems inevitable that a supervisor will, to some extent at least, attempt to socialize the student into his own way of approaching a problem. Even if this isn't done deliberately, it happens because the student attends his supervisor's lectures, studies his supervisor's publications, and engages in scientific debates on the study topic. Cultural differences and hierarchies may prevent students from expressing doubts openly – hierarchies always matter in the relationship between supervisor and student. Furthermore, the legitimacy of the student's presence at a foreign university and entitlement to continued funding depends to a large extent on the approval of the supervisor.

Students also perceive additional benefits from studying in a different place. Many respondents emphasized the benefits of learning more about a different way of managing resources, as well as getting access to libraries and internet facilities and learning about new methodologies and communication technologies. However, such relations also have their tensions. Supervisors express some disappointment with the high expectations of Ethiopian students regarding infrastructure.

> Sometimes I have the feeling that they are coming with wrong expectations. We get annoyed, when they are making such high demands, they are coming as Master students and demand so many things they need for their field research. They say it is not possible without this, and they are so surprised when we tell them NO. (Scientist, 20.7.2009)

The research also indicates that supervisors' perception of the actual fieldwork of the students often differed from the reality. Supervisors are usually not aware that Ethiopian students tend to use technical assistants and enumerators to collect data in the field. This is because scientists and government employees at MSc level have already attained an unusually high status compared to the Austrian academic system. Therefore it is neither desirable nor achievable for them to spend extended periods of time in the field themselves. There are many challenges such as long and difficult trips to rural areas, where there is no hotel, no restaurant, and no electricity. Additionally, the research system does not provide incentives for exposure to such "uncomfortable conditions". Repeatedly, respondents expressed surprise that their supervisors showed no hesitation in going to remote areas and conducting fieldwork in difficult conditions. This was also the case in Galessa Watershed. Scientists, technical assistants/enumerators alike never stayed in the areas during their research and chose to return to Ginchi, the next town, on a 15km mountain all-weather road. It took the first author a few weeks to convince her colleagues that it was both possible and necessary to stay in Galessa Watershed for several consecutive days, if not weeks, to do this research.

The nature of engagement between farmers and students/scientists is of course somewhat restricted by their choice of communication modes/technologies. Initially, scientists may have to "appoint farmers", who are officially requested to be available at a certain time, often by the development agents, who are government employees. In some cases this will influence how a farmer will engage with the scientist, because he may not necessarily be participating voluntarily. Once relationships have been established, scientists interact with farmers through more informal encounters, either individually or in groups (appointed by development agents) or through formal questionnaire-based interviews (mostly carried out by enumerators). Furthermore, scientists tend to arrive late in the morning and leave early in the afternoon. Farmers leave home around 7am and return home

at 6pm so spending time with scientists means compromising their work time. Such communication technologies therefore have their drawbacks.

Similarly, visits of supervisors to the field site may have a rather orchestrated character, where foreigners arrive for a day visit with an unclear agenda in order to get an impression of the site where the student is working.

> And then we saw how some farmers were giving very long speeches expressing their gratitude and acknowledgement for the people coming from so far away to help them. That was a bit of a showdown really…well, of course there were many people there, many cars,okay, all of course arranged meetings, but apart from that I got relatively little insight. […] But the impression that I had was positive, because I got the impression that the research of [XX] really targets application, and it really aims at working with the farmers. (Scientist, 27.8.2009, reporting on a field day in Galessa Watershed)

Discussion

Relations between scientists and farmers are characterized by mutual, often highly idealized, expectations that are hard to fulfil. Unaddressed differences in expectations and failure to meet these expectations may, in the long run, create distrust of the institutions destined to help farmers move out of poverty. But the power imbalance between scientists and farmers, and the methods and technologies chosen for communication make it difficult for farmers to challenge the scientists. At the same time, it seems hard for a scientist to acknowledge farmers' right to make their own decisions. Building successful relations between scientists and farmers is not an easy task and depends heavily on the mutual benefits emerging from this relation: a field site for the scientist, increased production for the farmer.

The venue for the case study workshop was not appropriate for building relations with the farmers; rather it served to strengthen relations between the scientists themselves. A clear power relation was established through the choice of setting. In order to reduce the impact of power relations inherent in place, new and innovative modes of communication with more consideration for multicultural diversity are required . Stakeholders other than scientists should be allowed to decide the location, agenda and participation for a workshop. This could provide space for different ways of knowing, and for the meeting of multiple knowledges (Powell, 2006) and learning cultures.

