RURAL LIVELIHOODS AND IRRIGATION MANAGEMENT TRANSFER: CASE-STUDY OF THREE COUNTRIES IN THE FERGHANA VALLEY OF CENTRAL ASIA

'Neither infrastructure nor institutions can solve the water crisis. People are the ones who determine whether both infrastructure and the institutions work. Therefore what is needed is People-Centred Approach, finding the solutions By the People, For the People and With the People'
(SIWI, 2005)

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1. INTRODUCTION

The period of transition proved to be very painful for the rural populations in the Ferghana Valley, shared by Kyrgyzstan, Tajikistan and Uzbekistan. More than 50 per cent of the population became poor (Anderson and Pomfret, 2003: 27).

In a considerable number of cases, rural poverty is caused by worsening access to irrigation water. Irrigation water is an asset and its availability increases or reduces household capacity to produce income in combination with other assets. It largely contributes to food security of the rural population. In particular, irrigated agriculture contributes 30-40 per cent to the Gross Domestic Products (GDPs) of these three Central Asian countries (World Bank, 2003). Apart from irrigated agriculture, almost every non-farming livelihood activity of the rural poor needs water (Ellis, 2000; Lankford, 2005).

The water sector used to be subsidized in Central Asia, which became unaffordable after the FSU's break-up. As a result, the basic infrastructure started to deteriorate and agricultural yields dropped. The governments decided to introduce institutional reforms in the water sector and transfer the responsibility for operation and maintenance (O&M) of irrigation systems to water users. A key element of irrigation management transfer (IMT) became the creation of Water Users Associations (WUAs) and Canal Management Organisations (CMOs). The intention of this reform was to benefit farmers due to improved efficiency and reliability of water service as a result of their participation in decision-making process. However, the research shows that rural poor often get additional responsibility and costs from IMT rather than benefits and authority to participate in decision making (Zaman and Bandaragoda, 1996; Vermillion and Graces-Restrepto, 1998). It is also recognised that IMT can be successful only if the rural population benefit from this reform (e.g. Lankford, 2005); and if the rural people are capable to finance irrigation (e.g. Ul-Hassan, 2002). Moreover, IMT need to be pro-poor if MDG of poverty reduction is a target. Thus, the rationale for this livelihoods research was a need for better understanding of the current impacts of IMT at a household level as well as the potential of IMT to contribute to poverty reduction in the Ferghana Valley. In other words, this case study seeks to answer two questions: 1) how important the access to irrigation water for rural population; 2) what is the current impact of IMT on the rural poor.

The paper is organised into four sections. The second section describes methodology for this research. In particular, it explains the conceptual framework, guiding data collection and analysis; pinpoints data needs for this research; describes the methods used for sampling; and presents the design for this research, justifying its advantages and limitations. The next section reports the research findings. It gives the answers to the above mentioned research questions. Section four summarises and concludes the paper.

2. METHODOLOGY

2.1. CONCEPTUAL FRAMEWORK

The conceptual framework guiding this research is the body of work known as the livelihoods approach or framework (Scoones, 1998; Bebbington, 1999; Carney et al, 1999; Ellis and Freeman, 2005). In water sector, livelihoods analysis is essential. Firstly, it builds on better understanding of multiple perspectives and values water as economic capital (agricultural input, domestic needs), physical capital (irrigation infrastructure), managerial and institutional capital (water organisations), social capital (collective action) as well as political capital (Ashley and Carney, 1999, cited in Nicol, 2000). It assesses gains and losses of the rural poor from water reforms (Lankford, 2005). It improves the knowledge of the context from the local level upwards and helps to analyse opportunities and constraints of the rural poor to benefit from the changes within the given context (Nicol, 2000). It helps to identify what options have better potential to reduce poverty within the given context and what enabling conditions, policies and incentives are needed for the poor to increase the range of better livelihood options (Scoones, 1998; Ellis, 2000; Moriarty et al, 2004; Lankford, 2005).

