Wall, C. 2006
Managing local and external knowledge in a development research project in Uzbekistan.
Knowledge Management for Development Journal 2(3): 111-122
www.km4dev.org/journal

Managing local and external knowledge in a development research project in Uzbekistan

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Introduction

In this case study I explore the contribution that local and external knowledge can make to development – and how development research can contribute to this in light of one example from Uzbekistan. Whilst the idea that knowledge contributes to development is well established, having been 'authorised' (cf. Evers, 2005) as knowledge by the World Bank and others[i], the mechanisms by which this works and the role that knowledge management can play in contributing to this is less well understood.

In an attempt to understand this process I draw upon field research conducted in 2003-2005 in the Khorezm region of Uzbekistan, a region acutely affected by environmental and economic problems, to which a technical solution (external knowledge) is often proposed. To this end, I worked under the aegis of a specific development research project, managed by the Centre for Development Research (ZEF) and conducted under the auspices of the United Nations Educational, Scientific and Cultural Organisation (UNESCO)[ii]. The aim of the project was to research the economic and ecological problems in Khorezm and to develop potential technology and other solutions to these problems.

At a conceptual level, the introduction and use of science and technology for development is a well-established method in international development as part of an effort to reduce the global 'knowledge divide'. Provided in this case study is an attempt to unravel the concept of participation and to position it within development research projects such as the ZEF/UNESCO project. Likewise, local knowledge and the contribution of indigenous 'know-how' and technology to development is accepted, although less prominent, in development interventions (Richards, 1985; Box, 1989; Chambers, 1984). I draw upon examples from the literature and from my field research in Uzbekistan to illustrate the contribution that local knowledge can make to development and ultimately how development research projects can manage knowledge to assist in this – specifically illustrating how local partnerships and inter-disciplinary collaboration are essential in managing knowledge for development.

Research and development?

In the field of development studies, and in the implementation of development projects, knowledge plays a crucial role. This is especially true in 'development research projects' such as those implemented by ZEF. Yet little discussion is afforded to the role of research in development in general, and in the case of the ZEF project I

study, there has been insufficient critical reflection on what exactly 'development research' is and hopes to achieve. I argue that whilst the role of science, technology and local knowledge are well discussed in the literature of development studies (Mansell & Wehn, 1998; Gerke & Evers, 2005; Ferguson, 2005), the role of organizations focusing on 'development research' is poorly defined. Development studies and development research projects such as the ZEF/UNESCO project often suffer from a lack of clarity in how to manage knowledge for development, as was emphasized in an online discussion hosted on the KM4Dev website in March 2006 (Burman, 2006). Thus what I argue for is a clarification of *why* the research is being conducted, and as importantly *for whom* it is being conducted. To achieve this it becomes necessary to engage with local knowledge systems and to integrate this knowledge into the project. In this regard the literature on participatory development could be well applied to development research. I attempt here to clarify how participation can be utilised, with a focus on rural development and the role that a development research project can play in promoting development. Yet as I explain later, this attempt to make development research participatory is not without considerable challenges. Yet applying participation – both to the local community and within the project between different disciplines – is crucial when utilising research for development.

The concept: applying participatory development to development research

The literature on participatory development and the need for agricultural research in the developing world to implement participatory practices is considerable (Swanson et al, 1997; Richards, 1985; Dougill et al, 2006). Of interest in this paper are the theoretical implications of this for knowledge management practices within a development research project setting. The immediate application of such practise is a need to recognise indigenous and local knowledge, and its holders, as key partners in the research process in bridging the knowledge divide. As Richards (1985) points out, it is no longer sufficient to identify farmers as 'end users' of technology, but rather they must be recognised as partners. This means that their knowledge must be integrated into the knowledge system of the project and that research findings are developed in co-operation with them, not simply 'transferred' to them from the top down (Okali et al, 1994). Doing this requires an alteration of the epistemic culture of development research projects, towards one which is more accepting of different types of knowledge, as well as creating a greater openness to sharing this knowledge.