Following the workshop, a field visit to Galessa took place where the scientists visited the "place of the farmers". A different communication technology was chosen there, where farmers were making presentations on their farms, surrounded by their livestock and crops, visibly empowering the farmers who proudly enjoyed making those presentations.

The enrolment of farmers during the inception phase of the INRM project depended very much on the farmers' willingness to cooperate with the scientists. The scientists had to negotiate with the farmers, for instance over a place for the community nursery. On the other hand, the farmers committed themselves to cooperation with the scientists in providing space and place for the scientists, and in engaging in their activities. This is not possible for all farmers – only farmers with enough land and labour can risk experimenting on a larger scale. In not considering how limited the availability of places to experiment is, especially for poorer farmers, the GWP is reinforcing power imbalances within the watershed.

Place and identity also articulate themselves in student–supervisor relationships. Different epistemologies, languages and resource management contexts are often communication barriers at the outset, when a student and a supervisor may simply not understand each other, and when different expectations collide, as outlined in the case study. Later on, however, when a student returns to his home country, he may have adopted part of this new identity and it will impact on his work and life at home.

The relation between student and supervisor is influenced by many unspoken elements; for example, a student may notice that the supervisor misunderstands the case study context, but will refrain from telling him so. In this case, it is hard for the supervisor to follow up the actual activities of the student in the field, his interaction with the farmers, and even how he collects data. Even if he has visited the country or the site, the actual social worlds and places of the student's work will be so different from his own that mutual misunderstandings are likely to arise. These may also affect the selection of literature and methods for the study, as well as the interpretation of outputs, as epistemologies continue to differ significantly. Undoubtedly there is also a "power of space" issue

inherent in the multicultural relationship between "Northern" supervisors and their students from so-called developing countries. Using modern e-learning and knowledge-sharing IT tools could be introduced into this relationship; for example, students should be encouraged to write blogs, reflective diaries and frequent reports about their fieldwork, and provide audio-visual material, in order to present a clearer picture of their actual field experiences. Furthermore, it should be mandatory for PhD students working directly with farmers to provide feedback channels for farmers through communication technologies such as participatory video; for instance, farmers could accompany the researcher and document the process and the outcome.

Table 1: Main forms of communication in the case study (aspects of communication: one-way, two-way, same time = synchronous, at different times = consecutively = asynchronous).

	Actors	**Modes of communication**	**Outputs**
Contacting individual farmers	Farmers Scientists Development Agents	Two-way synchronous	Informal conversations lead to general exchange between farmers and scientists
Calling village meetings	Farmers Scientists Development Agents	One-way synchronous	Appointments for meetings made
Facilitating village meetings	Farmers Scientists Development Agents	One-way synchronous	Information given to farmers by scientists/development agents
Participatory meetings	Farmers Scientists Development Agents Sometimes external facilitator	Two-way synchronous	Consultation of farmers and possibility for joint decision-making
Consensus building	Farmers Scientists Development Agents Sometimes external facilitator	Two-way asynchronous	Joint decision-making – takes time; however, often final decisions made by scientists alone
Field day	Farmers Scientists Development Agents Visitors from abroad or from other organizations	One-way synchronous	Informing and demonstrating, e.g. to secure funding and international partnerships
Project workshop	Farmers Scientists Development Agents Visitors from abroad or from other organizations (e.g. research organizations, NGOs, donors, etc.) Policymakers	One-way, partly two-way synchronous	Informing, presenting, and discussions to arrive at agreements on project implementation, or to present results (to gain support and continued funding from donors, policymakers, etc.)
IT e.g. email	Scientists, mostly among themselves, and with external partners, e.g. supervisors	Two-way asynchronous	Information exchange
International conferences	Scientists	One-way synchronous	Presentation to an international audience

The content and form of communication technologies cannot be separated. Opening up towards farmers and other epistemic communities means co-designing both format and content. Admittedly, this would require some creativity. Table 1 shows the main communication technologies used in the project by the scientists. Despite efforts made by the project, these remain mostly one-way and singular events without much follow-up, especially not after the project end. To overcome this deficit, more technologically enhanced, dialogic and emancipatory communication styles could be designed that improve learning and communication. These could be useful after project termination, or simply for the future use of farmers when engaging with scientists and extensionists. In other parts of the world, positive experiences have been made with technologies such as participatory video (Chowdury *et al.*, 2010; Chowdury *et al.*, 2011), forum theatre (Sullivan and Lloyd, 2006), digital storytelling (Freidus and Hlubinka, 2002) and action research on a more general level (Eikeland, 2006; Stringer, 2007). We agree with Bell *et al.* (2012) who point out that the most important aspect about "participation" is how the respective methods are used, and that the "how" of engaging people must be carefully planned and structured. As Cooke and Kothari (2001) and others have pointed out, participatory methods are

often applied in ill-considered ways and lacking clear conceptualization. There is no blueprint solution for communicating. But careful planning and structure, testing and developing methods together with farmers, and simply stepping out of the comfort zone might render development projects more successful.