Some distinctive features of the livelihoods framework are that it takes an 'all-round' view of people's means of gaining a living, including the social and institutional circumstances in which people's livelihoods are embedded. At the centre of the approach is a relationship between the assets or resources that people own or can obtain access to, including land, irrigation water, skill and education levels of family members, which are categorised as natural, human, social, financial and political capitals (Scoones, 1998; Nicol, 2000; Ellis and Freeman, 2005). The households utilise these assets in their productive activities in order to create income and satisfy their consumption needs, maintain their asset levels and invest in their future activities. The access to the assets is strongly influenced by: 1) the vulnerability context; 2) policies and institutions (Figure 2.1).

Insert Figure 2.1

2.2 DATA NEEDS

The combination of qualitative and quantitative data was needed for this research in order to enable a rigorous investigation without omission of important details and insights, different perspectives as well as statistics (e.g. Kandiyoti, 1999; Grbich, 1999: 61; Bryman, 2004: 454-8; Burgess 2001; Chambers, 2004; Kanbur, 2004). Guided by the stated research questions and conceptual framework, the following data were collected:

- Qualitative data: access to basic resources; water uses; adequacy, reliability, equity and timeliness of irrigation water supply; crisis months and problem scoring; feedback on existing institutions and current context; list of income-generating activities; income and expenditure patterns; information on factors, contributing to higher profitability of the listed income-generation activities; incentives and disincentives to undertake the listed income-generating activities; retrospective data about incomes and activities. The non-numeric information, collected through the sample survey, was quantified through ranking, rating, scoring and dichotomous or categorized questions.
- Quantitative data: demographic and economic characteristics; farm sizes; income and expenditure of every income-generating activity; ISF rate and its collection.

2.3. RESEARCH LOCALE

This research was conducted within the Integrated Water Resources Management Project in the Ferghana Valley (IWRM-Ferghana Project)[1]. The project started its implementation in 2002, locating its activities on three transboundary canals, namely South Ferghana Canal, Gulyakandoz Canal and Aravan-Akbura Canal, administratively located in Uzbekistan, Tajikistan and Kyrgyzstan respectively. The project sites were identified by the Project Steering Committee after the project inception phase in

January 2001. In 2004, the project had pre-defined three pilot WUAs for livelihoods research in order to assess the capacity of rural households to take over O&M of irrigation systems.

The rationale behind selection of three research sites was that the populations in these three countries had the same history during the period that preceded the break-up of FSU. The FSU's break-up has caused fragmentation of their single economic system – the Ferghana Valley. In addition, each of three countries has chosen a separate approach to reforming its economy. This has provided a unique opportunity for comparison of the transition experiences amongst these three countries.

2.4. DATA COLLECTION AND ANALYSIS

The design leading this research incorporated three phases of data collection with monthly regular field during six months in 2004, which enabled capturing seasonal variations in the livelihood strategies of the rural poor and triangulation of the qualitative and quantitative methods of data collection.

During the first stage of data collection, qualitative data were collected through observation and in-depth informal and guided interviews with flexible open-ended questions, supported by the Participatory Rural Appraisal (PRA) research methods (Grbich, 1999: 93-4).

The structured questionnaire, drafted on the basis of the collected qualitative data, was then pilot tested three times in order to improve the question wording, structure and content before the sample survey.

During the second stage of data collection, quantitative and quantified qualitative data were collected and statistically analysed.

3. RESEARCH FINDINGS

3.1 ROLE OF IRRIGATION WATER IN RURAL LIVELIHOODS OF THE FERGHANA VALLEY

The well-being of rural livelihoods in the Ferghana Valley was endangered by seasonality. The research findings showed that the non-vegetation season during winter and early spring was the most severe in the research area (Figure 3.1). The number of crisis months per year was highest on Uzbek research site. This can be explained by a more restrictive context to diversify livelihood activities by the rural poor. July remained the most comfortable month due to harvest from the kitchen gardens. October was a relief month on Tajik and Uzbek research sites due to payments from cotton collection. In addition to seasonality, rural households were threatened by floods or sudden frosts in spring and droughts in summer.

Insert Figure 3.1

To cope with the above mentioned stresses and shocks as well as maximise and protect income, rural households pursued a number of strategies where irrigation water was one of the most essential inputs, such as: diversification of livelihood activities; reliance on in-kind income and savings; and self-sufficiency in food.