Such an epistemic culture is not easily created nor changed, yet the management of development research projects can potentially employ a mix of *institutional*, *communicative* and *philosophical* changes to affect incremental improvement (Ferguson, 2005). Similarly, knowledge sharing between different project partners (in-country partners such as Universities and NGOs) can take account of the different 'cultures of science' that exist (cf. Knorr-Cetina, 1999). Yet experiences from the field (including this paper), suggest that this requires more than a practical step towards greater interaction with farmers. Rather a paradigm shift away from 'top-down' research towards participatory research is required (Pottier, 2003) both in interactions with farmers and within development research projects themselves. To affect this, the participatory approach to rural development suggests that the design of a project must be re-engineered away from seeing 'research' as discrete activity,

instead viewing it as a process which is grounded in a certain environment and cultural situation – for which interdisciplinary collaboration is essential. This is perhaps one of the errors in project planning in the ZEF/UNESCO project that my research identified (Wall, 2006). There is an inherent tension here between universalistic scientific knowledge and localised knowledge, a challenge discussed in the following section. But the two are not irreconcilable. Instead, integrating local priorities and knowledge can also serve to improve the efficacy and accuracy of research, by opening new avenues of enquiry and by enhancing the ability for researchers to conduct their work.

It is too easy to discount local knowledge as 'un-scientific' and local perceptions on development as 'un-informed'. It is immensely more difficult, yet immensely more rewarding, to utilise these different forms of knowledge and to integrate these into the research process in a way which utilises different disciplines for what they can best offer. Thus, in conducting development research across borders and epistemic cultures, development research seeks to bridge the 'knowledge divide' between science & technology (external knowledge) and local knowledge.

This is very much in line with current development studies thinking, moving away from the 'Transfer of Technology' (ToT) approach which was the prevalent mode of extension used in the introduction of 'Green Revolution' technologies to the developing world in the 1960s, and much of the 1970s. Here, technology was transferred by way of a 'top heavy and top-down' approach of central governments (Swanson et al., 1997, p9), either national governments in the North, or post-colonial ministries run 'under the aegis of their new administrators' in the South, funded by international donors (ibid). In either sense, the assumptions made by the administrators was one of institutional superiority, whereby the conviction ruled that extension workers and officials were development plenipotentiaries, in possession of 'superior' knowledge, which (if properly applied) would solve the problems of 'backward' farming systems. An almost identical approach was adopted simultaneously, if independently, in the Soviet Union. The shortcomings of the ToT approach are well-discussed in literature, primarily in the inability of ToT to adapt to local conditions and the persistent tendency towards inappropriate – and thus un-adopted – technologies (Swanson et al 1997). Elements of this approach still present themselves in development thinking today; certainly the ZEF project proposals reflect this uni-linear approach to technology development and transfer (ZEF, 2003, p9-10) and a view that closing the knowledge divide requires a uni-directional 'transmission belt' of knowledge, rather than a proactive approach to participation. This crucial difference helps to explain why the transfer of technology approach fails to adequately address the knowledge divide. Yet implementing a participatory approach also has its challenges.

The challenge of development research

> *Integrity without knowledge is weak and useless, and knowledge without integrity is dangerous and dreadful*
>
> Samuel Johnson, 1709 - 1784

Conducting genuine 'development research' which utilises external science and technology is an immense challenge. It requires researchers from a variety of academic fields to work in an interdisciplinary manner towards a collective research effort. Moreover, this research is conducted in a developing region which, aside from the practical challenges involved, requires the project team to take responsibility for the *process* by which they operate. This process needs to be participatory, both in terms of involving local knowledge as well as in integrating different disciplines within development research. The participatory approach to development then requires that this process is one which works directly with local partners, not as end-users or recipients of the research, but as active partners in the research project in an attempt to reduce the knowledge divide between universities in the rich and poor worlds (Swanson et al, 1997; Chambers, 1984). For researchers accustomed to laboratory conditions this can be a considerable problem. Indeed, for all those involved it requires dexterity in the methods of research of adopted, as it is not acceptable to simply supplant Western methods of research into developing countries. Doing so wilfully excludes the local community from the development process and fails to close the knowledge divide.

The approach of 'putting science first' was justified in the project I studied, on that basis that 'world class' research was carried out which 'should not be undermined' by adapting to local methods or lowering to local academic standards (interviews). Whilst I do not dispute the need for quality science, what this argument fails to take into account is the disconnection between local problems (and knowledge) and external methods of addressing these problems. Thus, in this case, it ensured only that the findings of this research were often inappropriate to the conditions in Uzbekistan: if not necessarily technically inappropriate, then socially inappropriate by failing to understand the cultural context in which these technologies had to operate (e.g. labour organisation, farmer education etc.). The result was that excellent science was disconnected from local reality.