Conclusion

Farmers choose the space they give to the scientists, and to what extent they allow scientists to influence their actual behaviour. The scientists, however, determine the agenda in selecting the technologies, the methods of engaging with the farmers, and the places to meet. While scientists are partly operating in virtual IT spaces, this is still far from reality for the farmers. However, farmers quickly adopt other modern communication technologies such as mobile phones. Hence, the virtual component of space and places to meet becomes increasingly more important and needs to be taken into consideration, while at the same time acknowledging that the most important meeting places for the farmers remain traditional: remnant trees, churches, springs and, in the case of Galessa, the site of the community nursery.

Despite a lot of good will and talk about farmer participation and bottom-up approaches, at the end of the day the farmers were only consulted about their problems and their answers were not surprising. Thus they magically fitted into the ready-made approaches of integrated watershed management used in the case study. But the location in a specific social world has a significant influence on the framing of different ways of knowing, and the way decisions are made. Hence embedding communication technologies in the social world of the less powerful actors in this interaction, in this case the farmers, is a way of overcoming challenges resulting from this dilemma. Participation and negotiation need to start with choice of location and drawing up the agenda, and it should happen in a more dialogic way in order to provide more space for different ways of knowing.

Acronyms

AHI	African Highlands Initiative
BOKU	University of Natural Resources and Life Sciences, BOKU, Vienna
CGIAR	Consultative Group of International Agricultural Research
Dendi WOARD	Dendi *Woreda* Office of Agriculture and Rural Development
EIAR	Ethiopian Institute of Agricultural Research
FRC	Forest Research Centre
GIS	Geographical Information Systems
GWP	Galessa Watershed Project
HARC	Holetta Agricultural Research Centre
INRM	Integrated Natural Resources Management
NGOs	non-governmental organizations

Notes:

[1] Extensionists in our research are the government agricultural advisors of the District (*Woreda*) Agriculture and Rural Development Office as well as the development agents assigned to the rural areas by the same office. Each administrative sub-unit of a district (*Kebele*) in Ethiopia has been assigned three development agents to assist the communities in their development activities in the fields of agriculture, livestock and natural resources.

[2] Holetta Agricultural Research Centre (HARC), a sub-centre of [4].

[3] African Highlands Initiative (AHI): http://worldagroforestry.org/projects/african-highlands/index.html

[4] Ethiopian Institute of Agricultural Research (EIAR): http://www.eiar.gov.et/

[5] University of Natural Resources and Life Sciences, BOKU Vienna (BOKU): http://www.boku.ac.at

[6] Up-scaling of technologies refers to the implementation of technologies that have been successfully tested in one or several smaller areas, in a larger area or in several new areas.

[7] We define development organizations as both governmental and non-governmental organizations explicitly working for poverty reduction and the fulfilment of the Millennium Development Goals. However, to avoid terminological confusion this does not incorporate Ethiopian government organizations that are also working towards these goals. In Ethiopia they are often referred to as 'development institutions'. But they have many other tasks and responsibilities as well and were not created for this purpose only, in contrast to the majority of development organizations such as national and international non-governmental organizations (NGOs) or multi- and bilateral organizations.

[8] A field day is an instrument used by scientists to demonstrate their research 'success stories' to actors who are important to them – either for funding, policy support, research cooperation or to demonstrate a certain academic achievement or research success to peers. It often takes place on a formal level as part of a conference or workshop. Sometimes it is also organized in a more informal way as an add-on to a meeting with visiting scientists or donors. It aims to demonstrate: success in farmer–scientist cooperation – often the farmers are asked to present the improvements they have achieved due to research activities, or their own research activities as part of the visited case study; fulfilment of project outputs (number of trees planted, soil bunds constructed, user groups established, etc.); and it sometimes provides an opportunity for visiting actors to directly engage with the community.

[9] Austria is a donor country and has contributed funds to some of the research activities in Galessa.

[10] "INRM scientists" refers to the scientists assigned from different institutions to participate in the project: AHI, EIAR, and FRC (Forest Research Centre) and HARC, which are part of EIAR.

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