Most of the livelihood activities in the research area were related to the irrigated agriculture: crop growing, poultry farming, livestock rearing and regular employment. The households with the most secure livelihoods were managing a number of small businesses simultaneously. There were also a few non-farming activities, such as brick-making, box-making, baking and selling bread or day-to-day self-employment outside the village. These non-farm activities were also indirectly dependent on access to irrigation water. For example, box-making for exporting fruit to Russia would not be possible if there was no water for irrigation of the fruit trees and growing poplar tree for construction.

To make savings, rural households invested in livestock, which was identified by the interviewees as their 'savings account' – the surplus cash in a household was generally invested into livestock and if there was a need for cash then the livestock was sold. Moreover, livestock rearing was one of the most profitable activities in all three sites, bringing double returns the problems related to

livestock rearing were: lack of initial investment, lack of vaccination and fodder. As a result, the share of income from livestock rearing was relatively smaller than the share of income from growing vegetables.

Furthermore, kitchen gardening and poultry farming were the most common sources for meeting subsistence needs. Every household was doing the best to be self-sufficient in food. For example, they were preserving or drying vegetables and fruits from their kitchen gardens for winter; a large number of households kept a part of their harvest for sowing next season. In severe crisis, households had to sell some of their home utensils in order to cope with the stress.

Thus, irrigation water was an essential resource in meeting subsistence needs of the rural poor and for any livelihood activity in the research area. In particular, irrigation water was substantial for the rural poor in order to:

- Diversify farming and non-farming activities and cope with seasonality of income;
- Food security of the rural population;
- Make savings;
- Get benefits and salary from employment.

Finally, access to irrigation water was essential for domestic purposes, such as laundry, washing, bathing and cleaning, which was widely discussed in the literature (e.g. Bhata, 1997; Dinar and A.Subramanian, 1997; Hussain and Hanjra, 2002). Moreover, irrigation water was also the only alternative for drinking and cooking in the research in places with no access to potable water.

Therefore a lot of problems of the rural poor could be removed due to improved access to irrigation water. The next section explores the constraints of the rural households to better access to irrigation water in greater detail.

3.3 IMT AND THE RURAL POOR

The implementation of water reforms began in the mid-1990s in Kyrgyzstan and a couple of years later on Tajik and Uzbek research sites. The primary solution was seen in water management reorganisation, implying that the water users have to take-over full or partial responsibility for O&M costs through collection of ISFs whilst gaining greater rights to govern water management services and ensuring improved access to irrigation water (Ul-Hassan et al, 2004). However, as shared by the interviewees during focus group discussions within this research, farmers would be willing to pay ISF only if there were more benefits than costs in returns. One of the expected benefits was seen in a better quality of the irrigation water supply. The collected data illustrated that in a number of cases, the water supply was quite inequitable (Table 3.1). More than a third of the interviewees on Kyrgyz and Tajik research sites and the overwhelming majority of farmers on Uzbek research site complained about timing, adequacy and reliability of water distribution to their farms. On Tajik research site, the interviewees also raised the concerns about proximity of irrigation canals to their small-size leased farms.

Insert Table 3.1

The farmers also named a number of other concerns, which should be resolved in order to improve their willingness to pay ISF. For example, the farmers on Tajik research site were very dissatisfied with the level of ISF, which was five and a half times higher than in Kyrgyzstan. The level of ISF in Tajikistan was very high because of unfavourable topography: most of the arable area needed water lifting for irrigation. As a result, the irrigation cost was about seven per cent of the farmers' average gross margin and five per cent of the average gross farm costs. Moreover, ISF rate was same for those using gravity irrigation schemes and those with areas irrigated by much expensive lift irrigation schemes. As a result, the users of gravity irrigation schemes complained that they wanted to pay ISF differentiated by the irrigation source. But in this scenario, the farmers with pump irrigation would pay even a higher level of ISF.

The data analysis showed that Kyrgyz farmers had the capacity to pay ISF as the levied ISF formed three per cent of their gross farm costs. The collected data also showed that 95 per cent of water users on Kyrgyz research site paid ISF in kind because they did not have cash.

In general, more than 70 per cent of the overall household income was in kind for the overwhelming majority of the interviewed households. It was very difficult to sell agricultural produce because of oversupply of vegetables on the local market and very low sales price during the harvesting season as well as high transportation costs. For example, more than 90 per cent of the interviewed rural households on Tajik research site had net losses in cash from their kitchen gardens. The situation was comparatively better on Uzbek research site due to closer location of the village to the city market, which considerably reduced transportation costs.