Every academic researcher, regardless of his or her discipline, is pressured to produce work which is novel and unique. Their work must provide new insight or research a previously unexplored area or phenomenon in order to be classified as 'new' knowledge. Likewise, whilst they may work in collaboration with others, there must be evidence of individual effort and achievement. In producing this work, researchers are aware that their work will be judged against established standards for their discipline. When collaborating with other disciplines, assumptions on 'validity' are inherent. Thus in conducting any form of interdisciplinary research, academics must confront several barriers. In stating this we should be aware that such a situation is not abnormal or even unexpected. In view of this, it is a challenging ambition to conduct interdisciplinary development research in a country as problematic as Uzbekistan. For example Sillitoe (2004), notes:

> *The problems of poverty are complex, and tackling them demands cooperation between specialists with diverse backgrounds in both the natural and social sciences ... Yet facilitating such interdisciplinary work … has proved difficult.* (pp. 6).

Such difficulties come from a lack of shared understandings of what the problem is and how best to address these problems (Mollinga, 2006). The nature of interdisciplinary research often has a senior and junior partner, whereby the senior partner establishes the research agenda and the junior partner contributes to this aim, which does not allow much scope for advancing their discipline (cf. Knorr-Cetina, 1999). In development research this pressure is exacerbated, as the junior partner often has to 'bridge' the divide between local and foreign knowledge, leaving them in a situation whereby they are looked down upon as 'less scientific' because they are conducting 'low' science[iii]. Thus in my participatory framework for conducting research, I turn the concept of participation into the project itself, which to be effective needs to ensure the participation of a wide range of academic disciplines; this lesson is elaborated below.

Experiences from Uzbekistan

Poverty is a persistent problem in rural Uzbekistan, whether poverty of opportunity and the poverty of optimism, or poverty in an economic sense of an insecure food supply and the paucity of paid work (Kandiyoti 2002, 2003). In a scientific and technical sense it is fair to say that Uzbekistan in general and especially rural Khorezm is 'knowledge poor'. It is this aspect that the ZEF project attempts to address in introducing new science and technology to promote development. Uzbekistan is currently on the losing side of the knowledge divide, and knowledge loss in the post-Soviet period is increasing this divide (Wall, 2006). As such, one of the main aims of the ZEF/UNESCO project is to conduct research and build local capacity in Uzbekistan, as a mechanism to reduce the 'knowledge gap' that has emerged between Uzbekistan and the outside world. However, the manner in which this has occurred to date requires some critique.

Appreciating and accessing local knowledge

If local knowledge is to be utilised for development it must appreciated and valued, yet in the case of the ZEF project local knowledge has been largely ignored. Local knowledge could be tapped in a way that would allow for further local knowledge to develop, by promoting local level experimentation. Yet this has not occurred in Khorezm for a number of reasons (Wall, 2006). What I set out here are some key principles for dealing with local knowledge, based upon my reflections of 'what went wrong' in the project.

According dignity to local knowledge holders

If a scientific researcher or development practitioner wishes to engage with the local knowledge system, they must do so realising that it is they who are the outsiders. Coming from the outside, from a very different epistemology of science and typically from a much wealthier homeland, carries with it a different perception of what knowledge is as well as of the relative value of different forms of knowledge. For instance, a European expert on vegetable production had specific ideas on how their expertise relates to lay knowledge, with an assumption that scientific knowledge is superior knowledge. Yet, in a local context the concept of superior knowledge is a dangerous one, as it often leads to scientists looking down on local knowledge

practices as outdated and outmoded. I was certainly guilty of this from my early time in the field and I have observed such opinions among my colleagues on numerous occasions.

From the benefit of my field experience working as part of a project, I learnt the importance of according dignity to local holders of knowledge. I found that by respecting local knowledge, and by doing this, recognising local knowledge holders as capable individuals worthy of respect – I was more able to access the local knowledge that was so crucial for my thesis. Yet perhaps as important, once I had established a position as an individual who was eager to learn (even if this sometimes meant that I was perceived an ignorant for being unaware of seemingly universal knowledge) I found myself in a situation whereby I could introduce new ideas and knowledge much more readily. By respecting local knowledge holders and learning from them first, when I later introduced new ideas (for example on improved potato varieties) these were far more appropriate to the local knowledge system. In the same way so should research activities in the development projects explicitly seek to access local knowledge and work with local farmers at each stage of the research process, from setting the research agenda, determining their own goals for development, through the research and experimentation stages. Not only will the research be more relevant, but I argue it will be more effective, as it will be able to tap the local knowledge of the stakeholders and will contribute to closing the knowledge divide.

Respecting local specialists

'Masters' or local specialists are key to understanding local knowledge in Khorezm. These masters are local individuals who are recognised within the community as thought leaders, holding superior, specialized knowledge on various aspects of rural life, and their *technical* specialization owes much to their *social* role as experts. As discussed above, it is crucial that these masters be respected for their knowledge and as such their participation in any research or development activity is essential. Identifying these masters can only be achieved by in-depth research in-situ, a form of research which the social sciences have a well-established set of methods for. Once these masters have been recognised, the project needs to seek their input in a respectful fashion. This entails involving them in the research process, allowing them to form their own opinions on which technologies are appropriate and which are not. Crucially, foreign projects must accept these opinions as valid and act upon them. In doing so, they are empowered as 'knowledge brokers', advising others within the community and acting as a central source of information, while acting as conduit for new knowledge as it is passed down from the state. Training and skills provided to masters are moreover disseminated further throughout the community.

The latter needs to be more than a formulaic training of trainers approach which introduces 'new' knowledge to be implemented without local adaptation or innovation – the sort of knowledge 'transmission belts' which fail to bridge the knowledge divide. Rather, by convincing and involving community thought leaders, others within the community will follow.

All too often the assumptions of scientific superiority are made by foreign projects, resulting in ill-advised and undesired interventions in the rural community. Even so,

one needs to be wary of masters merely seeking to extend their social position, especially if these masters are part of the knowledge governing system, for example agronomists in the *hakimyat* (mayors office) who play a crucial role in supporting the state procurement plan (Wall & Lamers, 2004).

Understanding how local knowledge is culturally embedded

Local knowledge does not exist in a vacuum. Rather the system by which local knowledge is created, shared, stored and used, is determined by the cultural context in which it operates. Specific aspects of Uzbek culture in Khorezm lead to social constructs – such as the primacy of the master and the gendering of agricultural labour – yet many organisations fail to account for the culture and society in which they seek to work. For instance a German NGO working in Khorezm in 2005 invited a German national to lecture local farmers on livestock and dairy production. Leaving aside the egregiously inappropriate nature of much of the training (which for instance assumed access to a sterilisation plant) the training was organised during the cotton-picking period – the busiest weeks in the rural calendar – and perhaps worst of all, involved only men. Without engaging in a down-stream study, the chances of women (those who feed and milk cows) gaining much from this training seminar are minimal. This is just one example of the dangers of failing to recognise that local knowledge is culturally bound and that any intervention into this system must be done in a manner both cognisant of and sympathetic to the culture. In the Khorezm case, there is a need to recognise the authority of agronomists, the risk of political interference (especially in the case of cotton and wheat), the important role that gender relations play in agricultural production and the historical 'development' of Khorezm during the Soviet period. All in all, thorough scoping of the social and cultural aspects of the development problems in the region are just as necessary as a technical and economic analysis.

From a development research perspective, the greatest challenge to understanding local knowledge in its cultural context is the recognition that knowledge is culturally embedded. The top-down approach which scorns 'local' knowledge as 'unscientific' is unhelpful. The first step is thus an acceptance of the validity of local knowledge, followed by an effort to engage with local knowledge on an equal basis. Assuming scientific superiority may well be justified from an academic perspective, yet as a way of ensuring development outcomes, it will almost surely fail.

Utilising different disciplines

The participatory approach to development research is not one which applies only between projects and locals. Rather *within* the project it is necessary to involve and respect different disciplines. The values of according dignity and respect remain important when operating between different disciplines, as does the importance of recognising the cultural (or epistemic, cf. Knorr-Cetina, 1999) grounding of different forms of disciplinary knowledge.

In the ZEF project, deliberate attempts were made by the project management to integrate different disciplines. Yet this was managed in a top-down fashion, by the dominant discipline, which determined *what* knowledge was to be utilised and *how* this knowledge would be used. In principle all forms of knowledge were considered

valid within the project and are judged according to the standards of their discipline. However, because of the dominant epistemology in the project design which heavily favoured the quantifiable over the qualitative, certain forms of knowledge were more easily validated than others, because the project culture and structures were better able to use them.

In the ZEF project many of the decisions on what knowledge was valid were taken in the first project stage, in an attempt to promote interdisciplinary collaboration, yet because this process was top-down, rather than participatory, it failed to account for the different epistemologies within the project. By assuming a positivist stance the project, unwittingly, managed to preclude forms of knowledge which could have been very useful especially for integrating local knowledge (largely qualitative in nature) into the research. To this end the scientific culture of the ZEF project was biased, by design but not by intent, towards quantifiable data which was perceived as 'hard' and verifiable. Indeed, the need to do qualitative and subjective research was acknowledged as playing a contributory role, adding understanding and depth to the quantitative research – yet *how* this knowledge was to be integrated was determined in a non-participatory manner, thus reducing its effectiveness.