Thus, cash income was never reliable and predictable for interviewees: it varied from season to season and year to year, depending on yields, seasonality and market prices. As a result, ISF was paid in kind, which weakened the financial viability of the visited WUA in Kyrgyzstan. The WUA had to sell in-kind ISFs and had losses because: 1) a part of 'payments' in carrot and tomatoes spoiled; 2) there were unaccounted transaction costs; 3) ISF payments were delayed. Finally, the WUA management was selling carrots and tomatoes instead of managing water distribution.

Furthermore, the future performance of irrigation infrastructure largely depends on proper maintenance. An anonymous government official informed that the current ISF rate was not sufficient for covering 50 per cent of the required maintenance costs. Thus, on the one hand, if ISF is not increased and there are no subsidies, then there will be no sufficient resources to maintain the irrigation infrastructure. As a result, the performance of irrigation systems will further deteriorate and the rural poor will not receive water, required for their food security, as discussed in the literature (e.g. Bhata, 1997; Dinar and A.Subramanian, 1997; Hussain and Hanjra, 2002; Hussain et al, 2003). On the other hand, if ISF is increased, then the irrigation costs can double or triple for the rural poor who already hardly earn any income within the given context.

Finally, the interviewees shared that overall context identifies their capacity, willingness and incentives to pay ISF. There is a need to enable the rural poor to generate better incomes from their livelihood activities, to support and stimulate rural population to invest into activities that lead to economic growth and employment. Nevertheless, the government officials still generally measure the IMT success in terms of the quantity of registered WUAs or by the amount of collected ISFs.

Having looked at the concerns of the rural poor in relation to IMT, the next section summarises and concludes the paper.

4. SUMMARY AND CONCLUSIONS

This research investigates the role of irrigation water for rural livelihoods and highlights the current constraints, impacts and potential of IMT to contribute to poverty reduction in the Ferghana Valley, shared by three FSU's countries of Central Asia, namely Kyrgyzstan, Tajikistan and Uzbekistan.

The research findings confirm that the limited access to water is one of the principal constraints for improving rural livelihoods in the Ferghana Valley. Firstly, agriculture, such as arable farming and livestock rearing, appears to be the major source of income and food security for the rural poor. Secondly, the better access to irrigation water enables the rural people to diversify their income sources, including non-farming livelihood activities, and to make savings. Therefore, the improved access to water has a considerable potential to decrease livelihoods vulnerability and reduce poverty in the research area.

However, the current impact of IMT was mostly seen by the interviewees as an additional cost rather than a benefit. The research shows that regardless of a number of differences in the state policies and legislation, these three countries still have a similar process of IMT implementation. Therefore, there are similar impacts of IMT at the level of rural households. For example, the water distribution was inequitable on Kyrgyz research site: the larger landholdings had better access to

irrigation water than the smaller landholdings. On Tajik and Uzbek research sites, access to irrigation water for kitchen gardens was dependent on employment at large quasi-state cooperative farms. The researched WUAs in these three countries operated as water departments of the former Kolkhozes: WUA was perceived as another state organisation by the rural poor; the rural poor did not participate in the WUA governance process and were not aware of their rights; WUA management was not accountable to the water users; and water users did not get a better quality service. At the same time, the rural poor were supposed to pay ISF in order for O&M of irrigation systems. The research revealed tension between the need to collect ISF on the one hand and the willingness and capacity of the rural poor to pay ISF on the other hand. The interviewees shared that they would be willing to pay ISF only if there were more benefits than costs in returns.