Maintaining a constant willingness to learn and accept

When dealing with local knowledge, and with knowledge within a project, it is vital to remain constantly open to learning. The local knowledge of any community is a complex and at times conflicting set of ideas and concepts; seldom explicitly understood by the entire community, local knowledge is constituted of all the parts of the community in which it is based. From my field research I found that for each discrete area of knowledge I researched, it interlinked with every other area of rural knowledge. For example, crop rotation as an agronomic decision was linked with land tenure – a political consideration – and opinions on household nutrition – gendered knowledge. As such, local knowledge cannot be defined into neat disciplinary areas, but without interaction with the local knowledge system, research results invariably miss important information.

One example from the ZEF/UNESCO project was a survey of local opinions on trees, which identified some interesting findings, yet completely missed the issue of tree ownership, because of preconceived views by the researchers through which they missed a crucial question in a system of post-collective agriculture where private ownership is only now being established. Yet my own investigations showed that there is significant knowledge of tree ownership in Khorezm, with each person owning certain trees in discrete areas, planning planting on the basis of anticipated future need. When disciplines do not collaborate, such mistakes are inevitable, but to institutionalize this 'learning' approach to knowledge within a research project is not easy. It involves a culture shift within the project, engineering a culture of learning and openness which may sometimes seem inimical to 'scientific' research. This involves leadership, policy changes, staff training and most crucially a shared vision of why learning is important and how this contributes to a clearly articulated goal. Yet, if science and technology are to be used for development – then the local knowledge of the community needs to be acknowledged and respected – and research conducted in terms of joint learning rather than as an extension exercise.

Conclusions

Science and technology have an important role to play in promoting development and bridging the knowledge divide. But the introduction of 'external technologies' should take into account the local knowledge of the community, because bridging the knowledge divide must be a two-way process, incorporating both local and external knowledge. I have set out in this case study a framework based on experiences from the field, in which we can begin to better manage local and external knowledge for development. This framework is one whereby participation forms the core of development research projects: both within the projects and in their collaboration with local partners. Science must engage local knowledge in devising new technologies for development in order to ensure that the technologies are appropriate to the local situation. This participatory approach is not only essential for achieving relevant development outcomes from the research, but also for closing the knowledge divide. The paper presents a series of reflections on my time in the field, working in a development research project in rural Uzbekistan. My research experiences taught me to afford dignity to local partners, respect local knowledge and experts, better acknowledge the cultural context of knowledge and maintain a constant willingness to learn. With these principles it was possible to work in a collaborative manner towards developing locally appropriate and accessible technologies in a sustainable manner. It is encouraging that downstream activities of the ZEF project are set to make use of participatory methods in the future. All in all, if science and technology are to contribute to development and to bridging the knowledge divide, development research must involve local knowledge and indigenous actors as partners in the development process.

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Abstract
The contribution that science and technology can make to development is well understood – but for new 'knowledge' to have an impact it must connect with existing local knowledge, thus bridging the knowledge divide. Presented here is a discussion of how development research projects can make a positive contribution to development, through the use of science and technology – coupled with local knowledge. Drawing on field research conducted in rural Uzbekistan, under the aegis of a natural science driven project, I reflect here on the meaning of 'development research' and make a case for combining external scientific research with practical development interventions as a means of bridging the global knowledge divide. Specifically, through the use of participatory methods, accepting that development research is a process. I discuss my experiences in learning from local knowledge, outlining the principles of affording dignity to local partners, respecting local knowledge and experts, understanding the cultural context of knowledge and maintaining a constant willingness to learn. With these principles I present how it is possible to work in a collaborative manner towards developing locally appropriate and accessible technologies, and the importance of doing so in a sustainable manner.

About the Author

Caleb Wall has been consulting and researching agrarian transition, private sector development and corporate social responsibility in Central Asia for the past five years. His current interests include the role of knowledge in driving development processes, private sector development and CSR in the extractive industries. This research was conducted as part of his PhD study, recently completed at the University of Bonn (Germany).
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Acknowledgements
This paper is based upon research conducted under the ZEF/ UNESCO project 'Economic and Ecological restructuring of land and water use in Khorezm', funded by the German Federal Ministry of Education and Research (BMBF: 0339970A).

Endnotes

[i] For instance, with the 1998 World Development Report subtitled 'Knowledge and Information for Development' as well as the technology led development approach of many donors, such as Germany

[ii] "Economic and Ecological restructuring of land and water use in Khorezm", funded by the German Federal Ministry of Education and Research. www.khorezm.uni-bonn.de

[iii] The exception is anthropology, which values this bridging skill, yet this discipline has traditionally frowned upon 'impure' anthropology which seeks to change (develop) the community which is studied. This poses another, although very different, challenge to interdisciplinary collaboration.