Furthermore, the findings of this research reveal that the rural poor mostly received there income in kind and therefore they could not pay ISF in cash, which was the requirement by law. This further weakened the financial viability of WUAs. The ISF charging was also inequitable as it did not consider technology: lift irrigation versus gravity flow schemes. As a result, the share of ISF in the production costs was considerable. At the same time, the ISF level was less than a half of the required level for meeting O&M costs. Thus, a higher level of the ISF was needed in order to maintain the infrastructure. However, the higher level of ISF will further reduce already small revenues of the rural poor, if there are no enabling conditions to generate better profits. Therefore enabling conditions are essential, if poverty reduction is the target. The enabling conditions are defined by the current state policies, laws and implementation mechanisms. There is a need to recognise the important role of irrigation water at a household level. In particular, there is a need for enabling conditions to generate better incomes by the rural poor. Ideally, the first policies to reconsider are related to land, water, markets, taxation, banking system and institutions. Then IMT will have a great potential to benefit the rural poor and succeed. As a result, the rural poor will have better access to irrigation water and further diversify their livelihoods activities, improve their food security, increase their economic returns and have capacity and willingness to pay ISF. Otherwise, imposing the additional burden of maintaining irrigation systems, without strengthening institutions, opening economic barriers, improving the access to basic resources as well as creating the enabling conditions for the rural poor to derive better incomes, will only drive the poor of the Valley into further poverty.

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FIGURES TO INSERT

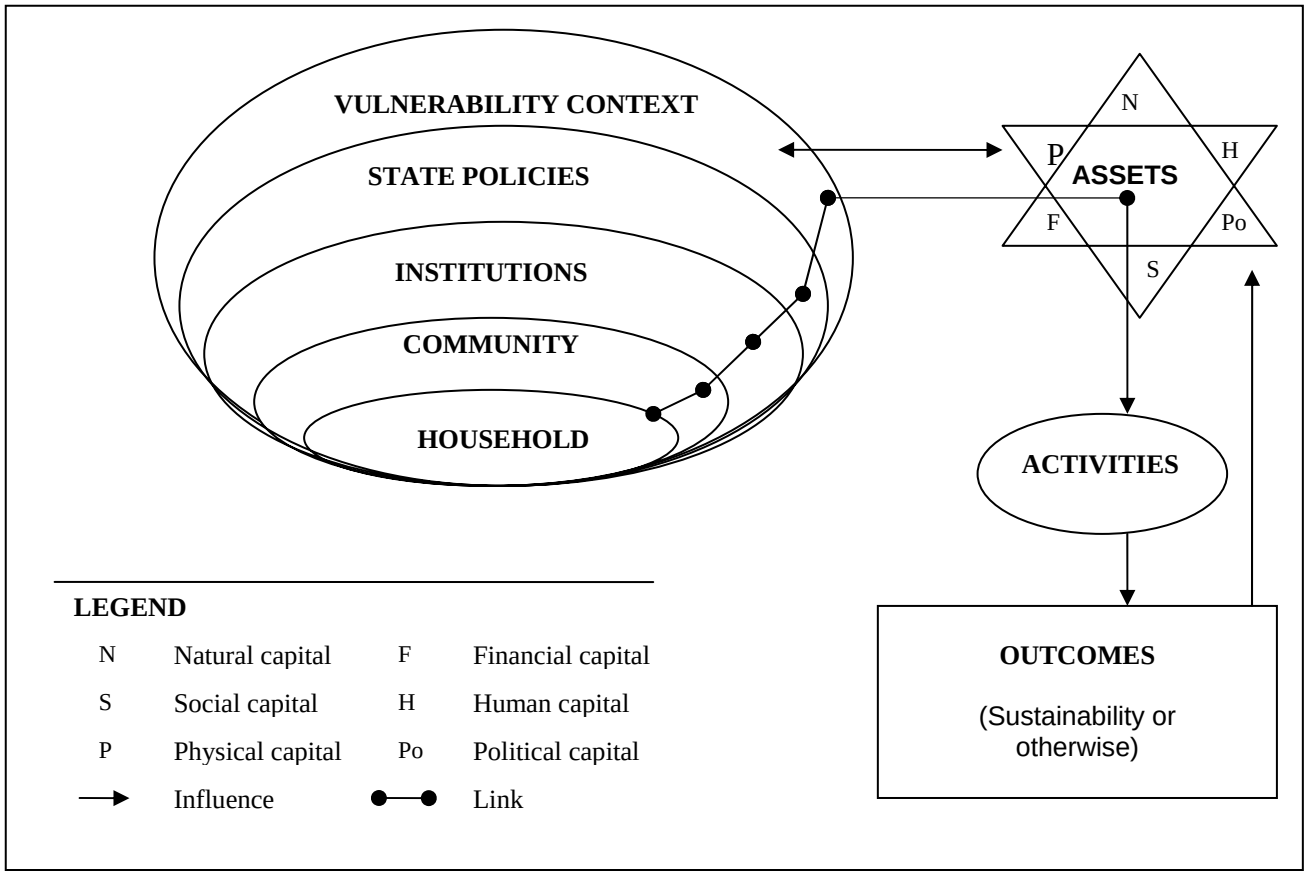

Figure 2.1 Adopted livelihoods framework (Scoones, 1998; Bebbington, 1999; Carney et al, 1999; Nicol, 2000; Ellis and Freeman, 2005)

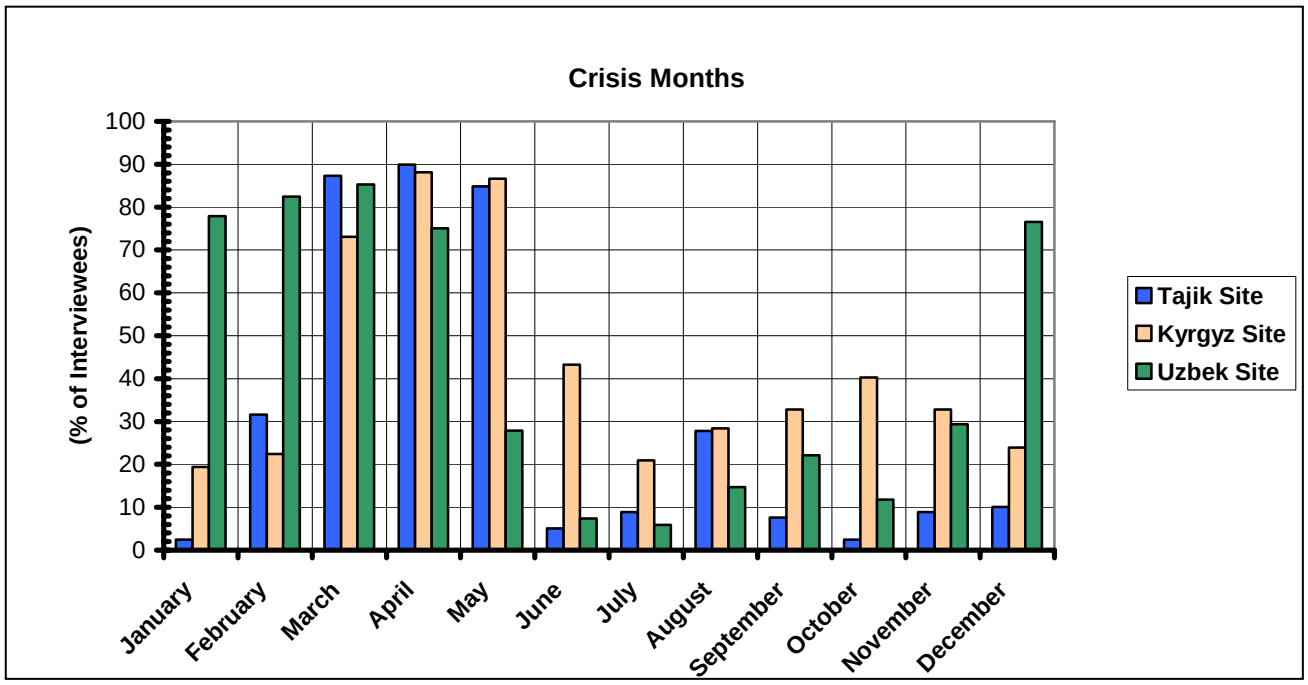

Figure 3.1 Crisis months as a result of seasonality (source: sample survey data, three research sites, April-May 2004).

TABLES TO INSERT

Table 3.1 Quality of irrigation service

Group Ranges (Score)	% of Sampled Households				
	Tajik Research Site		Kyrgyz Research Site		Uzbek Research Site
	Kitchen garden	President farm	Kitchen garden	Peasantry farm	Kitchen Garden
Very Poor (< = 10)	2	14	6	7	2
Poor (11-15)	30	29	26	27	84
Good (16-20)	25	14	54	52	11
Very Good (21-25)	43	43	14	14	3
Total, % of Interviewees	100	100	100	100	100

Source: sample survey data, three research sites, April-May 2004.